LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 19

2021

Bate Stamp Numbers
01040619 – 01042335

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2021

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

VOLUME 19

2021

A. Title: (Cont'd) Report – Level IV DoD Lab Reports for the Final Third Annual Remedial Action Operation Report, LHAAP-35 B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, December 2020
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 15, 2020
Bate Stamp: 01040619 – 01041288

Item A above was supposed to be placed in the Oct–Dec 2020 AR quarter; however, it was left out, so that is why it is included in this Admin Record.

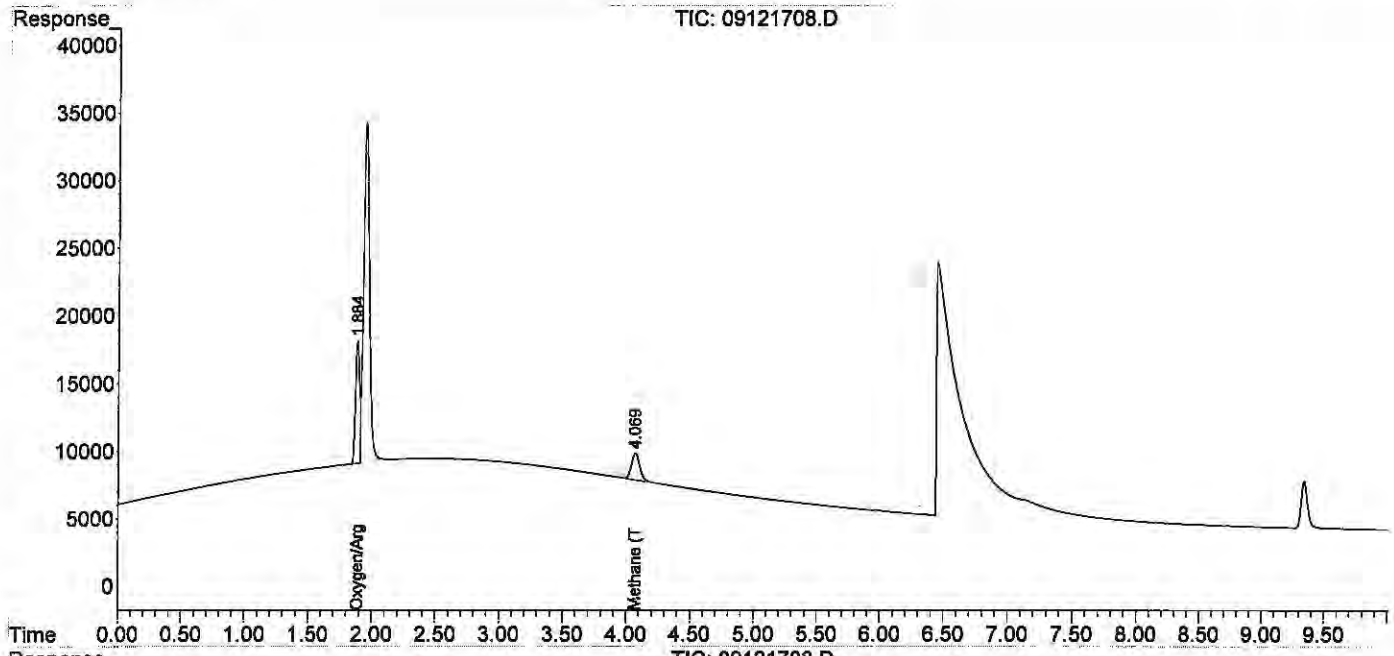
B. Title: Report – Draft Final First Annual Remedial Action Operation Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, June 2021
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: June 25, 2021
Bate Stamp: 01041289 – 01042335

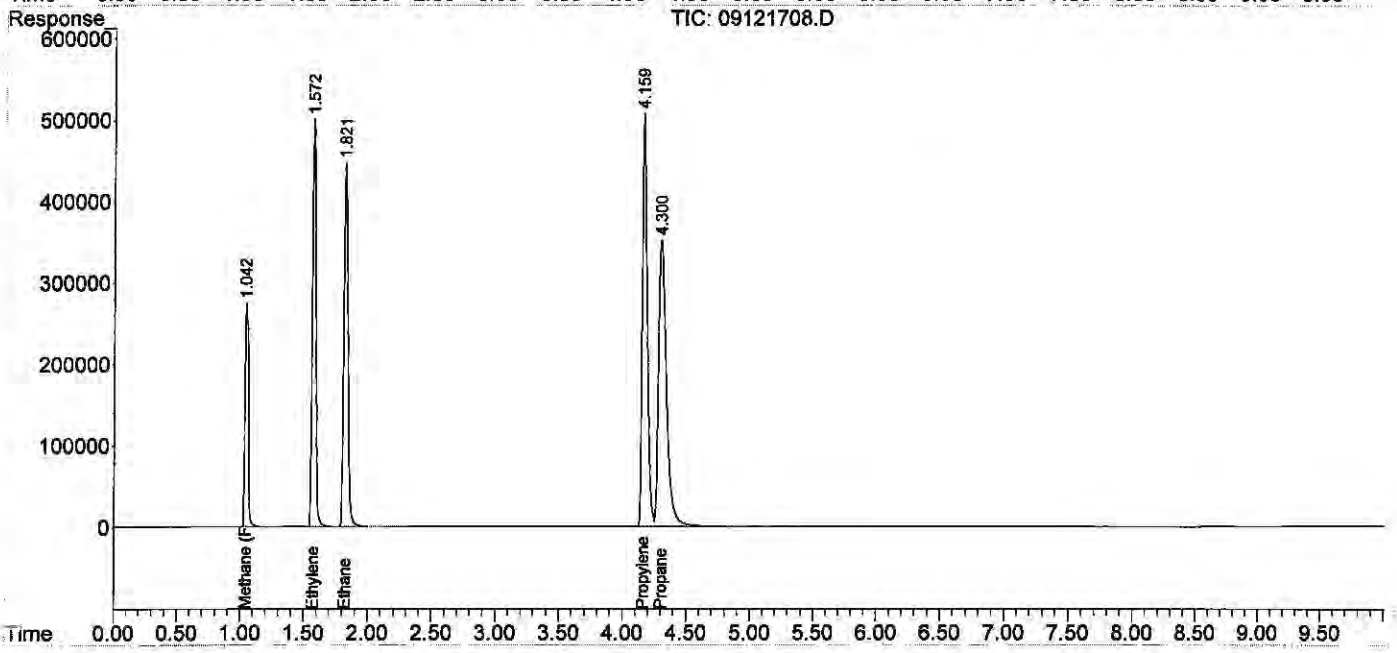
Item B above was supposed to be placed in the Apr–Jun 2021 AR quarter; however, it was left out, so that is why it is included in this Admin Record.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

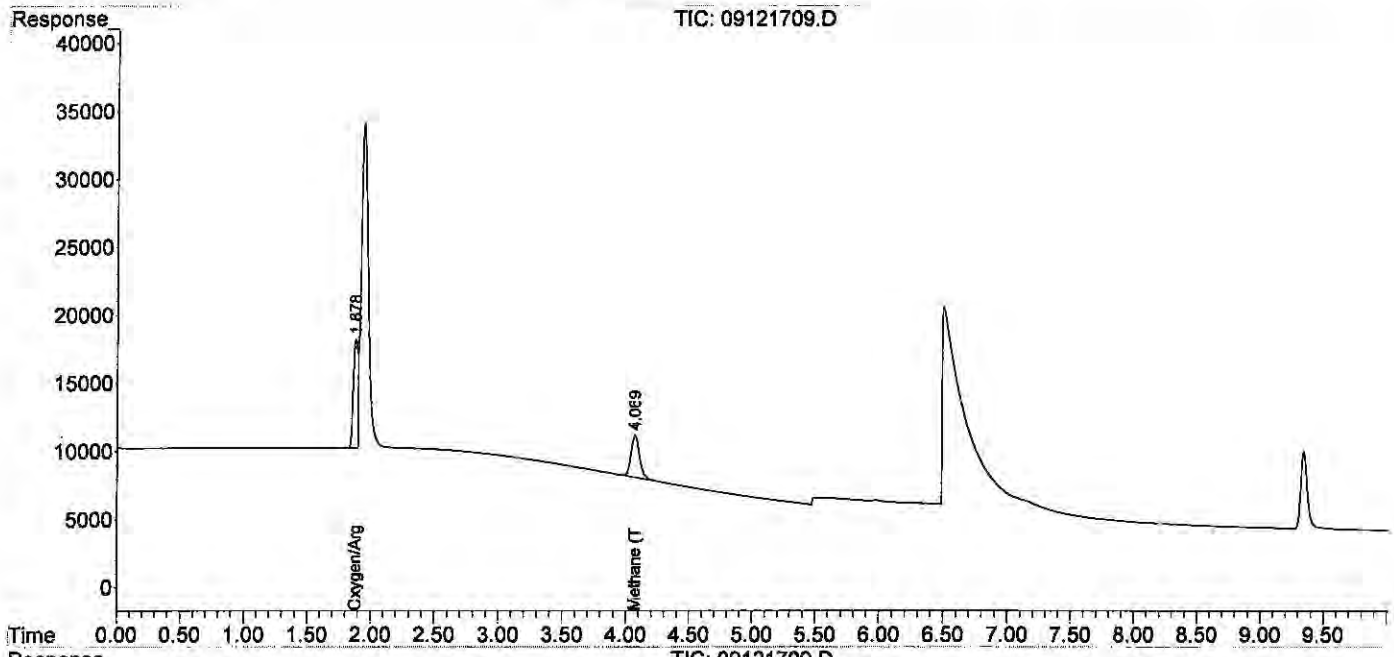
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

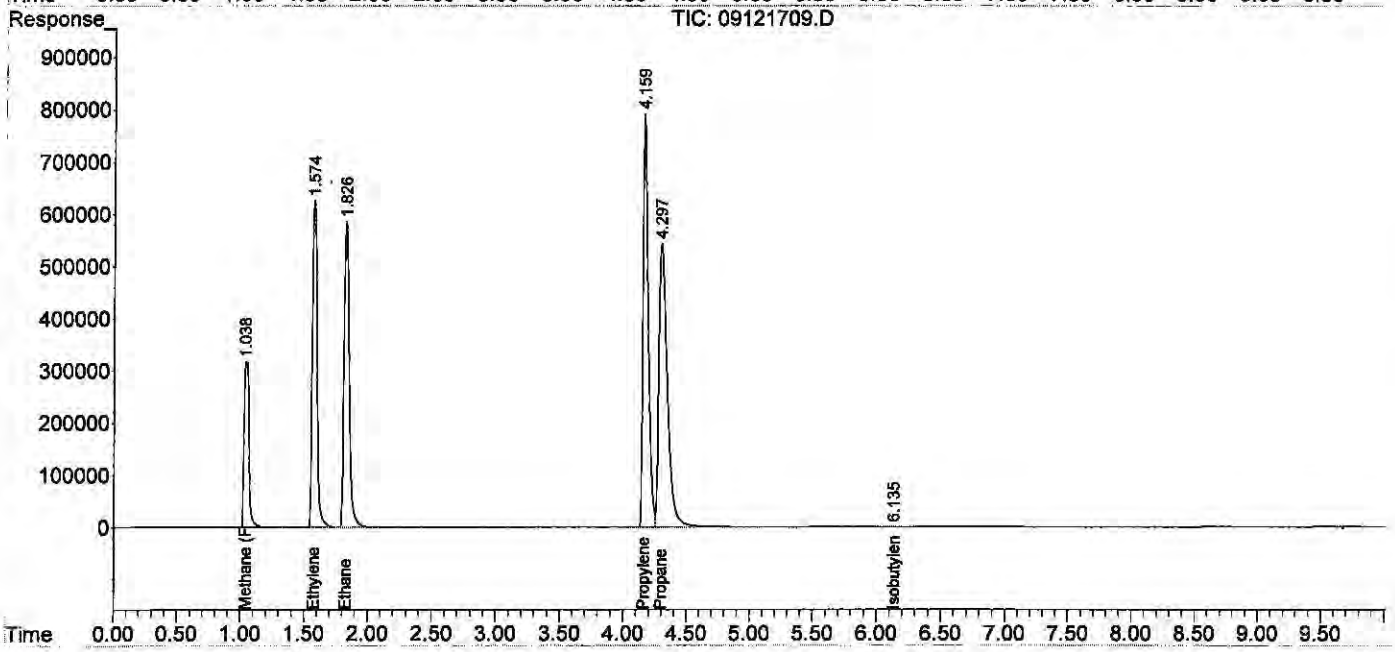
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

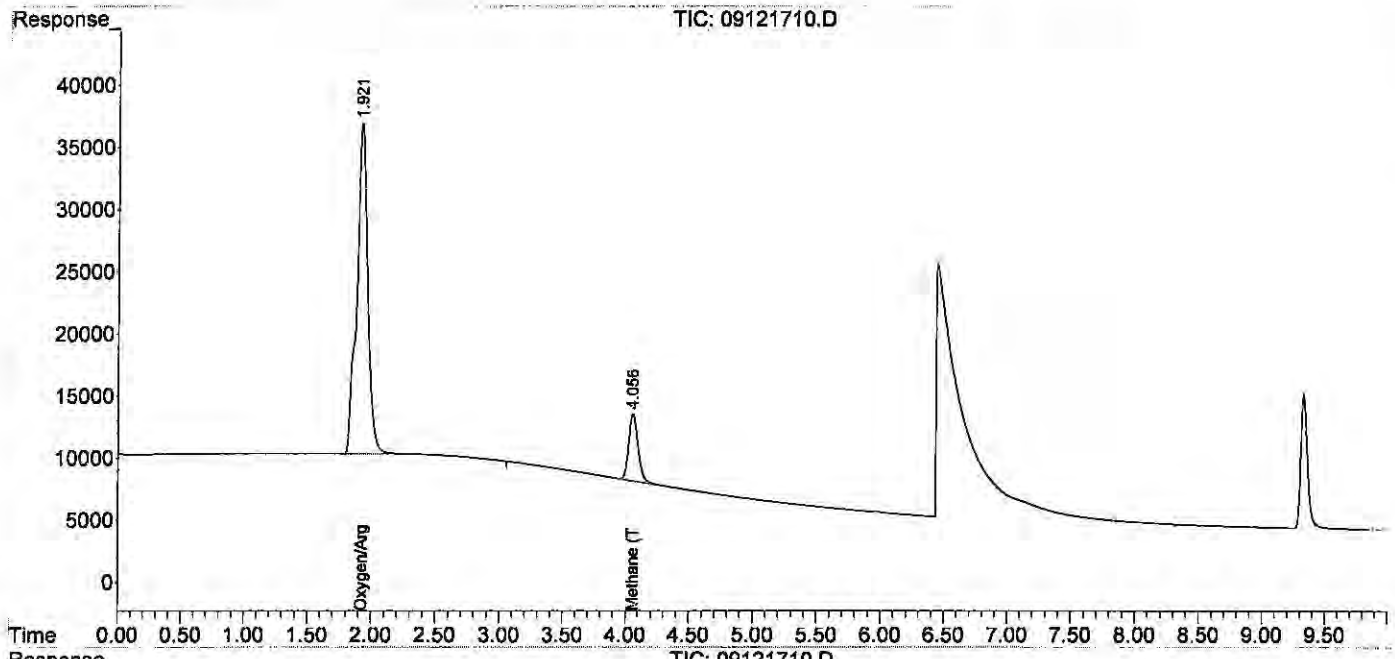
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

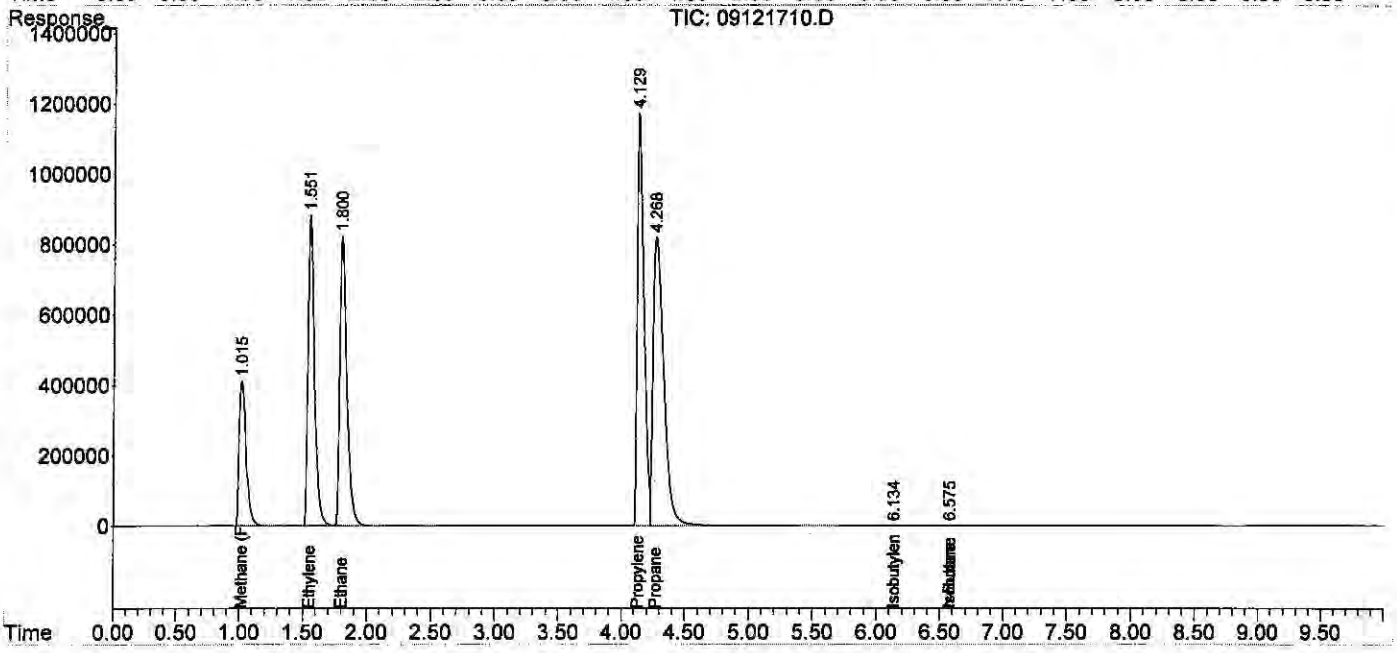
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



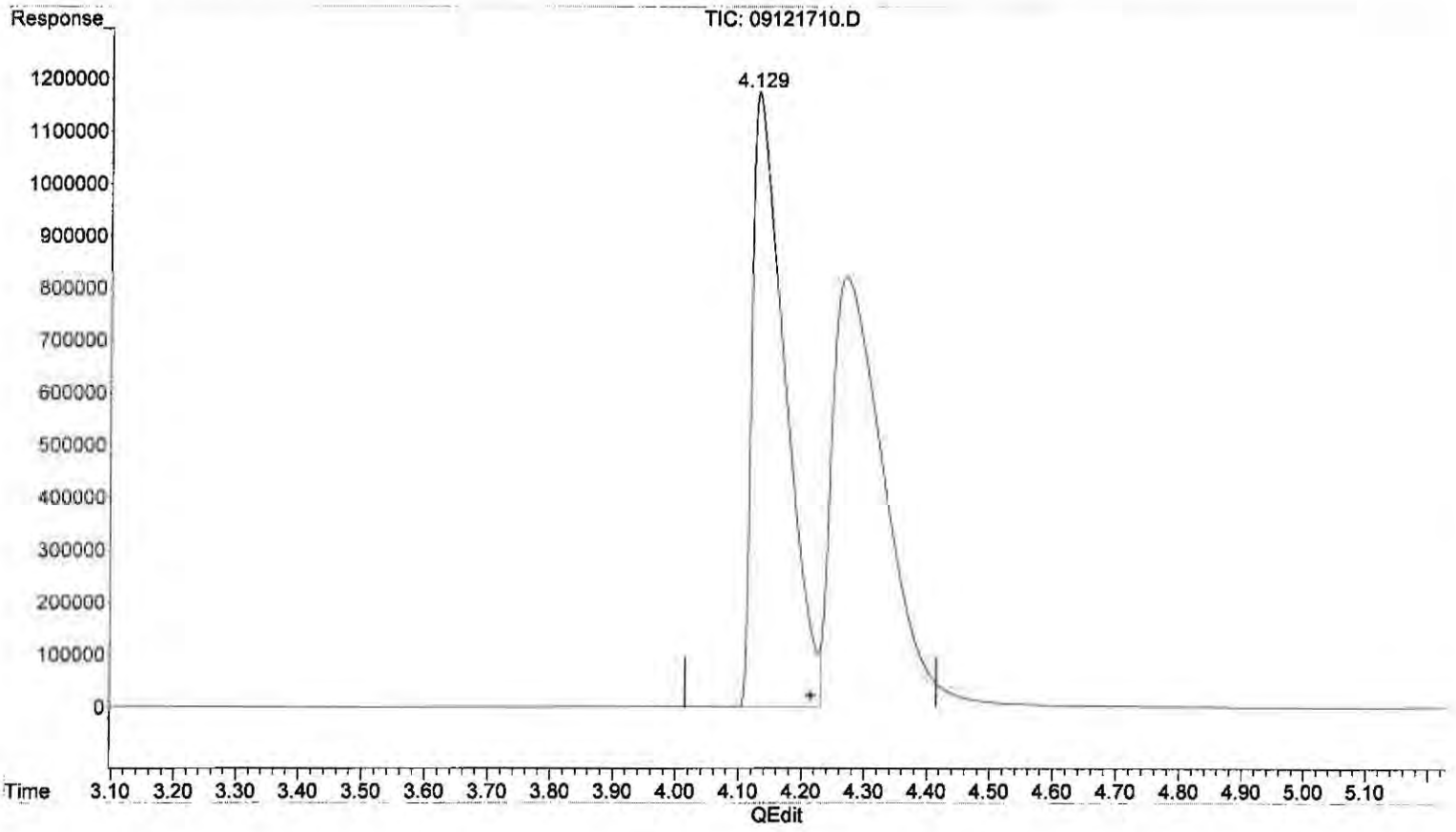


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

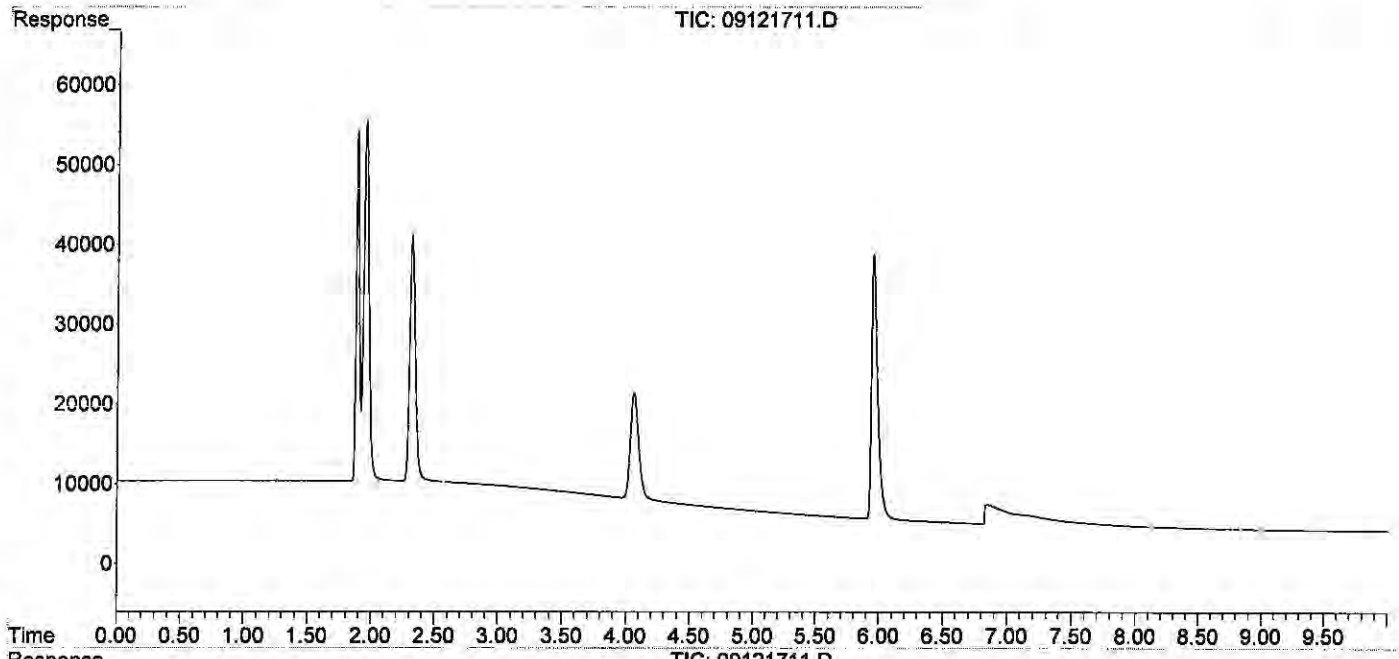
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

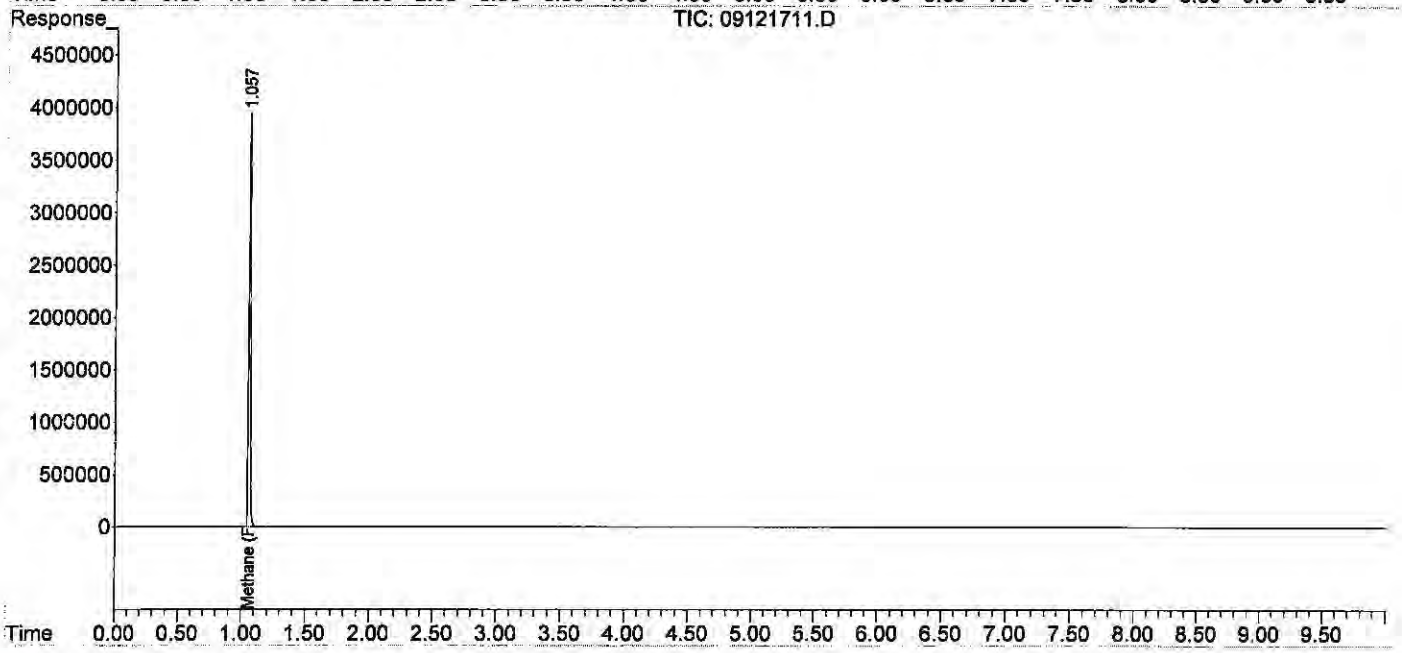
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

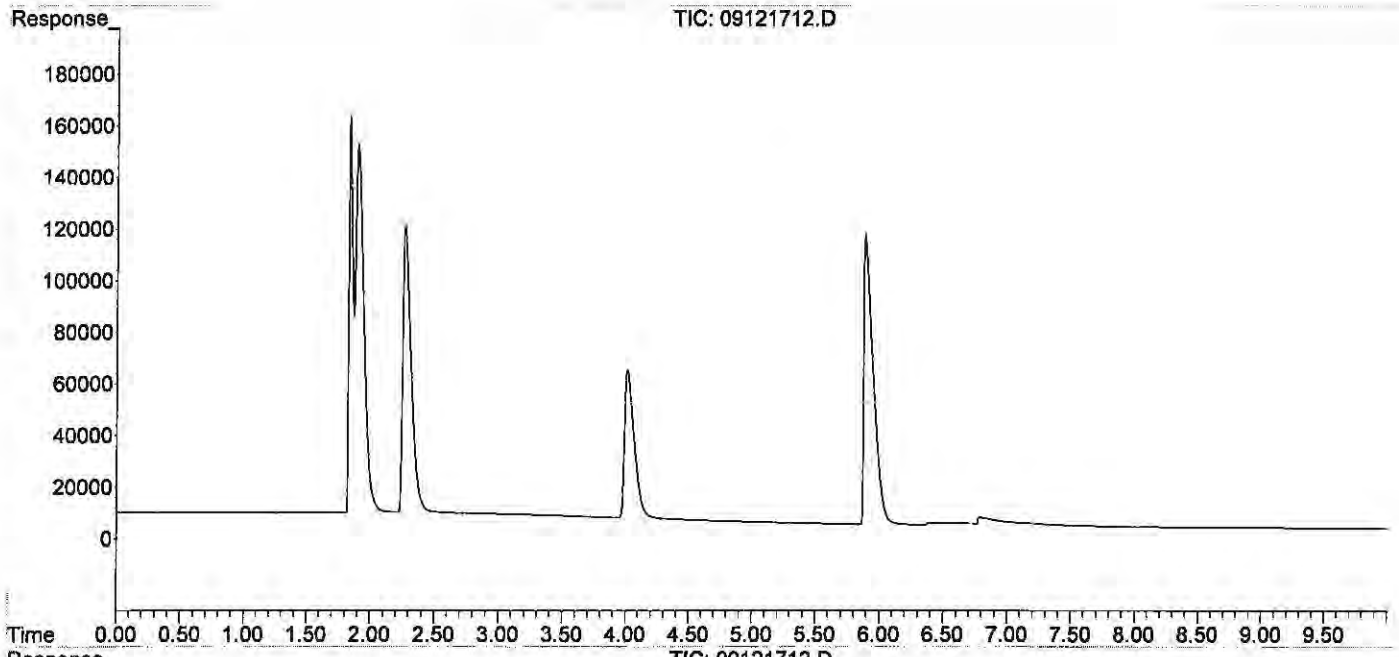
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

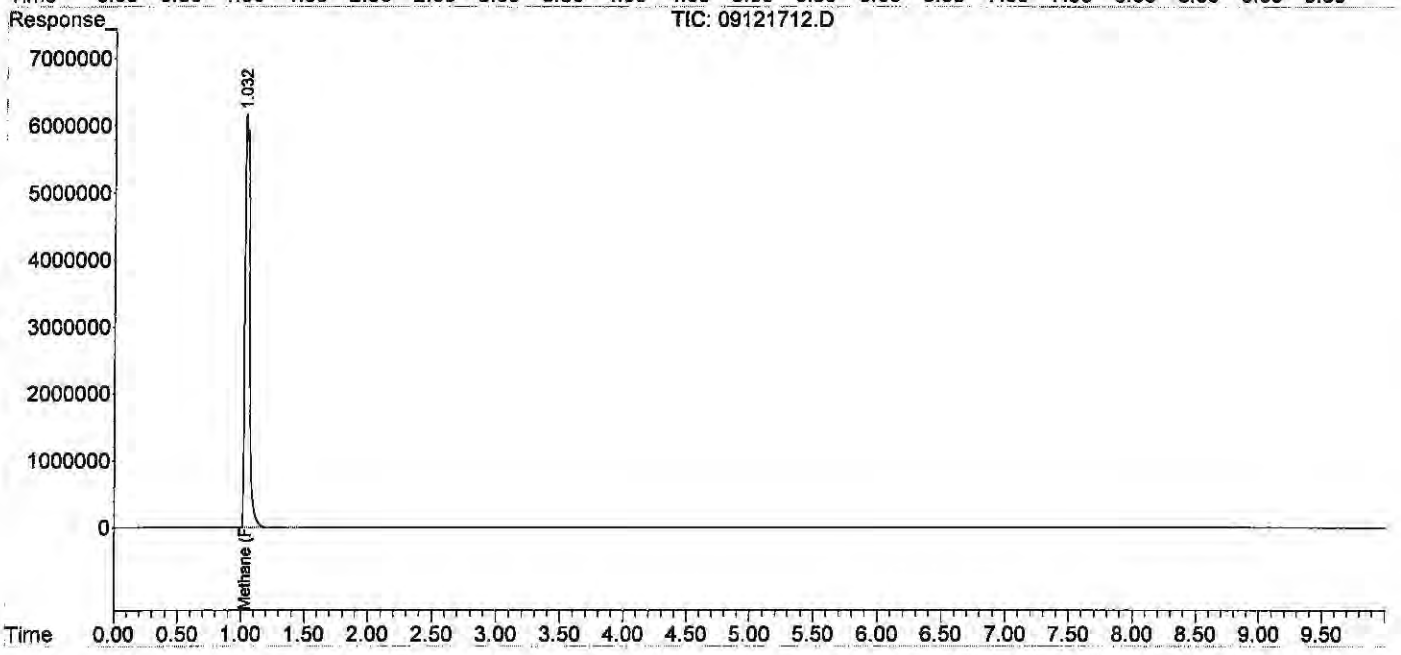
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

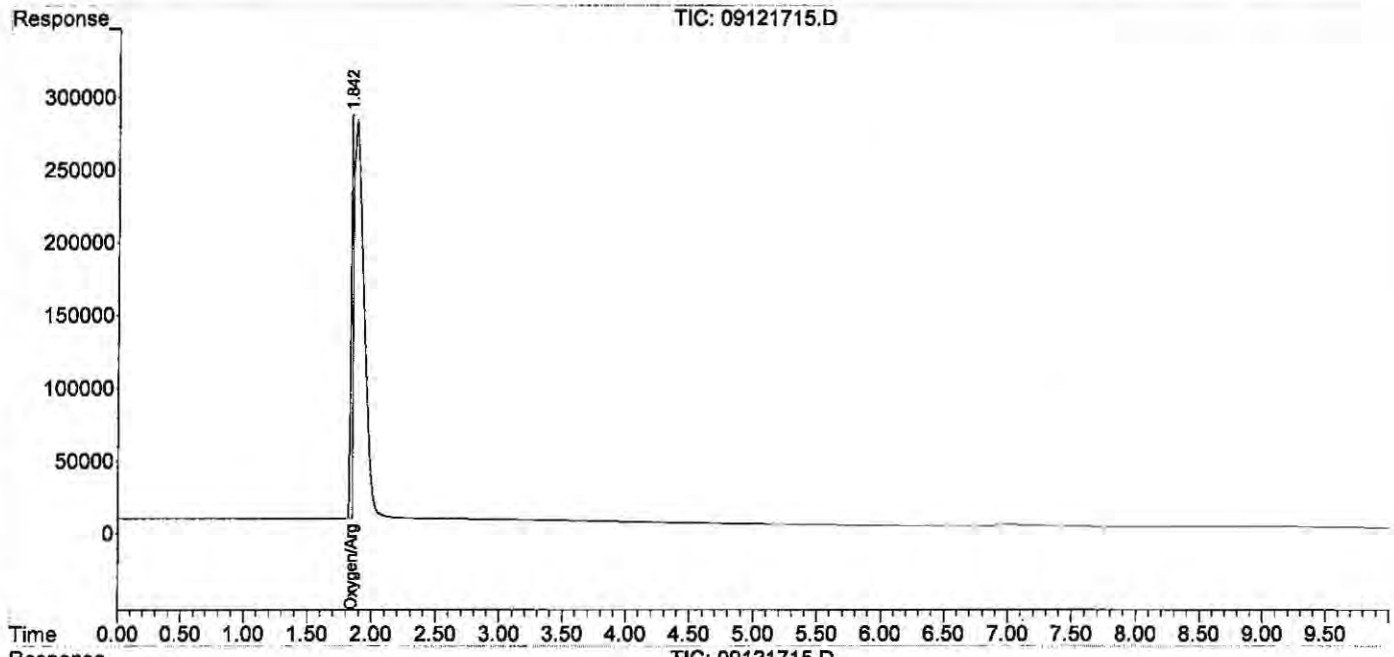
(f)=RT Delta > 1/2 Window (m)=manual int.

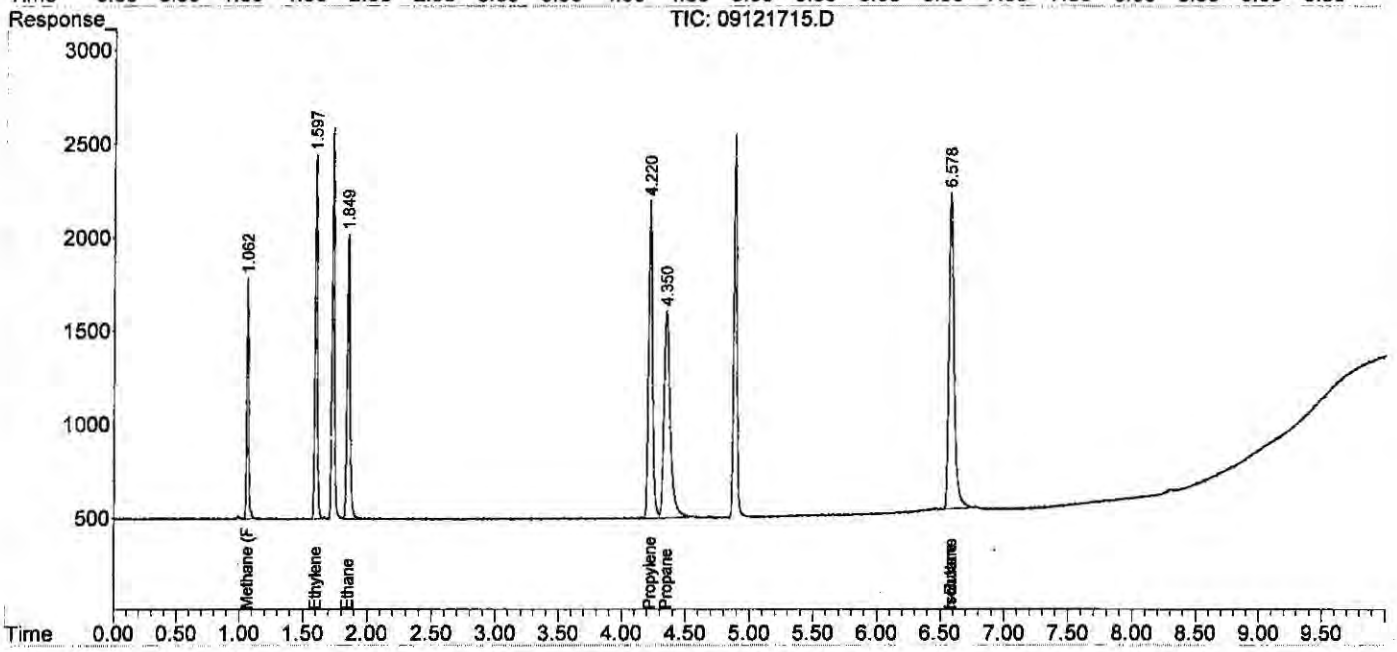
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P2002523
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 05/18/20
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901	0.100	92.624	98.612	98.095
ACTUAL		101.50	100.90	101.40
%Difference		8.7%	2.3%	3.3%
MCS 0.1ml	0.100	0.180	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID 0.1ml	0.100	1.371	1.004	1.184
LCSD FID 0.1ml	0.100	1.373	0.959	1.168
P2002523-001 0.1ml	0.100	0.121	0.000	0.000
P2002523-002 0.1ml	0.100	0.000	0.000	0.000
P2002523-003 0.1ml	0.100	0.490	0.000	0.000
P2002523-004 0.1ml	0.100	0.423	0.000	0.000
P2002523-005 0.1ml	0.100	0.000	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ml	1.800	0.000	0.000
LCS FID 0.1ml	13.710	10.040	11.840
LCSD FID 0.1ml	13.730	9.590	11.680
P2002523-001 0.1ml	1.210	0.000	0.000
P2002523-002 0.1ml	0.000	0.000	0.000
P2002523-003 0.1ml	4.900	0.000	0.000
P2002523-004 0.1ml	4.230	0.000	0.000
P2002523-005 0.1ml	0.000	0.000	0.000

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LD 05/18

STD S32-05221901	91.772	97.621	97.391
ACTUAL	101.50	100.90	101.40
%Difference	9.6%	3.2%	4.0%

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 12:01:00
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 12:27:52 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

LD 05/18

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

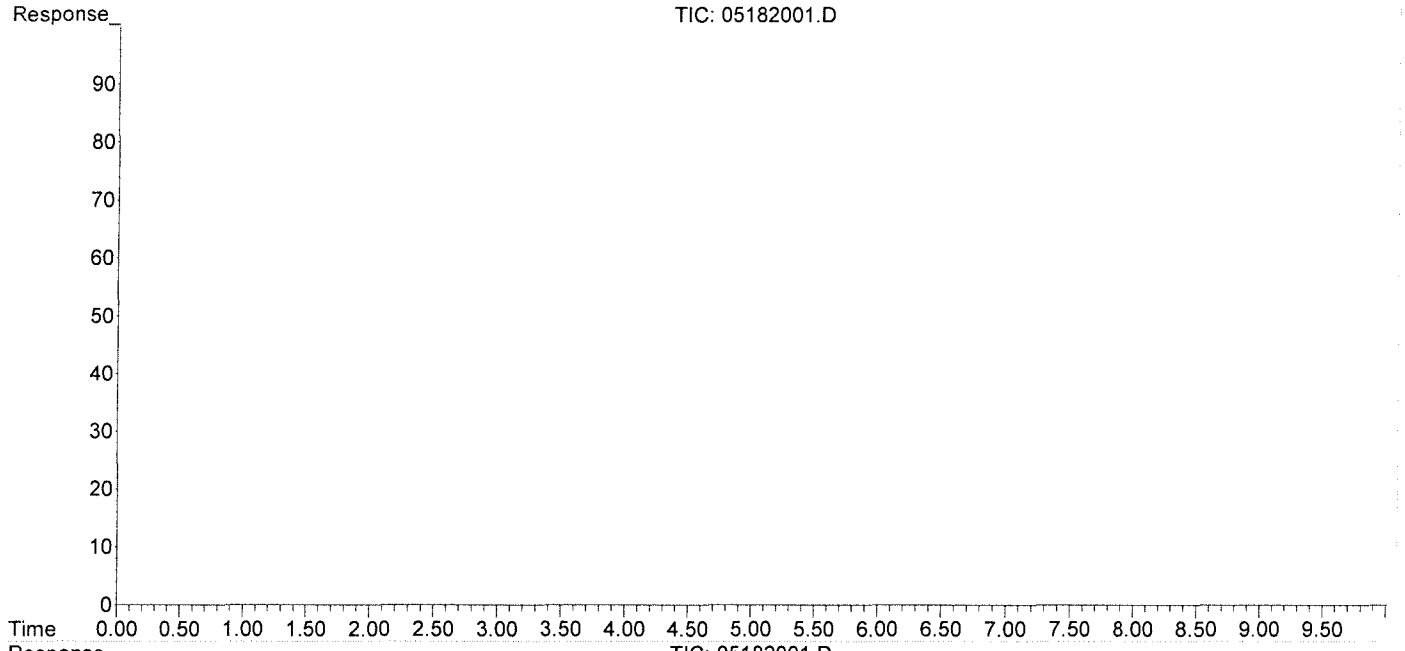
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.100	840163	92.624	ppm
7)	Ethylene	1.669	1650199	98.612	ppm
8)	Ethane	1.933	1662732	98.095	ppm
9)	Propylene	4.313	2432970	103.833	ppm
10)	Propane	4.436	2499918	100.478	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

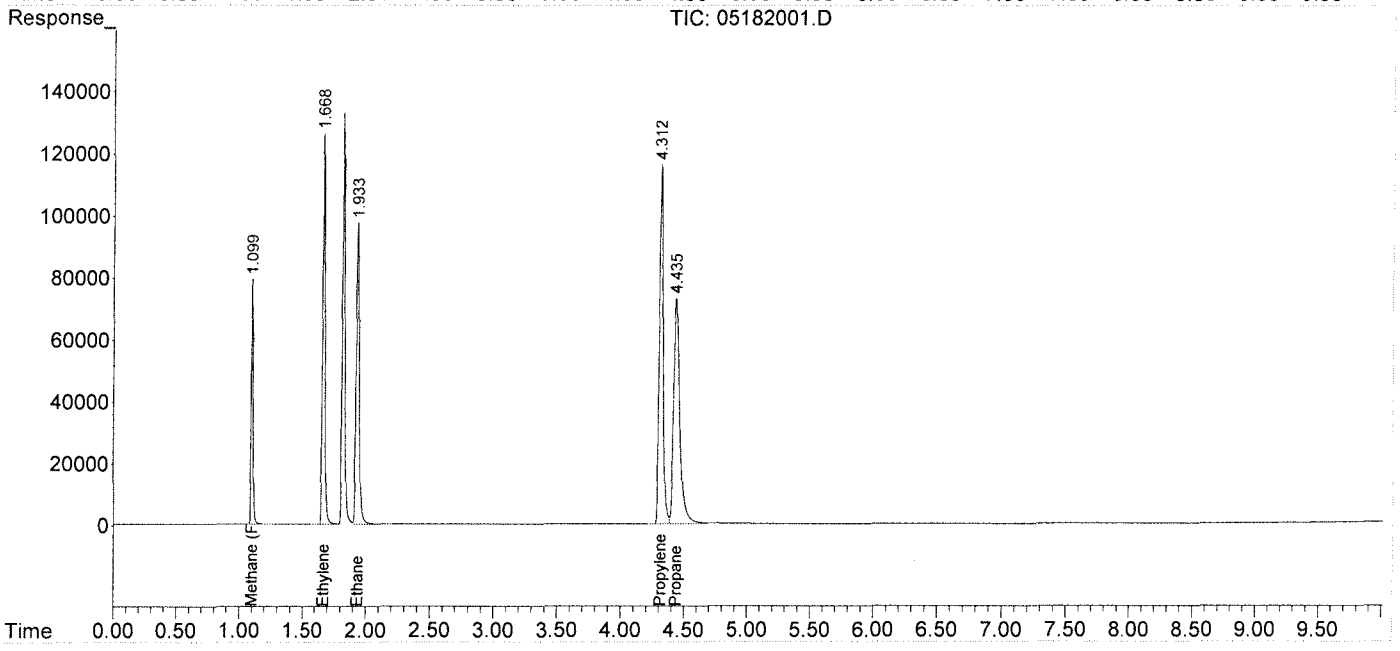
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 12:01:00
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 12:27:52 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182012.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 16:18:38
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 16:28:38 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

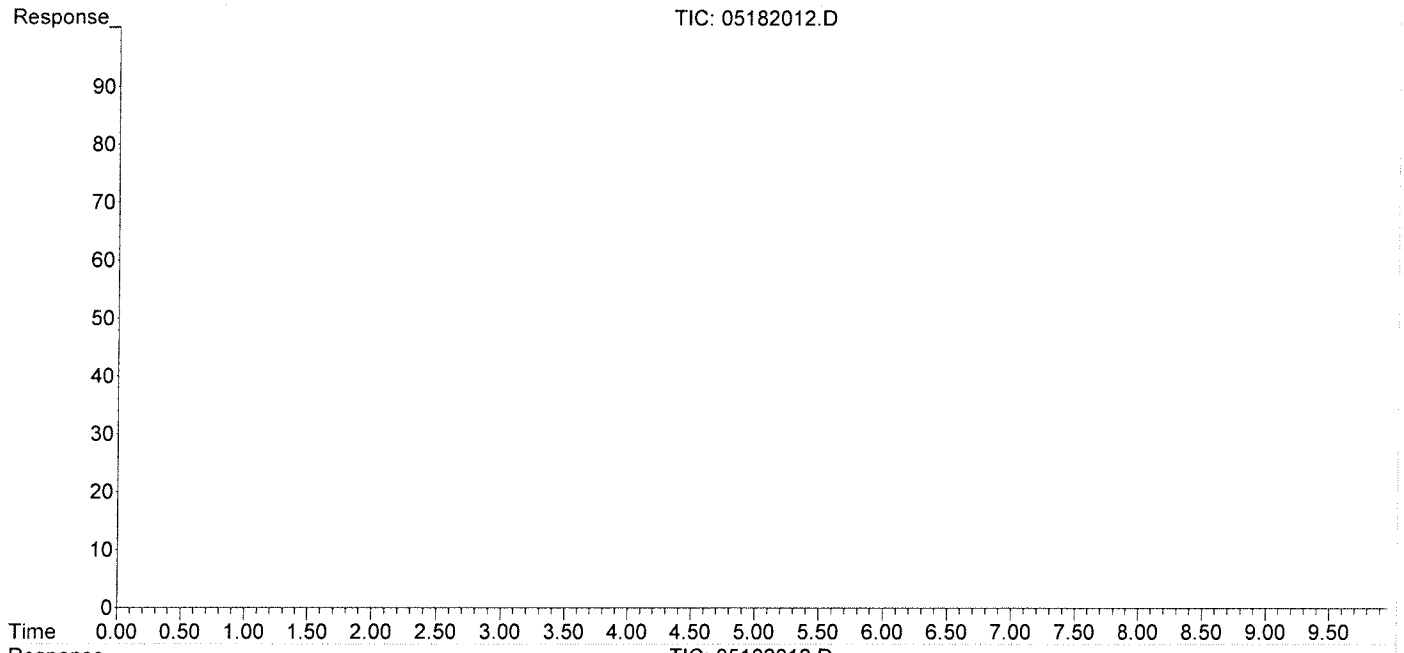
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.095	832430	91.772	ppm
7)	Ethylene	1.654	1633626	97.621	ppm
8)	Ethane	1.916	1650800	97.391	ppm
9)	Propylene	4.304	2411770	102.928	ppm
10)	Propane	4.427	2483926	99.835	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

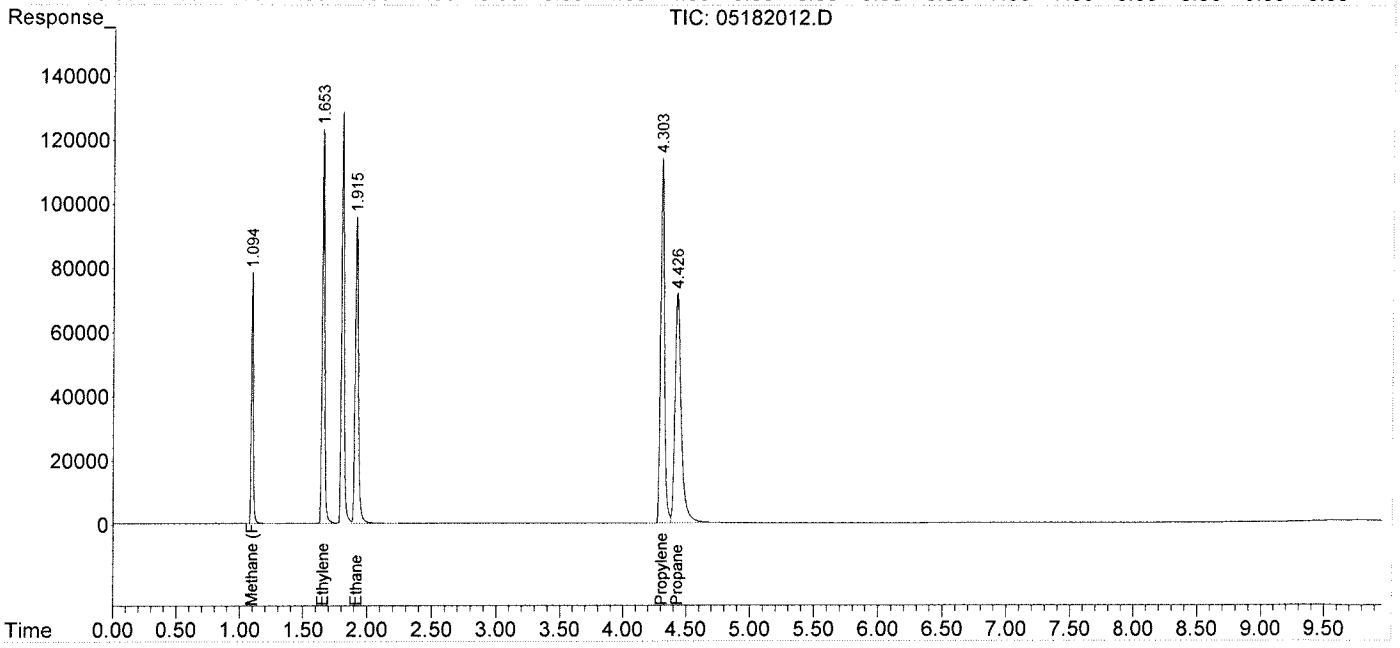
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182012.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 16:18:38
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 16:28:38 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2020_05\18\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	18-May-20, 12:01:00	05182001.D	STD S32-05221901		LD	RSKBOTH.M	pass
2	18-May-20, 12:29:26	05182002.D	RB 0.1ml		LD	RSKBOTH.M	pass
3	18-May-20, 14:00:38	05182003.D	MCS 0.1ml		LD	RSKBOTH.M	pass
4	18-May-20, 14:17:35	05182004.D	LCS FID 0.1ml		LD	RSKBOTH.M	pass
5	18-May-20, 14:31:00	05182005.D	LCSD FID 0.1ml		LD	RSKBOTH.M	pass
6	18-May-20, 14:47:12	05182006.D	P2002523-001 0.1ml		LD	RSKBOTH.M	
7	18-May-20, 15:10:04	05182007.D	P2002523-002 0.1ml		LD	RSKBOTH.M	
8	18-May-20, 15:24:54	05182008.D	P2002523-003 0.1ml		LD	RSKBOTH.M	
9	18-May-20, 15:37:51	05182009.D	P2002523-004 0.1ml		LD	RSKBOTH.M	
10	18-May-20, 15:51:02	05182010.D	P2002523-005 0.1ml		LD	RSKBOTH.M	
11	18-May-20, 16:06:18	05182011.D	xxxxxxxSTD S32-05221901		LD	RSKBOTH.M	fail
12	18-May-20, 16:18:38	05182012.D	STD S32-05221901		LD	RSKBOTH.M	pass

HS20050234 8260 Raw Data

ALS WO# HS20050234

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-200512	99	100	102	101	0
02	VBLKW-200512	92	89	108	99	0
03	HS20050234-11	92	90	107	100	0
04	HS20050234-01	91	88	107	100	0
05	HS20050234-02	92	91	107	98	0
06	HS20050234-03	90	90	106	100	0
07	HS20050234-05	91	90	108	98	0
08	HS20050234-05	91	91	107	97	0
09	HS20050234-06	90	90	108	102	0
10	HS20050234-07	92	92	108	99	0
11	HS20050234-08	91	90	110	96	0
12	HS20050234-09	92	89	106	98	0
13	HS20050234-10	92	90	107	100	0
14	HS20050234-01	91	88	106	99	0
15	HS20050234-01	92	90	108	100	0
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(71-125)
SMC3 (TOL)	= Toluene-d8	(78-123)
OTHER	= 4-Bromofluorobenzene	(70-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromochloromethane	50.00	47.43	95	80-120
Vinyl Chloride	50.00	46.46	93	80-120
Chloromethane	50.00	44.04	88	80-120
Bromomethane	50.00	50.90	102	80-120
Chloroethane	50.00	44.86	90	80-120
Methylene Chloride	50.00	47.67	95	80-120
Acetone	100.00	96.04	96	80-120
1,1-Dichloroethene	50.00	47.66	95	80-120
trans-1,2-Dichloroethen	50.00	47.92	96	80-120
Carbon Tetrachloride	50.00	47.41	95	80-120
1,1-Dichloroethane	50.00	45.20	90	80-120
Bromodichloromethane	50.00	48.69	97	80-120
1,2-Dichloropropane	50.00	47.53	95	80-120
cis-1,3-Dichloropropene	50.00	49.61	99	80-120
2-Butanone	100.00	107.79	108	80-120
Dibromochloromethane	50.00	49.74	99	80-120
cis-1,2-Dichloroethene	50.00	47.90	96	80-120
1,1,2-Trichloroethane	50.00	47.86	96	80-120
Chloroform	50.00	48.19	96	80-120
Benzene	50.00	47.92	96	80-120
trans-1,3-Dichloroprope	50.00	49.97	100	80-120
Bromoform	50.00	50.11	100	80-120
4-Methyl-2-Pentanone	100.00	92.90	93	80-120
1,1,1-Trichloroethane	50.00	47.51	95	80-120
2-Hexanone	100.00	94.75	95	80-120
1,2-Dichloroethane	50.00	49.48	99	80-120
1,1,2,2-Tetrachloroetha	50.00	46.16	92	80-120
Trichloroethene	50.00	49.38	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Toluene	50.00	48.70	97	80-120
Dichlorodifluoromethane	50.00	46.95	94	80-120
Trichlorofluoromethane	50.00	48.67	97	80-120
Tetrachloroethene	50.00	49.21	98	80-120
1,2-Dibromoethane	50.00	50.22	100	80-120
Chlorobenzene	50.00	48.90	98	80-120
1,3-Dichlorobenzene	50.00	48.89	98	80-120
1,4-Dichlorobenzene	50.00	47.77	96	80-120
1,2-Dichlorobenzene	50.00	48.42	97	80-120
Ethylbenzene	50.00	48.80	98	80-120
m,p-Xylenes	100.00	98.10	98	80-120
o-Xylene	50.00	49.08	98	80-120
Styrene	50.00	49.46	99	80-120
Carbon Disulfide	100.00	95.54	96	80-120
2,2-Dichloropropane	50.00	47.48	95	80-120
1,1-Dichloropropene	50.00	48.00	96	80-120
Dibromomethane	50.00	49.84	100	80-120
1,3-Dichloropropane	50.00	48.33	97	80-120
1,1,1,2-Tetrachloroetha	50.00	48.99	98	80-120
Isopropylbenzene	50.00	49.54	99	80-120
Bromobenzene	50.00	48.32	97	80-120
1,2,3-Trichloropropane	50.00	46.59	93	80-120
n-Propylbenzene	50.00	48.00	96	80-120
2-Chlorotoluene	50.00	46.75	94	80-120
1,3,5-Trimethylbenzene	50.00	49.68	99	80-120
4-Chlorotoluene	50.00	47.20	94	80-120
tert-Butylbenzene	50.00	48.50	97	80-120
1,2,4-Trimethylbenzene	50.00	49.86	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

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FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
sec-Butylbenzene	50.00	48.50	97	80-120
p-Isopropyltoluene	50.00	50.33	101	80-120
n-Butylbenzene	50.00	50.73	101	80-120
1,2-Dibromo-3-Chloropro	50.00	46.37	93	80-120
1,2,4-Trichlorobenzene	50.00	47.52	95	80-120
Hexachlorobutadiene	50.00	49.71	99	80-120
Naphthalene	50.00	53.21	106	80-120
1,2,3-Trichlorobenzene	50.00	54.69	109	80-120
Freon TF	50.00	48.97	98	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Lab File ID: X051101 BFB Injection Date: 05/11/20

Instrument ID: VOA6 BFB Injection Time: 1248

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	24.2
75	30.0 - 60.0% of mass 95	46.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	58.1
175	5.0 - 9.0% of mass 174	5.0 (8.6)1
176	95.0 - 101.0% of mass 174	57.6 (99.1)1
177	5.0 - 9.0% of mass 176	4.7 (8.2)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	VSTD000.5	VSTD000.5	X051103	05/11/20	1400
02	VSTD001	VSTD001	X051104	05/11/20	1424
03	VSTD002	VSTD002	X051105	05/11/20	1448
04	VSTD005	VSTD005	X051106	05/11/20	1512
05	VSTD020	VSTD020	X051107	05/11/20	1536
06	VSTD050	VSTD050	X051108	05/11/20	1600
07	VSTD100	VSTD100	X051109	05/11/20	1624
08	VSTD150	VSTD150	X051110	05/11/20	1647
09	VSTD200	VSTD200	X051111	05/11/20	1711
10	ICV	ICV	X051114	05/11/20	1823
11					
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22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF0.5: X051103 RF1: X051104 RF2: X051105
RF5: X051106 RF20: X051107 RF50: X051108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Bromochloromethane	0.363	0.313	0.285	0.299	0.276	0.275
Vinyl Chloride	0.756	0.651	0.677	0.656	0.679	0.684
Chloromethane	2464	4677	8356	19497	77009	185773
Bromomethane	1460	2788	5327	11539	40170	86417
Chloroethane	1364	2214	3636	10011	35750	85402
Methylene Chloride	1939	3655	6641	14433	52520	120730
Acetone	1874	3027	5040	9390	35665	95313
1,1-Dichloroethene	0.461	0.404	0.370	0.376	0.386	0.384
trans-1,2-Dichloroethene	0.523	0.408	0.446	0.450	0.457	0.446
Carbon Tetrachloride	0.629	0.525	0.488	0.473	0.462	0.468
1,1-Dichloroethane	1.312	1.108	1.104	1.086	1.050	1.019
Bromodichloromethane	0.525	0.432	0.461	0.461	0.456	0.457
1,2-Dichloropropane	0.483	0.403	0.398	0.404	0.401	0.395
cis-1,3-Dichloropropene	0.603	0.536	0.520	0.534	0.536	0.541
2-Butanone	0.188	0.183	0.186	0.220	0.241	0.263
Dibromochloromethane	0.441	0.380	0.411	0.397	0.396	0.396
cis-1,2-Dichloroethene	0.543	0.472	0.583	0.527	0.536	0.514
1,1,2-Trichloroethane	0.332	0.252	0.293	0.293	0.271	0.267
Chloroform	1.057	0.803	0.890	0.923	0.881	0.861
Benzene	1.483	1.317	1.243	1.210	1.258	1.234
trans-1,3-Dichloropropene	0.537	0.462	0.480	0.485	0.483	0.486
Bromoform	0.318	0.258	0.306	0.286	0.283	0.274
4-Methyl-2-Pentanone	0.503	0.400	0.504	0.456	0.451	0.430
1,1,1-Trichloroethane	0.928	0.796	0.766	0.770	0.780	0.766
2-Hexanone	0.373	0.243	0.350	0.304	0.307	0.304
1,2-Dichloroethane	0.587	0.485	0.477	0.510	0.523	0.527
1,1,2,2-Tetrachloroethane	0.939	0.812	0.883	0.798	0.789	0.746
Trichloroethene	0.425	0.329	0.342	0.341	0.347	0.350
Toluene	1.729	1.419	1.522	1.489	1.484	1.431
Dichlorodifluoromethane	1503	2633	5304	13068	55700	135443
Trichlorofluoromethane	0.888	0.754	0.749	0.761	0.781	0.796
Tetrachloroethene	0.362	0.327	0.345	0.324	0.321	0.319
1,2-Dibromoethane	0.385	0.308	0.373	0.358	0.364	0.351
Chlorobenzene	1.224	0.910	1.008	0.984	0.965	0.948
1,3-Dichlorobenzene	1.771	1.441	1.502	1.497	1.508	1.462
1,4-Dichlorobenzene	2.196	1.462	1.507	1.543	1.491	1.488
1,2-Dichlorobenzene	1.694	1.345	1.445	1.362	1.340	1.326
Ethylbenzene	0.595	0.494	0.526	0.496	0.513	0.506
m,p-Xylenes	0.749	0.582	0.637	0.617	0.627	0.617
o-Xylene	0.671	0.590	0.652	0.604	0.617	0.595
Styrene	1.220	1.068	1.068	1.028	1.061	1.034
Carbon Disulfide	1.559	1.278	1.317	1.321	1.317	1.321
2,2-Dichloropropane	0.934	0.845	0.817	0.768	0.765	0.739
1,1-Dichloropropene	0.542	0.467	0.464	0.436	0.437	0.429

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005023 4

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF0.5: X051103 RF1: X051104 RF2: X051105
RF5: X051106 RF20: X051107 RF50: X051108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Dibromomethane	0.272	0.187	0.211	0.223	0.213	0.217
1,3-Dichloropropane	0.667	0.536	0.609	0.586	0.581	0.558
1,1,1,2-Tetrachloroethane	0.441	0.401	0.388	0.383	0.384	0.380
Isopropylbenzene	1.838	1.487	1.440	1.550	1.543	1.499
Bromobenzene	1.160	0.908	0.931	0.886	0.907	0.902
1,2,3-Trichloropropane	0.825	0.629	0.829	0.664	0.661	0.681
n-Propylbenzene	4.517	3.295	3.337	3.514	3.496	3.465
2-Chlorotoluene	2.730	2.379	2.191	2.204	2.100	2.070
1,3,5-Trimethylbenzene	2.835	2.374	2.552	2.616	2.533	2.515
4-Chlorotoluene	3.235	2.656	2.511	2.448	2.492	2.419
tert-Butylbenzene	2.511	2.130	2.115	2.215	2.151	2.088
1,2,4-Trimethylbenzene	3.200	2.288	2.506	2.550	2.590	2.573
sec-Butylbenzene	3.786	2.605	2.991	3.022	2.939	2.872
p-Isopropyltoluene	3.242	2.169	2.411	2.533	2.612	2.578
n-Butylbenzene	2.569	1.648	1.842	2.072	2.142	2.132
1,2-Dibromo-3-Chloropropane	114	128	532	1596	5237	12187
1,2,4-Trichlorobenzene	505	762	1924	5746	23261	54809
Hexachlorobutadiene	605	736	2177	5460	21311	41952
Naphthalene	0.460	0.409	0.406	0.433	0.467	0.465
1,2,3-Trichlorobenzene	385	431	1047	3164	11186	27245
Freon TF	0.351	0.375	0.391	0.378	0.379	0.386
Dibromofluoromethane	1793	3147	5198	14036	51294	118264
1,2-Dichloroethane-d4	2117	3902	7290	17135	62012	143586
Toluene-d8	5920	10982	18430	47142	176771	410250
4-Bromofluorobenzene	2708	6819	8380	19241	69563	152557

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005023~~4~~

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF100: X051109 RF150: X051110 RF200: X051111

COMPOUND	RF100	RF150	RF200
Bromochloromethane	0.269	0.272	0.259
Vinyl Chloride	0.715	0.722	0.698
Chloromethane	352150	510038	668216
Bromomethane	166042	236806	301011
Chloroethane	162411	229270	289295
Methylene Chloride	224234	318789	395941
Acetone	157042	214208	
1,1-Dichloroethene	0.398	0.407	0.394
trans-1,2-Dichloroethene	0.457	0.461	0.444
Carbon Tetrachloride	0.489	0.496	0.491
1,1-Dichloroethane	1.046	1.051	1.004
Bromodichloromethane	0.466	0.477	0.465
1,2-Dichloropropane	0.399	0.395	0.384
cis-1,3-Dichloropropene	0.550	0.556	0.544
2-Butanone	0.253	0.253	0.241
Dibromochloromethane	0.410	0.407	0.403
cis-1,2-Dichloroethene	0.526	0.533	0.512
1,1,2-Trichloroethane	0.267	0.266	0.262
Chloroform	0.878	0.889	0.859
Benzene	1.256	1.263	1.238
trans-1,3-Dichloropropene	0.504	0.517	0.506
Bromoform	0.283	0.285	0.285
4-Methyl-2-Pentanone	0.441	0.443	0.435
1,1,1-Trichloroethane	0.796	0.813	0.790
2-Hexanone	0.303	0.300	0.298
1,2-Dichloroethane	0.527	0.530	0.518
1,1,2,2-Tetrachloroethane	0.749	0.756	0.761
Trichloroethene	0.367	0.367	0.360
Toluene	1.433	1.414	1.396
Dichlorodifluoromethane	264084	377623	499972
Trichlorofluoromethane	0.833	0.843	0.836
Tetrachloroethene	0.326	0.324	0.320
1,2-Dibromoethane	0.352	0.357	0.348
Chlorobenzene	0.963	0.964	0.949
1,3-Dichlorobenzene	1.500	1.522	1.508
1,4-Dichlorobenzene	1.506	1.517	1.512
1,2-Dichlorobenzene	1.337	1.360	1.327
Ethylbenzene	0.523	0.514	0.512
m,p-Xylenes	0.622	0.618	0.610
o-Xylene	0.603	0.605	0.588
Styrene	1.048	1.031	1.019
Carbon Disulfide	1.365	1.385	1.334
2,2-Dichloropropane	0.754	0.769	0.733
1,1-Dichloropropene	0.452	0.452	0.441

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005023-4

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF100: X051109 RF150: X051110 RF200: X051111

COMPOUND	RF100	RF150	RF200
Dibromomethane	0.222	0.224	0.218
1,3-Dichloropropane	0.557	0.557	0.550
1,1,1,2-Tetrachloroethane	0.387	0.387	0.385
Isopropylbenzene	1.568	1.560	1.547
Bromobenzene	0.907	0.911	0.925
1,2,3-Trichloropropane	0.669	0.656	0.658
n-Propylbenzene	3.577	3.585	3.566
2-Chlorotoluene	2.149	2.144	2.118
1,3,5-Trimethylbenzene	2.613	2.611	2.585
4-Chlorotoluene	2.476	2.464	2.454
tert-Butylbenzene	2.180	2.179	2.160
1,2,4-Trimethylbenzene	2.630	2.656	2.612
sec-Butylbenzene	3.026	3.020	2.996
p-Isopropyltoluene	2.679	2.702	2.709
n-Butylbenzene	2.216	2.237	2.212
1,2-Dibromo-3-Chloropropane	23938	35913	47270
1,2,4-Trichlorobenzene	103966	161556	221042
Hexachlorobutadiene	77175	122993	160116
Naphthalene	0.480	0.544	0.572
1,2,3-Trichlorobenzene	50765	82626	114644
Freon TF	0.410	0.412	0.396
Dibromofluoromethane	228909	320906	412124
1,2-Dichloroethane-d4	281127	402302	508534
Toluene-d8	778769	1109628	1416689
4-Bromofluorobenzene	294185	420723	537390

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005023-4

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Bromochloromethane	AVRG		0.29010501		10.972	15.000
Vinyl Chloride	AVRG		0.69311531		4.827	15.000
Chloromethane	LINR	1.254e-002	1.25307618		0.9996990	0.9900000
Bromomethane	LINR	-1.49e-002	2.76010828		0.9992442	0.9900000
Chloroethane	LINR	-8.42e-003	2.85056864		0.9990197	0.9900000
Methylene Chloride	LINR	-2.15e-002	2.07576331		0.9984246	0.9900000
Acetone	LINR	-5.26e-002	5.86673099		0.9980780	0.9900000
1,1-Dichloroethene	AVRG		0.39779340		6.695	15.000
trans-1,2-Dichloroethene	AVRG		0.45484162		6.601	15.000
Carbon Tetrachloride	AVRG		0.50236564		10.139	15.000
1,1-Dichloroethane	AVRG		1.08665862		8.445	15.000
Bromodichloromethane	AVRG		0.46672354		5.340	15.000
1,2-Dichloropropane	AVRG		0.40699172		7.156	15.000
cis-1,3-Dichloropropene	AVRG		0.54659701		4.308	15.000
2-Butanone	AVRG		0.22534364		14.170	15.000
Dibromochloromethane	AVRG		0.40468890		4.114	15.000
cis-1,2-Dichloroethene	AVRG		0.52746114		5.587	15.000
1,1,2-Trichloroethane	AVRG		0.27813289		8.790	15.000
Chloroform	AVRG		0.89352495		7.768	15.000
Benzene	AVRG		1.27806051		6.430	15.000
trans-1,3-Dichloropropene	AVRG		0.49569616		4.508	15.000
Bromoform	AVRG		0.28647071		5.980	15.000
4-Methyl-2-Pentanone	AVRG		0.45144990		7.411	15.000
1,1,1-Trichloroethane	AVRG		0.80070947		6.298	15.000
2-Hexanone	AVRG		0.30919632		11.650	15.000
1,2-Dichloroethane	AVRG		0.52059797		6.006	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.80353274		8.275	15.000
Trichloroethene	AVRG		0.35876630		7.774	15.000
Toluene	AVRG		1.47974156		6.910	15.000
Dichlorodifluoromethane	LINR	2.129e-002	1.67614322		0.9997226	0.9900000
Trichlorofluoromethane	AVRG		0.80446144		5.962	15.000
Tetrachloroethene	AVRG		0.32982532		4.351	15.000
1,2-Dibromoethane	AVRG		0.35522808		5.929	15.000
Chlorobenzene	AVRG		0.99065323		9.243	15.000
1,3-Dichlorobenzene	AVRG		1.52362325		6.309	15.000
1,4-Dichlorobenzene	AVRG		1.58040454		14.681	15.000
1,2-Dichlorobenzene	AVRG		1.39289493		8.511	15.000
Ethylbenzene	AVRG		0.51992575		5.830	15.000
m,p-Xylenes	AVRG		0.63108004		7.383	15.000
o-Xylene	AVRG		0.61400525		4.669	15.000
Styrene	AVRG		1.06414813		5.759	15.000
Carbon Disulfide	AVRG		1.35528961		6.080	15.000
2,2-Dichloropropane	AVRG		0.79166371		8.135	15.000
1,1-Dichloropropene	AVRG		0.45772621		7.432	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005023-4

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Dibromomethane	AVRG		0.22074683		10.081	15.000
1,3-Dichloropropane	AVRG		0.57818454		6.898	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.39300458		4.846	15.000
Isopropylbenzene	AVRG		1.55920520		7.226	15.000
Bromobenzene	AVRG		0.93740919		9.001	15.000
1,2,3-Trichloropropane	AVRG		0.69674447		10.773	15.000
n-Propylbenzene	AVRG		3.59467414		10.034	15.000
2-Chlorotoluene	AVRG		2.23175124		9.279	15.000
1,3,5-Trimethylbenzene	AVRG		2.58168968		4.708	15.000
4-Chlorotoluene	AVRG		2.57286118		10.008	15.000
tert-Butylbenzene	AVRG		2.19201247		5.722	15.000
1,2,4-Trimethylbenzene	AVRG		2.62277408		9.226	15.000
sec-Butylbenzene	AVRG		3.02845002		10.363	15.000
p-Isopropyltoluene	AVRG		2.62630864		10.952	15.000
n-Butylbenzene	AVRG		2.11900949		12.212	15.000
1,2-Dibromo-3-Chloropropane	LINR	2.938e-002	12.1217534		0.9986839	0.9900000
1,2,4-Trichlorobenzene	LINR	5.285e-002	2.62316086		0.9957908	0.9900000
Hexachlorobutadiene	LINR	1.932e-002	3.59227170		0.9969896	0.9900000
Naphthalene	AVRG		0.47073223		11.912	15.000
1,2,3-Trichlorobenzene	2ORDR	-8.18e-003	6.59831211	-2.0506170	0.9995281	0.9900000
Freon TF	AVRG		0.38639662		4.893	15.000
Dibromofluoromethane	LINR	-4.86e-003	2.01455990		0.9994974	0.9900000
1,2-Dichloroethane-d4	LINR	-7.35e-004	1.62396266		0.9990167	0.9900000
Toluene-d8	LINR	-9.31e-003	0.80376231		0.9999444	0.9900000
4-Bromofluorobenzene	LINR	-1.54e-002	2.12571618		0.9999166	0.9900000

FORM VI VOA

MSVOA06 -Logbook

Batch: 40533
Date: 05-11-2020
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-11-2020 12:48 pm	1.00	50 mL	50 mL	X051101.D	Liquid	Y	NA
2	*Auto find / Purged* VSTD000.25	ICAL1	05-11-2020 01:12 pm	1.00	50 mL	50 mL	X051102.D	Liquid	Y	NA
3	*0.10 uL cal std/100 mL DI* VSTD000.5	ICAL2	05-11-2020 02:00 pm	1.00	50 mL	50 mL	X051103.D	Liquid	Y	NA
4	*0.10 uL cal std/50 mL DI* VSTD001	ICAL3	05-11-2020 02:24 pm	1.00	50 mL	50 mL	X051104.D	Liquid	Y	NA
5	*0.20 uL cal std/50 mL DI* VSTD002	ICAL4	05-11-2020 02:48 pm	1.00	50 mL	50 mL	X051105.D	Liquid	Y	NA
6	*0.40 uL cal std/50 mL DI* VSTD005	ICAL5	05-11-2020 03:12 pm	1.00	50 mL	50 mL	X051106.D	Liquid	Y	NA
7	*1.0 uL cal std/50 mL DI* VSTD020	ICAL6	05-11-2020 03:36 pm	1.00	50 mL	50 mL	X051107.D	Liquid	Y	NA
8	*4.0 uL cal std/50 mL DI* VSTD050	ICAL7	05-11-2020 04:00 pm	1.00	50 mL	50 mL	X051108.D	Liquid	Y	NA
9	*10 uL cal std/50 mL DI* VSTD100	ICAL8	05-11-2020 04:24 pm	1.00	50 mL	50 mL	X051109.D	Liquid	Y	NA
10	*20 uL cal std/50 mL DI* VSTD150	ICAL9	05-11-2020 04:47 pm	1.00	50 mL	50 mL	X051110.D	Liquid	Y	NA
11	*30 uL cal std/50 mL DI* VSTD200	ICAL	05-11-2020 05:11 pm	1.00	50 mL	50 mL	X051111.D	Liquid	Y	NA
12	*40 uL cal std/50 mL DI* BLANK	SAMP	05-11-2020 05:35 pm	1.00	50 mL	50 mL	X051112.D	Liquid	Y	NA
13	BLANK	SAMP	05-11-2020 05:59 pm	1.00	50 mL	50 mL	X051113.D	Liquid	Y	NA
14	ICV	CCV	05-11-2020 06:23 pm	1.00	50 mL	50 mL	X051114.D	Liquid	Y	NA
15	*10 uL icv std/50 mL DI* BLANK	SAMP	05-11-2020 06:47 pm	1.00	50 mL	50 mL	X051115.D	Liquid	Y	NA
16	VLCSW-200511	LCS	05-11-2020 07:11 pm	1.00	50 mL	50 mL	X051116.D	Liquid	Y	NA
17	*4.0 uL cal std/50 mL DI* BLANK	SAMP	05-11-2020 07:35 pm	1.00	50 mL	50 mL	X051117.D	Liquid	Y	NA
18	BLANK	SAMP	05-11-2020 07:59 pm	1.00	50 mL	50 mL	X051118.D	Liquid	Y	NA
19	VBLKW-200511	MBLK	05-11-2020 08:24 pm	1.00	50 mL	50 mL	X051119.D	Liquid	Y	NA
20	HS20050202-17	SAMP	05-11-2020 08:48 pm	1.00	50 mL	50 mL	X051120.D	Liquid	Y	NA
21	*neat samples* HS20050202-18	SAMP	05-11-2020 09:12 pm	1.00	50 mL	50 mL	X051121.D	Liquid	Y	NA
22	HS20050202-18	SAMP	05-11-2020 09:36 pm	5.00	10 mL	50 mL	X051122.D	Liquid	Y	NA
23	HS20050292-01	SAMP	05-11-2020 10:00 pm	1.00	50 mL	50 mL	X051123.D	Liquid	Y	NA
24	HS20050292-02	SAMP	05-11-2020 10:24 pm	1.00	50 mL	50 mL	X051124.D	Liquid	Y	NA
25	HS20050292-03	SAMP	05-11-2020 10:48 pm	1.00	50 mL	50 mL	X051125.D	Liquid	Y	<2
26	HS20050292-03MS	MS	05-11-2020 11:12 pm	1.00	50 mL	50 mL	X051126.D	Liquid	Y	<2
27	*3.5 uL cal std/40 mL samp* HS20050292-03MSD	MSD	05-11-2020 11:36 pm	1.00	50 mL	50 mL	X051127.D	Liquid	Y	<2
28	*3.5 uL cal std/40 mL samp* CCV-END	CCV	05-12-2020 12:00 am	1.00	50 mL	50 mL	X051128.D	Liquid	Y	NA
29	*10 uL cal std/50 mL DI* HS20050337-02	SAMP	05-12-2020 12:24 am	1.00	50 mL	50 mL	X051129.D	Liquid	Y	<2

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-26-06
IS ID	31106-26-06
CAL STD ID	31106-29-01/02
BFB ID	31106-26-06
pH Paper	634-64-11

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

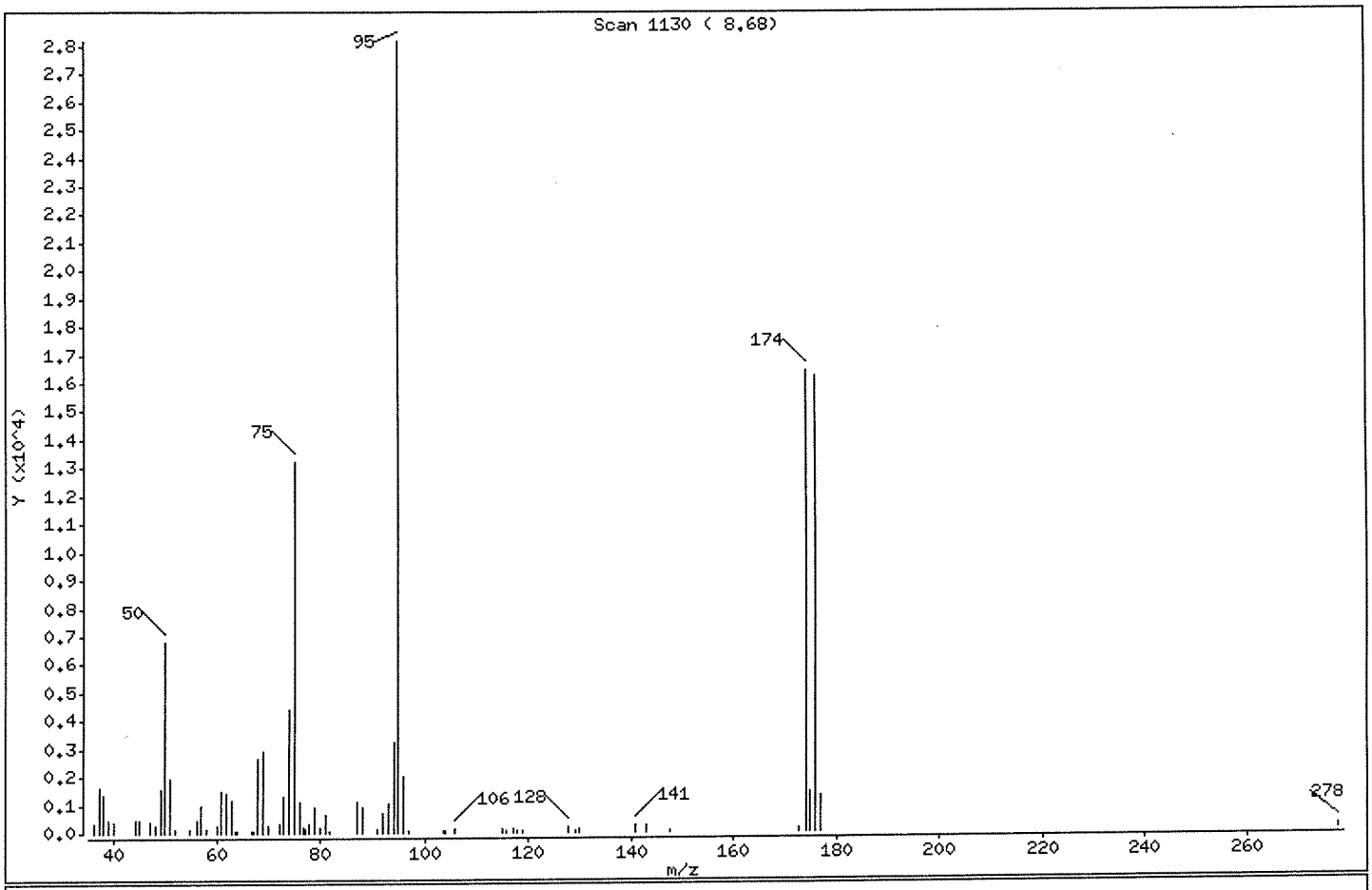
Volume Injected (uL): 2.0

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	24.23
75	30.00 - 60.00% of mass 95	46.94
96	5.00 - 9.00% of mass 95	7.07
173	Less than 2.00% of mass 174	0.40 (0.70)
174	Greater than 50.00% of mass 95	58.12
175	5.00 - 9.00% of mass 174	5.01 (8.63)
176	95.00 - 101.00% of mass 174	57.57 (99.06)
177	5.00 - 9.00% of mass 176	4.70 (8.16)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

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: X051101.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 69

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	344	61.00	1469	78.80	878	117.00	116
37.00	1597	62.00	1437	80.00	215	118.00	62
38.00	1339	63.00	1157	80.90	656	119.00	80
39.00	476	63.80	94	81.90	63	127.90	221
40.00	388	64.00	94	87.00	1132	129.00	87
44.10	480	66.70	60	88.00	930	130.00	133
45.00	427	67.10	88	91.10	98	141.00	245
47.00	412	68.00	2631	92.00	714	142.90	244
48.00	286	69.00	2930	93.00	1015	147.70	93
49.00	1548	70.00	291	94.00	3223	172.70	114
50.00	6829	72.00	332	95.00	28184	174.00	16380
51.00	1936	73.00	1275	96.00	1993	174.90	1413
52.10	99	74.00	4408	96.90	91	176.00	16226
55.00	155	75.00	13230	103.60	76	176.90	1324
56.10	426	76.00	1105	104.00	94	277.90	107
57.00	975	76.80	194	105.80	140		
58.00	122	77.10	149	114.90	135		
60.10	288	77.90	324	115.70	61		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

Client ID: BFB

Instrument: voa6.i

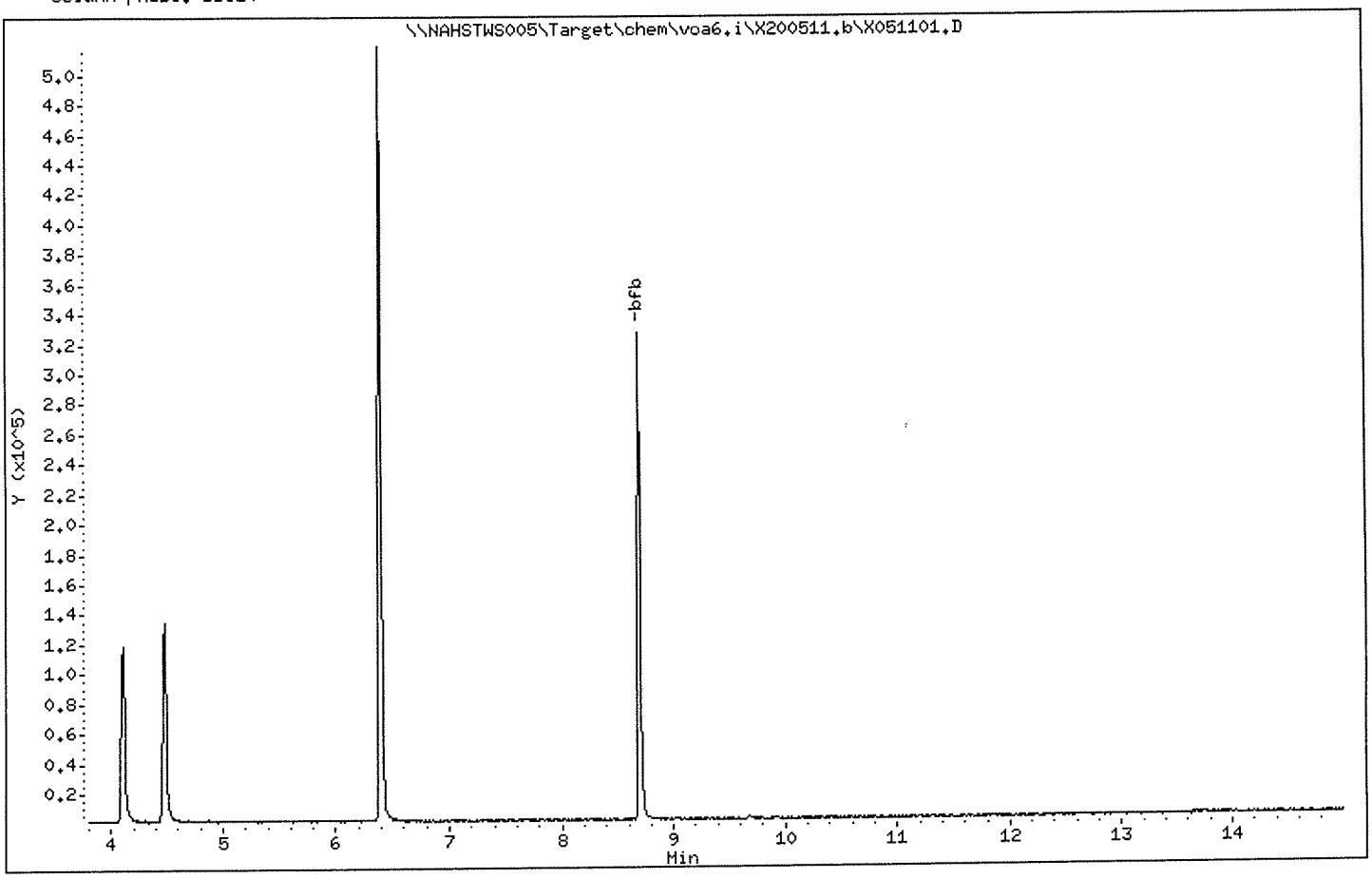
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 11-MAY-2020 14:00
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	264457	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	403047	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	360066	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	172614	50.0000	
$ 30 Dibromofluoromethane	113	4.118	4.118	(0.985)	1793	0.50000	0.43(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	2117	0.50000	0.61(TaM)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	5920	0.50000	0.19(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	2708	0.50000	0.02(aM)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1589	0.50000	0.56(a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	2455	0.50000	0.57(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1621	0.50000	0.58(aM)
138 Freon TF	101	1.911	1.911	(0.457)	928	0.50000	0.45(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	1197	0.50000	0.59(a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	3470	0.50000	0.60(Ta)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1219	0.50000	0.57(a)
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2183	0.50000	0.59(aM)
93 1,2,3-Trichlorobenzene	180	11.768	11.768	(1.218)	385	0.50000	0.32(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	1424	0.50000	0.59(aM)
90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.175)	505	0.50000	3.02(aM)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	5523	0.50000	0.60(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.104)	114	0.50000	1.86(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	1387	0.50000	0.54(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D Page 2
Report Date: 22-May-2020 16:12

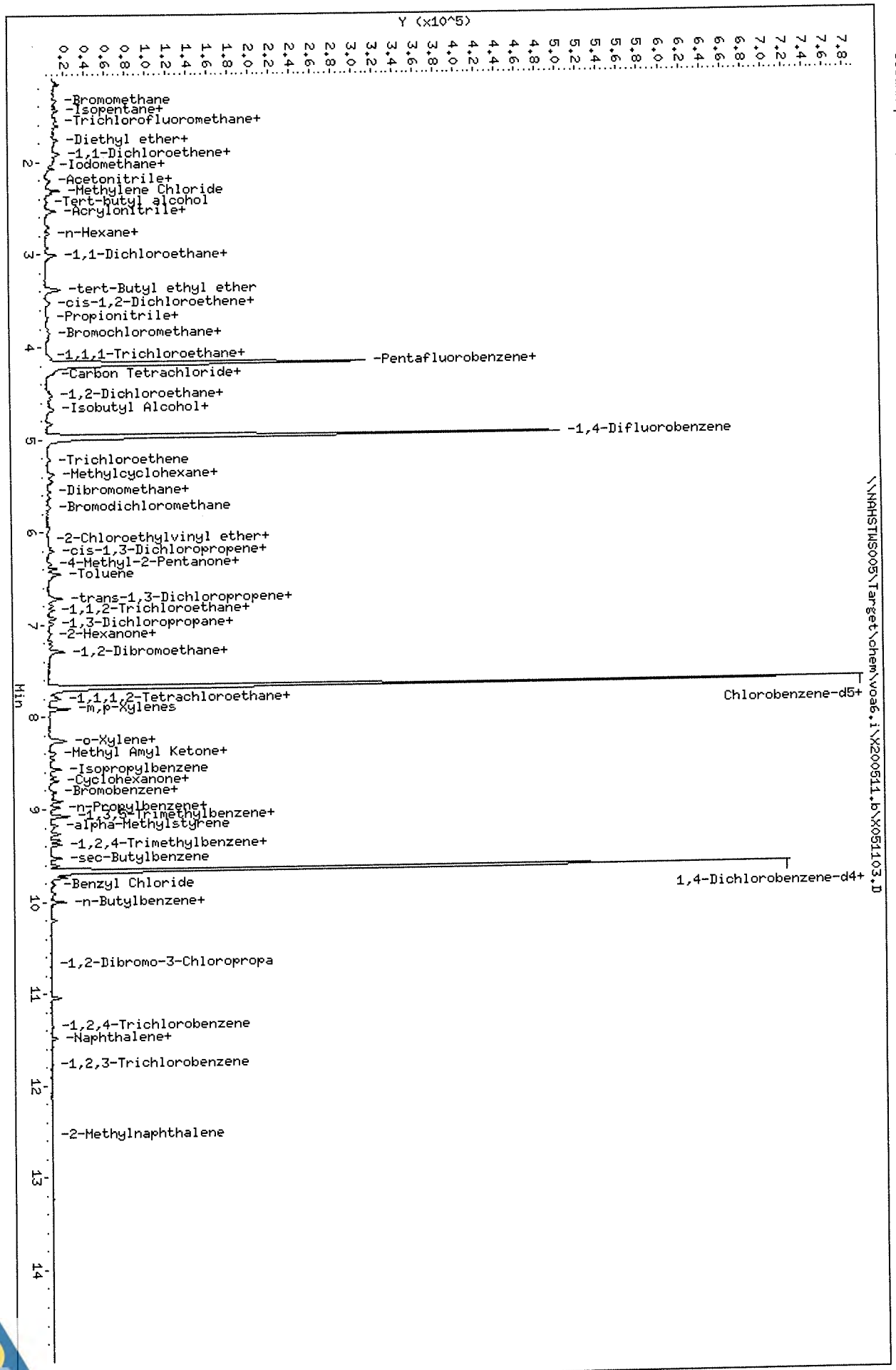
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.006	10.006	(1.036)	2924	0.50000	0.60(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	2366	0.50000	0.56(a)
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	1947	0.50000	0.59(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	4894	0.50000	0.54(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	3057	0.50000	0.58(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	2403	0.50000	0.57(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	3791	0.50000	0.69(aM)
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	2471	0.50000	0.59(aM)
24	2-Butanone	43	3.609	3.609	(0.863)	996	1.00000	0.83(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.930)	4712	0.50000	0.61(a)
52	2-Hexanone	43	7.105	7.105	(0.926)	2689	1.00000	1.20(a)
77	4-Chlorotoluene	91	9.082	9.082	(0.940)	5584	0.50000	0.62(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	5597	0.50000	0.61(a)
45	4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	3621	1.00000	1.11(a)
37	Benzene	78	4.519	4.519	(0.909)	5977	0.50000	0.58(a)
74	Bromobenzene	156	8.817	8.817	(0.913)	2002	0.50000	0.61(a)
29	Bromochloromethane	128	3.817	3.817	(0.913)	960	0.50000	0.62(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	2116	0.50000	0.56(aM)
66	Bromoform	173	8.415	8.415	(1.097)	1144	0.50000	0.55(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	8247	1.00000	1.15(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	2535	0.50000	0.62(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	4408	0.50000	0.61(a)
7	Chloroethane	64	1.403	1.403	(0.336)	1364	0.50000	0.31(aM)
28	Chloroform	83	3.917	3.917	(0.937)	2796	0.50000	0.59(aM)
3	Chloromethane	50	1.073	1.073	(0.257)	2464	0.50000	1.21(a)
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	1435	0.50000	0.51(a)
46	cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	2430	0.50000	0.55(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1589	0.50000	0.54(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	1096	0.50000	0.61(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1503	0.50000	1.54(aM)
61	Ethylbenzene	106	7.799	7.799	(1.017)	2144	0.50000	0.57(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	605	0.50000	1.59(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	6620	0.50000	0.58(a)
62	m,p-Xylenes	106	7.914	7.914	(1.032)	5392	1.00000	1.18(a)
87	n-Butylbenzene	91	9.998	9.998	(1.035)	4435	0.50000	0.60(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	7797	0.50000	0.62(a)
92	Naphthalene	128	11.567	11.567	(1.197)	795	0.50000	0.48(a)
63	o-Xylene	106	8.244	8.244	(1.075)	2416	0.50000	0.54(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	6535	0.50000	0.62(a)
64	Styrene	104	8.272	8.272	(1.078)	4394	0.50000	0.57(a)
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	4334	0.50000	0.57(aM)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1303	0.50000	0.54(a)
50	Toluene	91	6.460	6.460	(0.842)	6225	0.50000	0.58(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1384	0.50000	0.57(a)
51	trans-1,3-Dichloropropene	75	6.696	6.696	(1.347)	2163	0.50000	0.54(a)
38	Trichloroethene	130	5.221	5.221	(1.050)	1714	0.50000	0.59(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	2348	0.50000	0.55(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1998	0.50000	0.54(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D
Date : 11-MAY-2020 14:00
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

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 11-MAY-2020 14:24
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:00 Cal File: X051103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

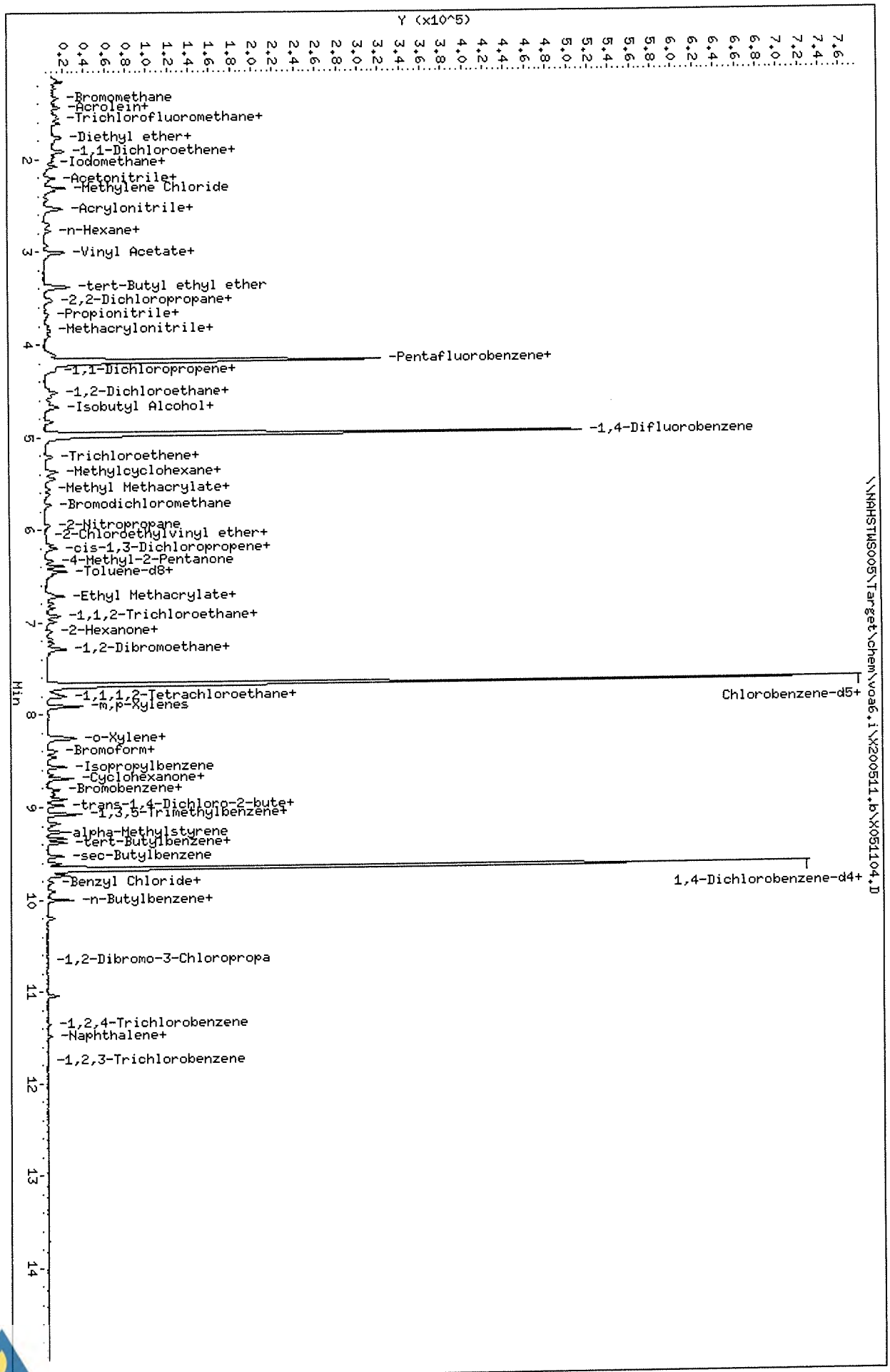
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	275272	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	406059	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	364006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	178611	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.983)	3147	1.00000	0.90(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	3902	1.00000	1.11
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	10982	1.00000	0.74(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	6819	1.00000	1.22(M)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2921	1.00000	1.02(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	4385	1.00000	0.99(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	2901	1.00000	1.01(aM)
138 Freon TF	101	1.919	1.919	(0.459)	2064	1.00000	0.97(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	1834	1.00000	0.90(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6103	1.00000	1.02
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	2222	1.00000	1.01(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	3792	1.00000	1.02(a)
93 1,2,3-Trichlorobenzene	180	11.753	11.753	(1.216)	431	1.00000	0.38(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	2246	1.00000	0.90(aM)
90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	762	1.00000	3.20(aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	8175	1.00000	0.87(a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	128	1.00000	1.90(aM)
57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	2246	1.00000	0.86(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	4805	1.00000	0.96(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	3942	1.00000	0.93(a)
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	3276	1.00000	0.99(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	8480	1.00000	0.91(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	5149	1.00000	0.94(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	3905	1.00000	0.92(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	5222	1.00000	0.92(a)
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	4652	1.00000	1.06(a)
24	2-Butanone	43	3.616	3.616	(0.865)	2014	2.00000	1.62(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	8499	1.00000	1.06(a)
52	2-Hexanone	43	7.097	7.097	(0.925)	3544	2.00000	1.57(a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	9489	1.00000	1.03(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	7748	1.00000	0.82(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	5818	2.00000	1.77(a)
37	Benzene	78	4.519	4.519	(0.909)	10698	1.00000	1.03
74	Bromobenzene	156	8.809	8.809	(0.911)	3242	1.00000	0.96(a)
29	Bromochloromethane	128	3.810	3.810	(0.911)	1724	1.00000	1.07(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	3508	1.00000	0.92(aM)
66	Bromoform	173	8.415	8.415	(1.097)	1878	1.00000	0.90(Ta)
6	Bromomethane	94	1.338	1.338	(0.320)	2788	1.00000	0.65(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	14075	2.00000	1.88(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	4264	1.00000	1.04(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	6626	1.00000	0.91(a)
7	Chloroethane	64	1.403	1.403	(0.336)	2214	1.00000	0.72(aM)
28	Chloroform	83	3.917	3.917	(0.937)	4419	1.00000	0.89(a)
3	Chloromethane	50	1.073	1.073	(0.257)	4677	1.00000	1.69(a)
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	2598	1.00000	0.89(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	4354	1.00000	0.98(a)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	2769	1.00000	0.93(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	1516	1.00000	0.84(a)
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	2633	1.00000	1.86(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	3595	1.00000	0.94(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	736	1.00000	1.70(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	10828	1.00000	0.95(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	8477	2.00000	1.84(a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	3655	1.00000	0.30(aM)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	5888	1.00000	0.77(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	11772	1.00000	0.91(a)
92	Naphthalene	128	11.567	11.567	(1.196)	1462	1.00000	0.86(a)
63	o-Xylene	106	8.244	8.244	(1.075)	4297	1.00000	0.96(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	9307	1.00000	0.86(a)
64	Styrene	104	8.265	8.265	(1.078)	7774	1.00000	1.00
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	7608	1.00000	0.97(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	2384	1.00000	0.99(a)
50	Toluene	91	6.453	6.453	(0.841)	10333	1.00000	0.95(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	2248	1.00000	0.89(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	3756	1.00000	0.93(a)
38	Trichloroethene	130	5.221	5.221	(1.050)	2673	1.00000	0.91(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	4149	1.00000	0.93(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	3583	1.00000	0.93(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D
Date : 11-MAY-2020 14:24
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\X200511.b\X051105.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 11-MAY-2020 14:48
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:24 Cal File: X051104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

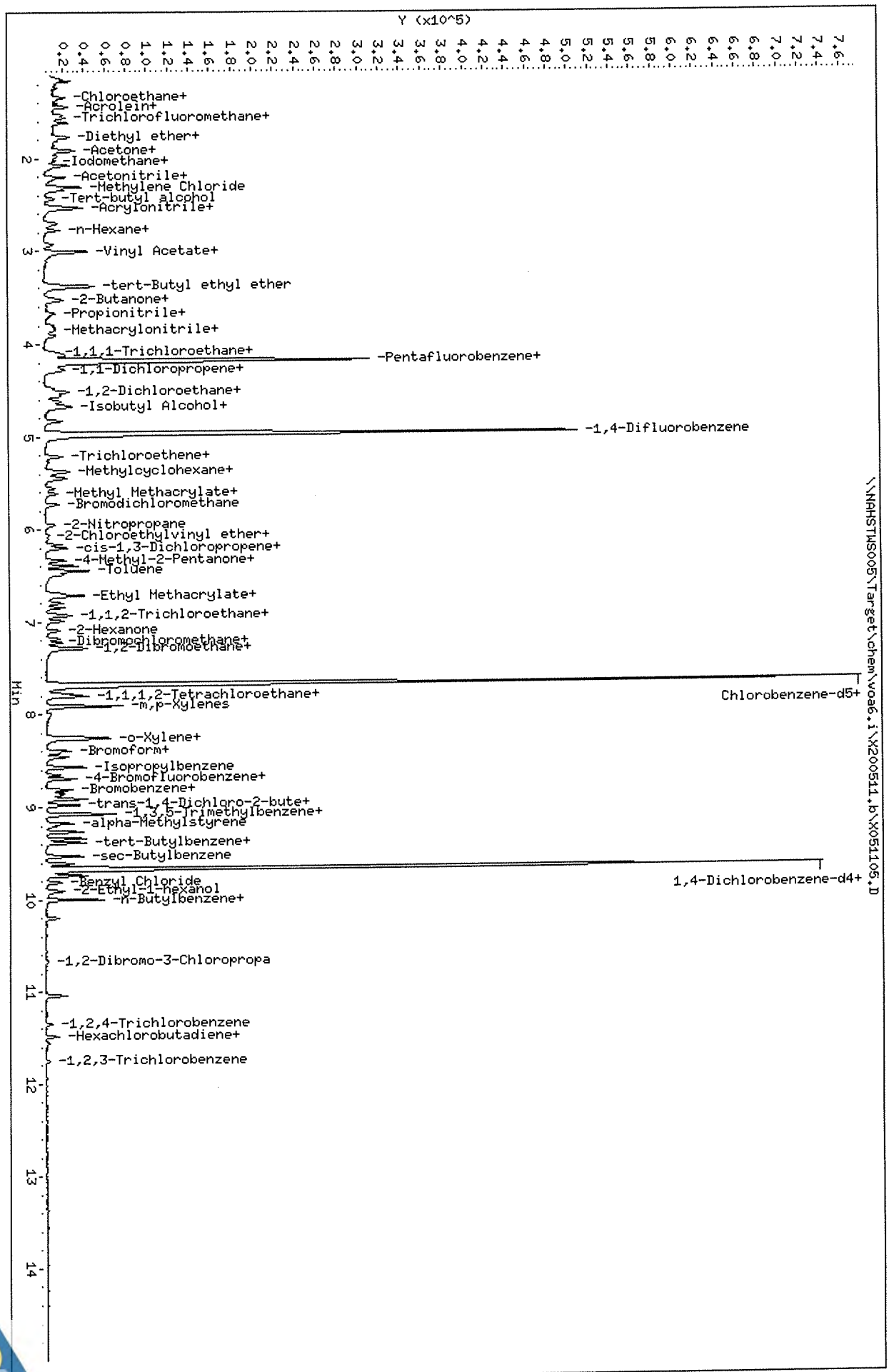
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	263591	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	396279	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	351963	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	178242	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	5198	2.00000	1.74
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	7290	2.00000	2.20
$	48 Toluene-d8	98	6.388	6.388	(0.833)	18430	2.00000	1.63
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8380	2.00000	1.75
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	5459	2.00000	1.97(a)
	31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	8079	2.00000	1.91
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6293	2.00000	2.19(aM)
	138 Freon TF	101	1.919	1.919	(0.459)	4120	2.00000	2.02(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4127	2.00000	2.10(a)
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	11643	2.00000	2.03
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3905	2.00000	1.86(a)
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	7360	2.00000	2.02(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	1047	2.00000	1.52(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	5909	2.00000	2.37(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	1924	2.00000	4.05(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	17865	2.00000	1.91(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.104)	532	2.00000	3.27(aM)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	5252	2.00000	2.10

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	10304	2.00000	2.07(a)
33	1,2-Dichloroethane	62	4.569	4.569	(0.919)	7567	2.00000	1.83
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	6309	2.00000	1.95(aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	18199	2.00000	1.97(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	10710	2.00000	1.97(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	8570	2.00000	2.10(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	10744	2.00000	1.90(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	8610	2.00000	2.06(a)
24	2-Butanone	43	3.595	3.595	(0.860)	3931	4.00000	3.30
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	15622	2.00000	1.96(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	9844	4.00000	4.52(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	17906	2.00000	1.95(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	17190	2.00000	1.83(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	14181	4.00000	4.46(a)
10	Acetone	43	1.969	1.969	(0.471)	5040	4.00000	2.97(a)
37	Benzene	78	4.519	4.519	(0.909)	19710	2.00000	1.94
74	Bromobenzene	156	8.810	8.810	(0.912)	6636	2.00000	1.98(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	3004	2.00000	1.96(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	7310	2.00000	1.97(a)
66	Bromoform	173	8.416	8.416	(1.097)	4311	2.00000	2.13(Ta)
6	Bromomethane	94	1.339	1.339	(0.320)	5327	2.00000	2.04(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	27764	4.00000	3.88(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	7736	2.00000	1.94(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	14195	2.00000	2.03
7	Chloroethane	64	1.403	1.403	(0.336)	3636	2.00000	1.54(a)
28	Chloroform	83	3.917	3.917	(0.937)	9385	2.00000	1.99
3	Chloromethane	50	1.074	1.074	(0.257)	8356	2.00000	2.61(a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	6149	2.00000	2.21(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8237	2.00000	1.90(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	5789	2.00000	2.03(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	3352	2.00000	1.91(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	5304	2.00000	2.75(a)
61	Ethylbenzene	106	7.800	7.800	(1.017)	7402	2.00000	2.02
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	2177	2.00000	3.15(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	20273	2.00000	1.84(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	17933	4.00000	4.03
17	Methylene Chloride	84	2.306	2.306	(0.551)	6641	2.00000	1.54(aM)
87	n-Butylbenzene	91	9.999	9.999	(1.035)	13137	2.00000	1.73(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	23793	2.00000	1.85(a)
92	Naphthalene	128	11.553	11.553	(1.196)	2896	2.00000	1.72(a)
63	o-Xylene	106	8.244	8.244	(1.075)	9179	2.00000	2.12
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	21323	2.00000	1.97(a)
64	Styrene	104	8.265	8.265	(1.078)	15041	2.00000	2.00
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	15079	2.00000	1.92(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	4860	2.00000	2.09
50	Toluene	91	6.453	6.453	(0.841)	21432	2.00000	2.05
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4704	2.00000	1.96(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	7614	2.00000	1.93(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	5425	2.00000	1.90
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	7899	2.00000	1.86(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	7135	2.00000	1.95(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D
Date : 11-MAY-2020 14:48
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 11-MAY-2020 15:12
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:48 Cal File: X051105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

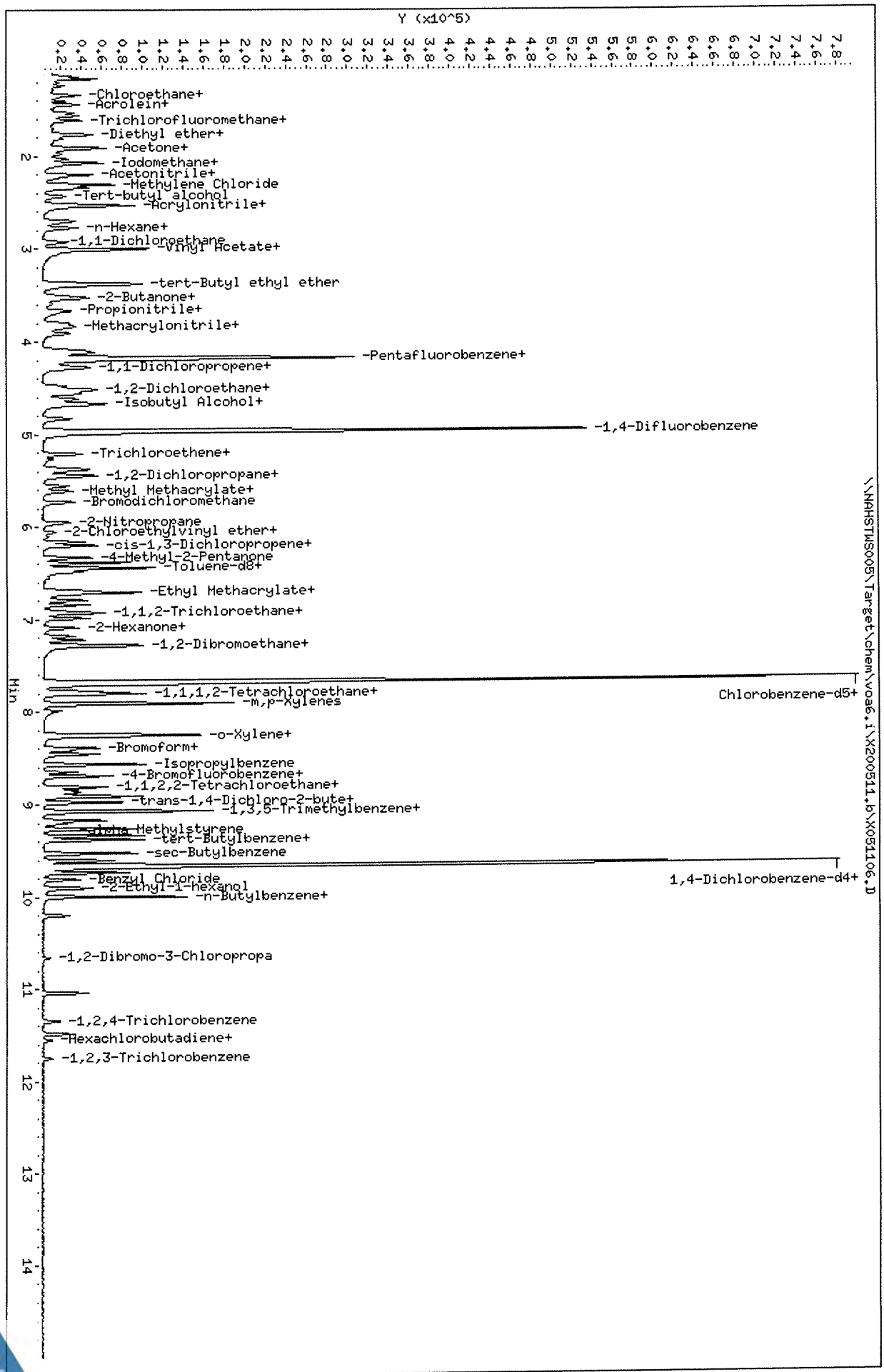
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	260790	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	393985	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	352401	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	175544	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.983)	14036	5.00000	5.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	17135	5.00000	5.29
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	47142	5.00000	4.91
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	19241	5.00000	5.03
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	13494	5.00000	4.87(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	20093	5.00000	4.81
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	14006	5.00000	4.96(a)
138 Freon TF	101	1.911	1.911	(0.457)	9855	5.00000	4.88(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	10314	5.00000	5.26
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	28324	5.00000	4.99
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	9809	5.00000	4.72(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	17168	5.00000	4.75(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	3164	5.00000	5.50
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	11655	5.00000	4.76(aM)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	5746	5.00000	6.93
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	44767	5.00000	4.86(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	1596	5.00000	6.97
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	12610	5.00000	5.03

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D Page 2
Report Date: 22-May-2020 16:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	23909	5.00000	4.88(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	20100	5.00000	4.89
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	15911	5.00000	4.96(a)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	45927	5.00000	5.06
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	26279	5.00000	4.91(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	20663	5.00000	5.07
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	27091	5.00000	4.88(a)
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	20032	5.00000	4.85(a)
24 2-Butanone	43	3.588	3.588	(0.858)	11452	10.0000	9.74
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	38693	5.00000	4.93(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	21406	10.0000	9.82
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	42965	5.00000	4.75(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	44464	5.00000	4.82(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	32131	10.0000	10.09
10 Acetone	43	1.976	1.976	(0.473)	9390	10.0000	7.93
37 Benzene	78	4.519	4.519	(0.909)	47662	5.00000	4.73
74 Bromobenzene	156	8.809	8.809	(0.911)	15558	5.00000	4.72(a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	7793	5.00000	5.15
39 Bromodichloromethane	83	5.729	5.729	(1.153)	18153	5.00000	4.93(a)
66 Bromoform	173	8.416	8.416	(1.097)	10062	5.00000	4.98(a)
6 Bromomethane	94	1.338	1.338	(0.320)	11539	5.00000	5.35(M)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	68909	10.0000	9.74
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	18629	5.00000	4.70(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	34696	5.00000	4.96
7 Chloroethane	64	1.403	1.403	(0.336)	10011	5.00000	5.05
28 Chloroform	83	3.910	3.910	(0.935)	24061	5.00000	5.16
3 Chloromethane	50	1.073	1.073	(0.257)	19497	5.00000	5.31
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	13752	5.00000	4.99(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	21020	5.00000	4.88(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	13999	5.00000	4.90(a)
44 Dibromomethane	93	5.557	5.557	(1.118)	8792	5.00000	5.05
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	13068	5.00000	5.26
61 Ethylbenzene	106	7.800	7.800	(1.017)	17464	5.00000	4.76
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	5460	5.00000	6.55
67 Isopropylbenzene	105	8.566	8.566	(1.117)	54621	5.00000	4.97(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	43516	10.0000	9.78
17 Methylene Chloride	84	2.305	2.305	(0.551)	14433	5.00000	4.67(aM)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	36372	5.00000	4.88(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	61681	5.00000	4.88(a)
92 Naphthalene	128	11.546	11.546	(1.194)	7604	5.00000	4.60(a)
63 o-Xylene	106	8.244	8.244	(1.075)	21272	5.00000	4.91
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	53044	5.00000	4.98(a)
64 Styrene	104	8.265	8.265	(1.078)	36239	5.00000	4.83
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	38878	5.00000	5.05
56 Tetrachloroethene	164	6.933	6.933	(0.904)	11417	5.00000	4.91
50 Toluene	91	6.446	6.446	(0.840)	52487	5.00000	5.03
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	11735	5.00000	4.94(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	19122	5.00000	4.89(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	13453	5.00000	4.75
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	19847	5.00000	4.73(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	17119	5.00000	4.73(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Date : 11-MAY-2020 15:12
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D
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Inj Date : 11-MAY-2020 15:36
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
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Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 15:12 Cal File: X051106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

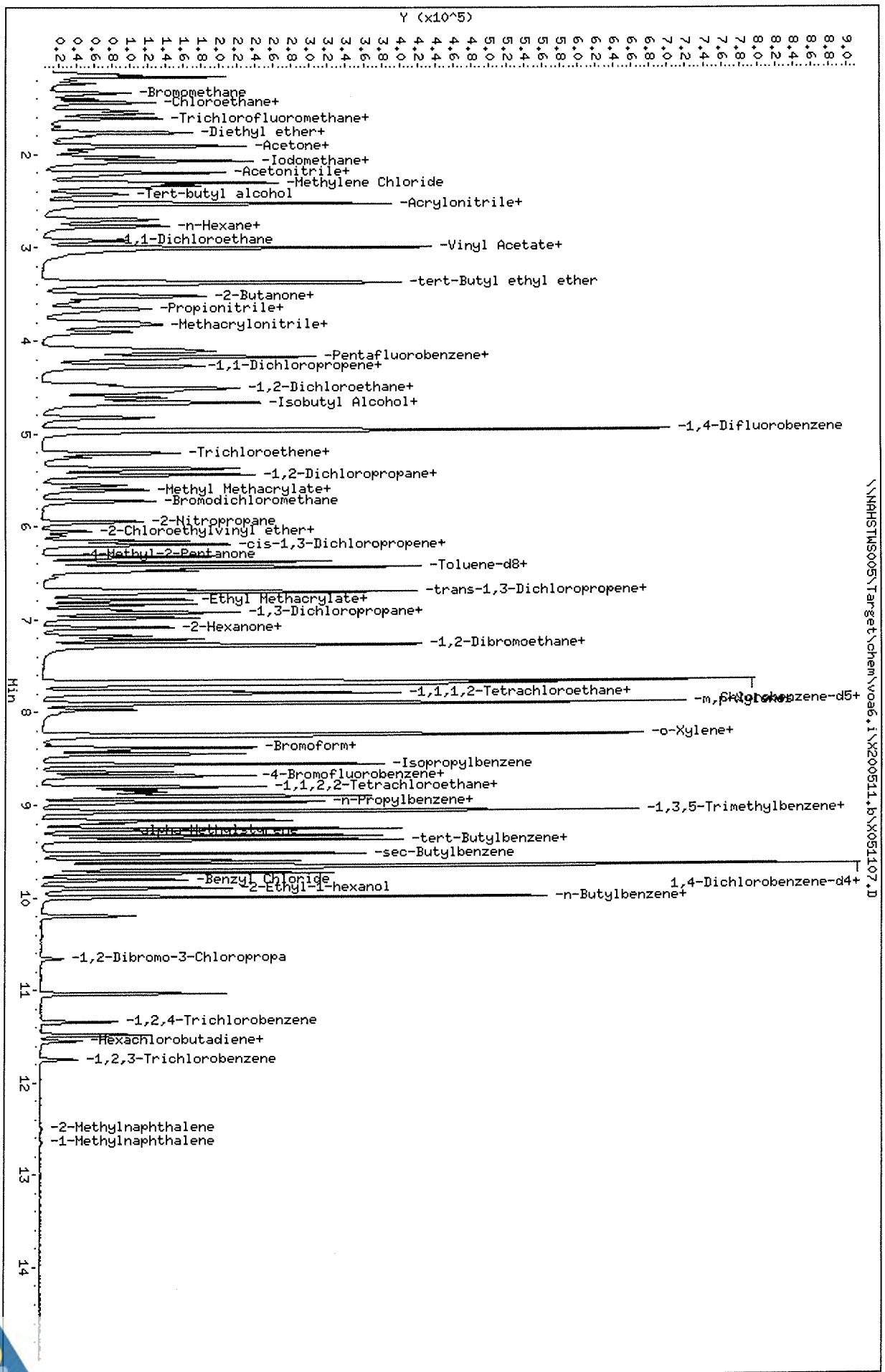
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	255700	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	378254	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	339256	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	171130	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	51294	20.0000	19.96
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	62012	20.0000	19.65
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	176771	20.0000	20.47
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	69563	20.0000	21.02
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	52095	20.0000	19.53
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	79732	20.0000	19.47
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	53986	20.0000	19.63
138 Freon TF	101	1.919	1.919	(0.459)	38765	20.0000	19.61
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	36817	20.0000	19.50
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	107343	20.0000	19.31
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	39440	20.0000	19.38
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	66167	20.0000	19.10
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	11186	20.0000	20.71
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	45232	20.0000	18.96 (M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	23261	20.0000	20.47
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	177262	20.0000	19.74
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	5237	20.0000	20.01
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	49329	20.0000	20.46

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.991	9.991	(1.034)	91741	20.0000	19.24
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	79106	20.0000	20.08
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	60696	20.0000	19.71
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	173374	20.0000	19.62
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	103242	20.0000	19.79
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	78846	20.0000	20.09
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	102094	20.0000	18.87
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	78288	20.0000	19.33
24	2-Butanone	43	3.580	3.580	(0.856)	49330	40.0000	42.80
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	143786	20.0000	18.82
52	2-Hexanone	43	7.090	7.090	(0.924)	83306	40.0000	39.70
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	170619	20.0000	19.37
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	178794	20.0000	19.89
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	122401	40.0000	39.95
10	Acetone	43	1.969	1.969	(0.471)	35665	40.0000	38.28
37	Benzene	78	4.512	4.512	(0.908)	190323	20.0000	19.68
74	Bromobenzene	156	8.809	8.809	(0.912)	62061	20.0000	19.34
29	Bromochloromethane	128	3.795	3.795	(0.908)	28180	20.0000	18.99
39	Bromodichloromethane	83	5.729	5.729	(1.153)	69054	20.0000	19.55
66	Bromoform	173	8.415	8.415	(1.097)	38468	20.0000	19.79
6	Bromomethane	94	1.338	1.338	(0.320)	40170	20.0000	20.93
19	Carbon Disulfide	76	2.069	2.069	(0.495)	269383	40.0000	38.86
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	69941	20.0000	18.40
59	Chlorobenzene	112	7.699	7.699	(1.004)	130918	20.0000	19.47
7	Chloroethane	64	1.403	1.403	(0.336)	35750	20.0000	19.50
28	Chloroform	83	3.910	3.910	(0.935)	90107	20.0000	19.71
3	Chloromethane	50	1.073	1.073	(0.257)	77009	20.0000	19.49
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	54813	20.0000	20.32
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	81116	20.0000	19.61
55	Dibromochloromethane	129	7.176	7.176	(0.936)	53715	20.0000	19.56
44	Dibromomethane	93	5.557	5.557	(1.118)	32219	20.0000	19.29
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	55700	20.0000	19.32
61	Ethylbenzene	106	7.799	7.799	(1.017)	69660	20.0000	19.74
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	21311	20.0000	23.33
67	Isopropylbenzene	105	8.566	8.566	(1.117)	209344	20.0000	19.78
62	m,p-Xylenes	106	7.907	7.907	(1.031)	170236	40.0000	39.75
17	Methylene Chloride	84	2.305	2.305	(0.551)	52520	20.0000	20.24
87	n-Butylbenzene	91	9.998	9.998	(1.035)	146592	20.0000	20.21
73	n-Propylbenzene	91	8.917	8.917	(0.923)	239282	20.0000	19.44
92	Naphthalene	128	11.546	11.546	(1.195)	31970	20.0000	19.84
63	o-Xylene	106	8.244	8.244	(1.075)	83788	20.0000	20.11
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	201174	20.0000	19.40
64	Styrene	104	8.258	8.258	(1.077)	143940	20.0000	19.93
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	147263	20.0000	19.62
56	Tetrachloroethene	164	6.933	6.933	(0.904)	43566	20.0000	19.46
50	Toluene	91	6.446	6.446	(0.840)	201457	20.0000	20.06
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	46791	20.0000	20.11
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	73152	20.0000	19.50
38	Trichloroethene	130	5.206	5.206	(1.048)	52492	20.0000	19.34
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	79846	20.0000	19.40
5	Vinyl Chloride	62	1.138	1.138	(0.272)	69422	20.0000	19.58

QC Flag Legend

M - Compound response manually integrated.



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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\X200511.b\X051108.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-MAY-2020 16:00
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 15:36 Cal File: X051107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

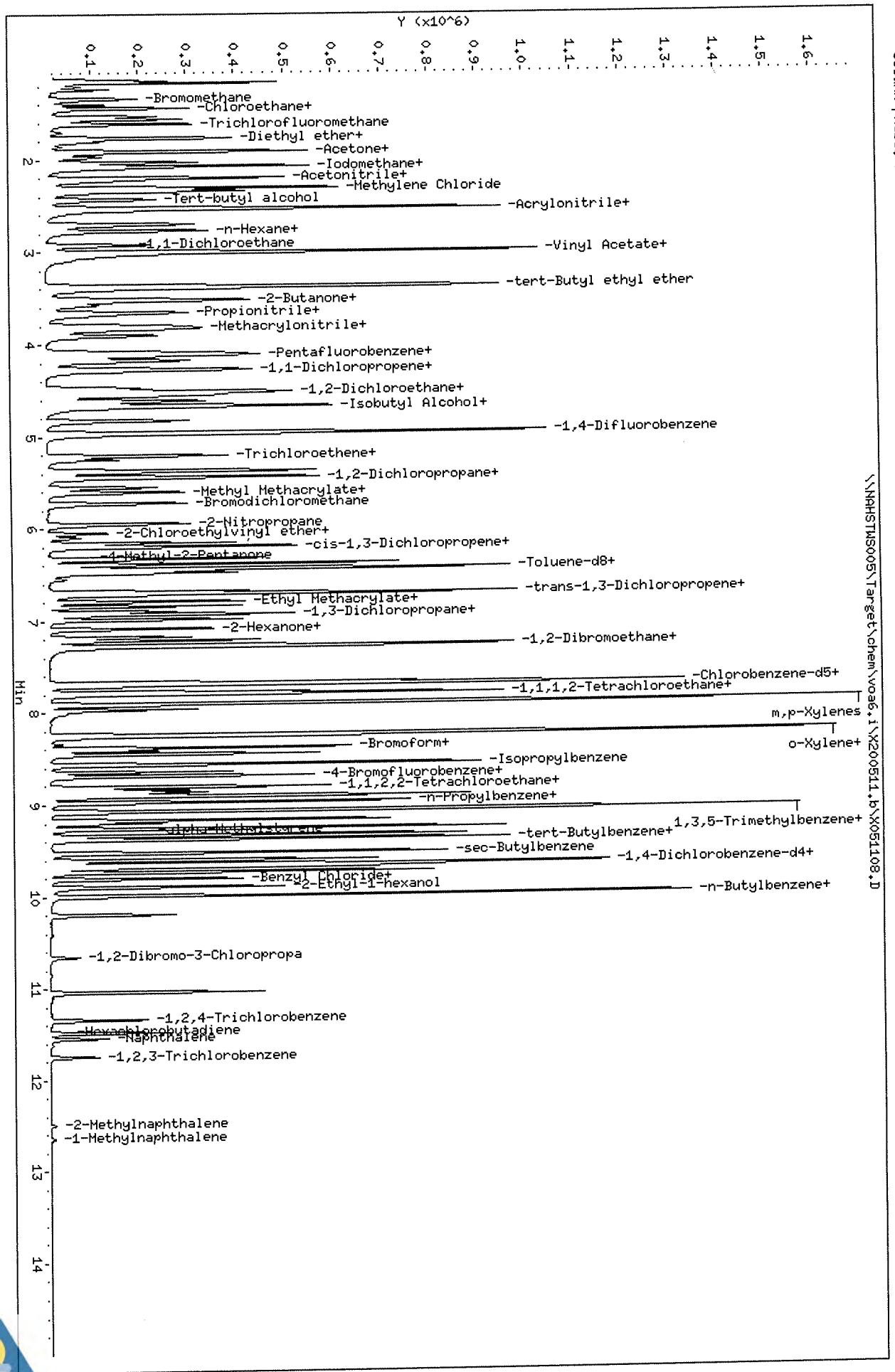
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	244879	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	357125	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	326341	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	163130	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118264	50.0000	48.40
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	143586	50.0000	47.57
$	48 Toluene-d8	98	6.388	6.388	(0.833)	410250	50.0000	50.05
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	152557	50.0000	48.91
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	124113	50.0000	48.38
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	187573	50.0000	47.83
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	121679	50.0000	46.41
	138 Freon TF	101	1.911	1.911	(0.457)	94407	50.0000	49.88
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	87053	50.0000	47.95
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	249560	50.0000	46.89
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	94156	50.0000	48.32
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	153095	50.0000	46.82
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	27245	50.0000	51.83
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	111062	50.0000	48.85(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	54809	50.0000	46.70
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	419671	50.0000	49.04
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	12187	50.0000	46.74
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	114686	50.0000	49.46

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	216357	50.0000	47.60
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	188212	50.0000	50.61
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	141074	50.0000	48.53
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	410269	50.0000	48.70
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	238547	50.0000	47.98
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	182269	50.0000	48.29
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	242693	50.0000	47.06
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	180990	50.0000	46.68
24	2-Butanone	43	3.573	3.573	(0.854)	128765	100.000	116.67
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	337693	50.0000	46.37
52	2-Hexanone	43	7.083	7.083	(0.923)	198319	100.000	98.27
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	394561	50.0000	47.00
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	420632	50.0000	49.08
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	280968	100.000	95.35
10	Acetone	43	1.969	1.969	(0.471)	95313	100.000	111.54
37	Benzene	78	4.512	4.512	(0.908)	440626	50.0000	48.26
74	Bromobenzene	156	8.809	8.809	(0.911)	147210	50.0000	48.13
29	Bromochloromethane	128	3.795	3.795	(0.908)	67372	50.0000	47.41
39	Bromodichloromethane	83	5.729	5.729	(1.153)	163351	50.0000	49.00
66	Bromoform	173	8.415	8.415	(1.097)	89604	50.0000	47.92
6	Bromomethane	94	1.338	1.338	(0.320)	86417	50.0000	47.95
19	Carbon Disulfide	76	2.069	2.069	(0.495)	646964	100.000	97.46
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	167086	50.0000	46.56
59	Chlorobenzene	112	7.699	7.699	(1.004)	309412	50.0000	47.85
7	Chloroethane	64	1.403	1.403	(0.336)	85402	50.0000	49.28
28	Chloroform	83	3.910	3.910	(0.935)	210954	50.0000	48.20
3	Chloromethane	50	1.073	1.073	(0.257)	185773	50.0000	48.15
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	126004	50.0000	48.77
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	193147	50.0000	49.47
55	Dibromochloromethane	129	7.176	7.176	(0.936)	129345	50.0000	48.96
44	Dibromomethane	93	5.557	5.557	(1.118)	77674	50.0000	49.26
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	135443	50.0000	47.41
61	Ethylbenzene	106	7.799	7.799	(1.017)	165225	50.0000	48.68
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	41952	50.0000	47.15
67	Isopropylbenzene	105	8.566	8.566	(1.117)	489328	50.0000	48.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	402602	100.000	97.74
17	Methylene Chloride	84	2.305	2.305	(0.551)	120730	50.0000	50.09
87	n-Butylbenzene	91	9.998	9.998	(1.034)	347792	50.0000	50.30
73	n-Propylbenzene	91	8.917	8.917	(0.922)	565315	50.0000	48.20
92	Naphthalene	128	11.546	11.546	(1.194)	75806	50.0000	49.35
63	o-Xylene	106	8.244	8.244	(1.075)	194330	50.0000	48.49
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	468460	50.0000	47.41
64	Styrene	104	8.258	8.258	(1.077)	337378	50.0000	48.57
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	340560	50.0000	47.61
56	Tetrachloroethene	164	6.933	6.933	(0.904)	104173	50.0000	48.39
50	Toluene	91	6.446	6.446	(0.840)	467021	50.0000	48.35
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	109110	50.0000	48.98
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	173577	50.0000	49.02
38	Trichloroethene	130	5.206	5.206	(1.048)	124926	50.0000	48.75
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	194926	50.0000	49.47
5	Vinyl Chloride	62	1.138	1.138	(0.272)	167564	50.0000	49.36

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 11-MAY-2020 16:24
Operator : PC Inst ID: voa6.i
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Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

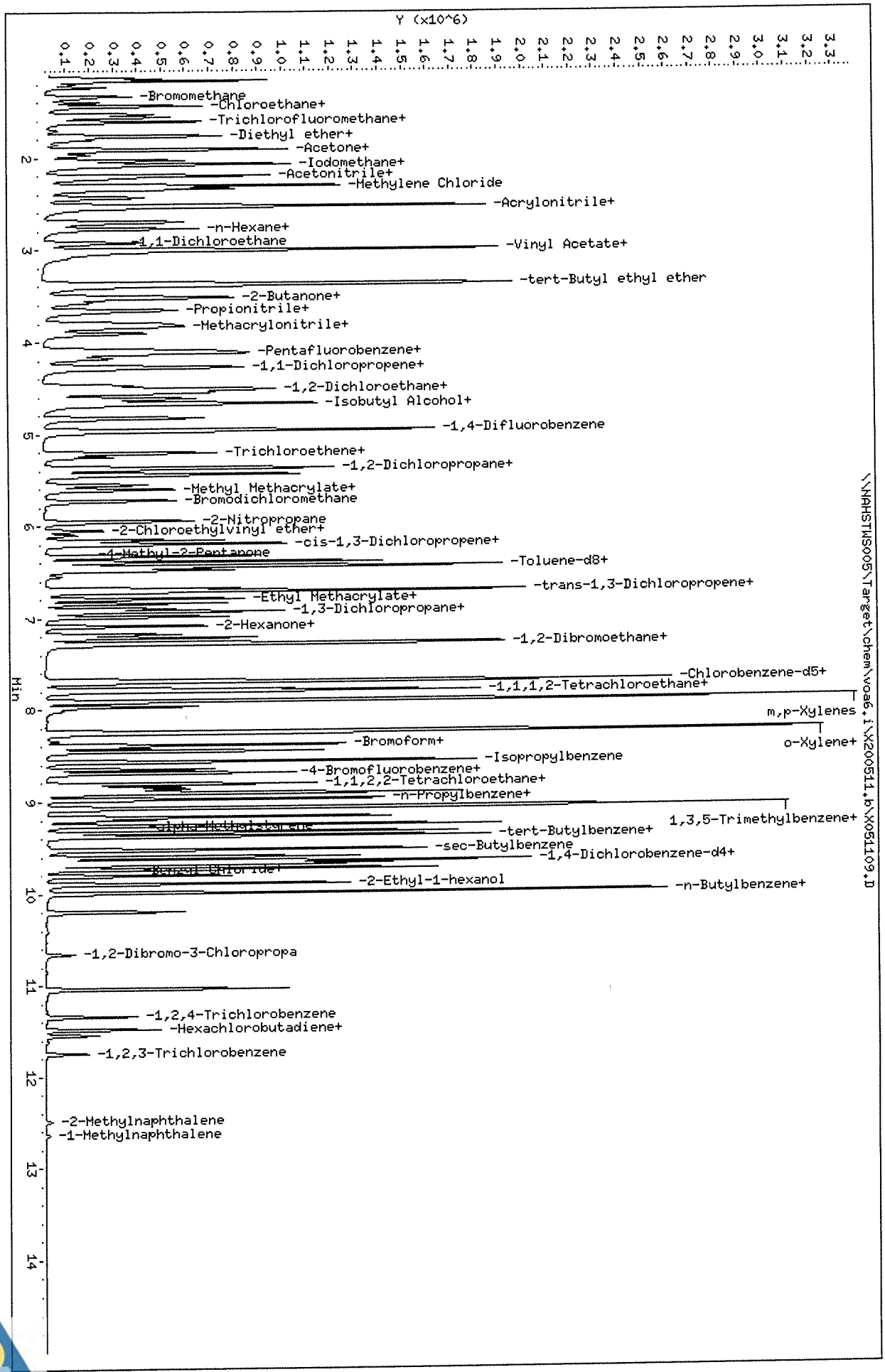
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	226332	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	331288	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	309250	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	155032	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	228909	100.000	101.63
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	281127	100.000	100.81
$	48 Toluene-d8	98	6.388	6.388	(0.833)	778769	100.000	100.73
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	294185	100.000	100.33
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	239360	100.000	98.47
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	360299	100.000	99.40
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	232257	100.000	93.22
	138 Freon TF	101	1.912	1.912	(0.457)	185402	100.000	105.99
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	165216	100.000	96.04
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	473292	100.000	96.21
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	180100	100.000	100.01
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	299678	100.000	98.81
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	50765	100.000	96.62
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	207372	100.000	95.98 (M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	103966	100.000	90.59
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	815497	100.000	100.27
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	23938	100.000	95.05
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	217918	100.000	99.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.991	9.991	(1.033)	414523	100.000	95.97
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	349387	100.000	101.29(A)
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	264442	100.000	98.06
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	810286	100.000	101.22
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	465093	100.000	98.44
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	344709	100.000	96.39
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	467125	100.000	95.32
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	341084	100.000	95.17
24	2-Butanone	43	3.573	3.573	(0.854)	229095	200.000	224.59(A)
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	666346	100.000	96.29
52	2-Hexanone	43	7.090	7.090	(0.924)	374858	200.000	196.01
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	767875	100.000	96.25
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	830752	100.000	102.01
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	545954	200.000	195.52
10	Acetone	43	1.969	1.969	(0.471)	157042	200.000	200.90
37	Benzene	78	4.512	4.512	(0.908)	832105	100.000	98.26
74	Bromobenzene	156	8.810	8.810	(0.911)	281193	100.000	96.74
29	Bromochloromethane	128	3.795	3.795	(0.908)	121892	100.000	92.82
39	Bromodichloromethane	83	5.729	5.729	(1.153)	308906	100.000	99.89
66	Bromoform	173	8.416	8.416	(1.097)	175012	100.000	98.77
6	Bromomethane	94	1.331	1.331	(0.318)	166042	100.000	100.49
19	Carbon Disulfide	76	2.069	2.069	(0.495)	1236060	200.000	201.47(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	324110	100.000	97.37
59	Chlorobenzene	112	7.699	7.699	(1.004)	595488	100.000	97.18
7	Chloroethane	64	1.396	1.396	(0.334)	162411	100.000	101.85
28	Chloroform	83	3.910	3.910	(0.935)	397623	100.000	98.30
3	Chloromethane	50	1.073	1.073	(0.257)	352150	100.000	98.11
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	238323	100.000	99.81
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	364351	100.000	100.60
55	Dibromochloromethane	129	7.176	7.176	(0.936)	253688	100.000	101.35
44	Dibromomethane	93	5.558	5.558	(1.118)	146927	100.000	100.45
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	264084	100.000	98.85
61	Ethylbenzene	106	7.800	7.800	(1.017)	323615	100.000	100.63(A)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	77175	100.000	90.37
67	Isopropylbenzene	105	8.566	8.566	(1.117)	969801	100.000	100.56
62	m,p-Xylenes	106	7.907	7.907	(1.031)	769824	200.000	197.22
17	Methylene Chloride	84	2.306	2.306	(0.551)	224234	100.000	101.75
87	n-Butylbenzene	91	9.999	9.999	(1.034)	687209	100.000	104.59
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1109073	100.000	99.50
92	Naphthalene	128	11.546	11.546	(1.194)	148845	100.000	101.97
63	o-Xylene	106	8.244	8.244	(1.075)	372835	100.000	98.17
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	938229	100.000	99.91
64	Styrene	104	8.258	8.258	(1.077)	648150	100.000	98.47
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	675938	100.000	99.45
56	Tetrachloroethene	164	6.933	6.933	(0.904)	201864	100.000	98.95
50	Toluene	91	6.446	6.446	(0.840)	886141	100.000	96.82
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	207011	100.000	100.54
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	333810	100.000	101.63
38	Trichloroethene	130	5.207	5.207	(1.048)	243052	100.000	102.24(A)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	376917	100.000	103.50
5	Vinyl Chloride	62	1.138	1.138	(0.272)	323682	100.000	103.16

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D
Date : 11-MAY-2020 16:24
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;18;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 11-MAY-2020 16:47
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:24 Cal File: X051109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

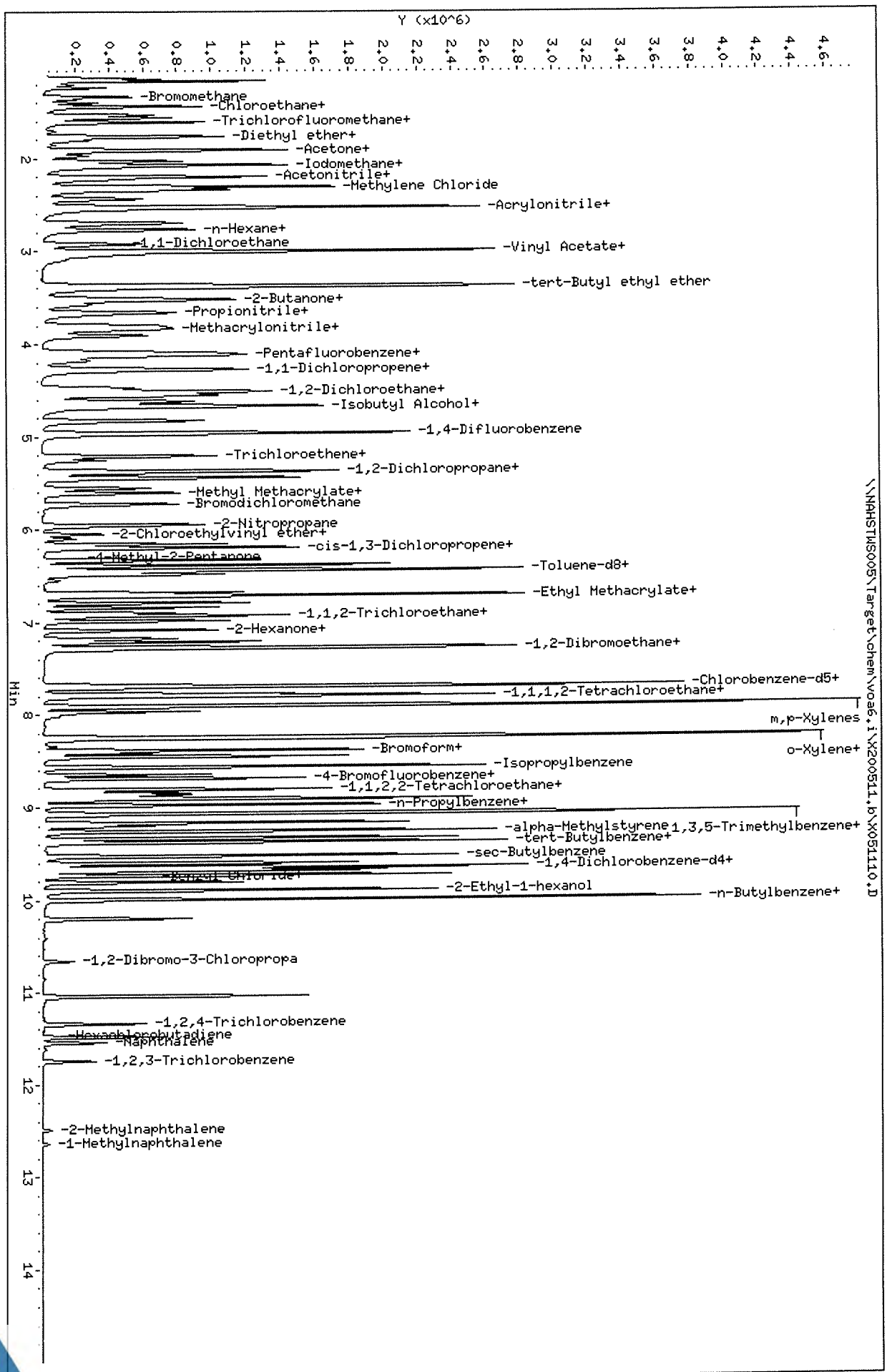
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	210896	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	312188	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	295010	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	147624	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	320906	150.000	153.02
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	402302	150.000	154.85
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1109628	150.000	150.69
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	420723	150.000	150.80
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	342668	150.000	147.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	514515	150.000	152.34(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	334626	150.000	141.04
138 Freon TF	101	1.911	1.911	(0.457)	260990	150.000	160.13
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	235212	150.000	143.33
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	664765	150.000	145.03(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	257690	150.000	153.58
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	423104	150.000	148.04
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	82626	150.000	152.12
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	290589	150.000	141.25(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	161556	150.000	146.17
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1176422	150.000	151.92
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	35913	150.000	148.91
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	315920	150.000	150.73(A)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	602146	150.000	146.41
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	496703	150.000	152.80(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	369792	150.000	145.52
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1156269	150.000	151.69
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	674171	150.000	149.86
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	493264	150.000	144.59
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	672004	150.000	144.01
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	486844	150.000	145.79
24	2-Butanone	43	3.573	3.573	(0.854)	320319	300.000	337.00(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	949403	150.000	144.08
52	2-Hexanone	43	7.090	7.090	(0.924)	531716	300.000	291.45
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	1091030	150.000	143.62
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1196736	150.000	154.33
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	784939	300.000	294.68
10	Acetone	43	1.969	1.969	(0.471)	214208	300.000	295.31
37	Benzene	78	4.512	4.512	(0.908)	1182839	150.000	148.22(A)
74	Bromobenzene	156	8.809	8.809	(0.911)	403596	150.000	145.82
29	Bromochloromethane	128	3.795	3.795	(0.908)	172062	150.000	140.61
39	Bromodichloromethane	83	5.729	5.729	(1.153)	446504	150.000	153.22
66	Bromoform	173	8.415	8.415	(1.097)	252342	150.000	149.29
6	Bromomethane	94	1.331	1.331	(0.318)	236806	150.000	154.21
19	Carbon Disulfide	76	2.069	2.069	(0.495)	1753146	300.000	306.68(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	464237	150.000	148.00
59	Chlorobenzene	112	7.699	7.699	(1.004)	852770	150.000	145.89(A)
7	Chloroethane	64	1.396	1.396	(0.334)	229270	150.000	154.52
28	Chloroform	83	3.910	3.910	(0.935)	562576	150.000	149.27(A)
3	Chloromethane	50	1.073	1.073	(0.257)	510038	150.000	152.15
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	337533	150.000	151.71(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	521162	150.000	152.70
55	Dibromochloromethane	129	7.176	7.176	(0.936)	360158	150.000	150.83
44	Dibromomethane	93	5.557	5.557	(1.118)	209387	150.000	151.91
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	377623	150.000	151.12
61	Ethylbenzene	106	7.799	7.799	(1.017)	454714	150.000	148.22(A)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	122993	150.000	150.61
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1380555	150.000	150.06
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1094132	300.000	293.84(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	318789	150.000	155.81
87	n-Butylbenzene	91	9.998	9.998	(1.034)	990914	150.000	158.38
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1587708	150.000	149.59
92	Naphthalene	128	11.546	11.546	(1.194)	240798	150.000	173.25
63	o-Xylene	106	8.244	8.244	(1.075)	535459	150.000	147.80(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1337568	150.000	149.59
64	Styrene	104	8.265	8.265	(1.078)	912591	150.000	145.34(A)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	965175	150.000	149.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	286458	150.000	147.20(A)
50	Toluene	91	6.446	6.446	(0.840)	1251009	150.000	143.28(A)
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	291868	150.000	152.13
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	484238	150.000	156.45
38	Trichloroethene	130	5.206	5.206	(1.048)	343427	150.000	153.31(A)
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	533118	150.000	157.11
5	Vinyl Chloride	62	1.138	1.138	(0.272)	457160	150.000	156.37

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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Date : 11-MAY-2020 16:47
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

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 11-MAY-2020 17:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:47 Cal File: X051110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

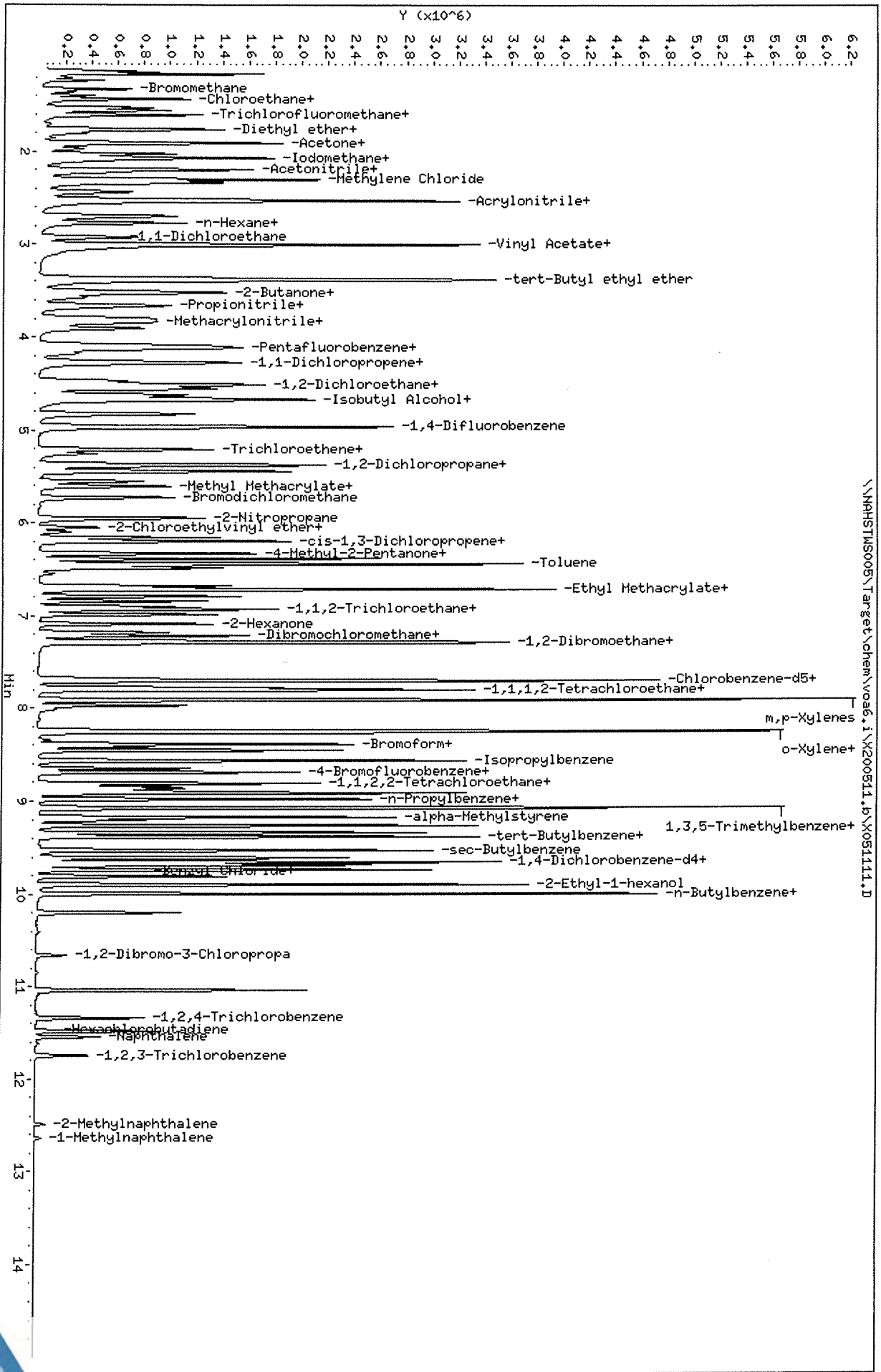
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	210247	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	305929	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	285371	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	141643	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	412124	200.000	197.20
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	508534	200.000	196.36
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1416689	200.000	199.04
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	537390	200.000	199.37
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	439976	200.000	196.15
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	664524	200.000	197.36(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	431093	200.000	189.38
	138 Freon TF	101	1.911	1.911	(0.457)	333443	200.000	205.22(A)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	299144	200.000	188.44
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	844374	200.000	184.79(A)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	331210	200.000	198.00
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	539478	200.000	192.62
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	114644	200.000	199.45
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	372645	200.000	188.79(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	221042	200.000	207.32(A)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1480057	200.000	199.20
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	47270	200.000	203.73(A)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	397489	200.000	196.05(A)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	751691	200.000	190.50
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	633747	200.000	198.95(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	470477	200.000	188.93
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1464802	200.000	200.28(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	854514	200.000	197.97
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	628497	200.000	190.45
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	856803	200.000	191.37
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	616758	200.000	185.27
24	2-Butanone	43	3.573	3.573	(0.854)	404738	400.000	427.13(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	1200031	200.000	189.81
52	2-Hexanone	43	7.090	7.090	(0.924)	681249	400.000	386.03
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1390472	200.000	190.77
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1535054	200.000	206.32(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	992720	400.000	385.28
10	Acetone	43	1.969	1.969	(0.471)	258020	400.000	357.35
37	Benzene	78	4.512	4.512	(0.908)	1515661	200.000	193.82(A)
74	Bromobenzene	156	8.810	8.810	(0.911)	524098	200.000	197.35
29	Bromochloromethane	128	3.795	3.795	(0.908)	217972	200.000	178.68
39	Bromodichloromethane	83	5.729	5.729	(1.153)	568861	200.000	199.20
66	Bromoform	173	8.416	8.416	(1.097)	324965	200.000	198.75
6	Bromomethane	94	1.324	1.324	(0.317)	301011	200.000	196.83
19	Carbon Disulfide	76	2.069	2.069	(0.495)	2243154	400.000	393.61(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	601378	200.000	195.64
59	Chlorobenzene	112	7.699	7.699	(1.004)	1083798	200.000	191.68(A)
7	Chloroethane	64	1.396	1.396	(0.334)	289295	200.000	195.69
28	Chloroform	83	3.910	3.910	(0.935)	722440	200.000	192.28(A)
3	Chloromethane	50	1.073	1.073	(0.257)	668216	200.000	199.75
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	430307	200.000	194.01(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	665512	200.000	198.99
55	Dibromochloromethane	129	7.176	7.176	(0.936)	459803	200.000	199.07
44	Dibromomethane	93	5.557	5.557	(1.118)	266444	200.000	197.26
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	499972	200.000	200.36(A)
61	Ethylbenzene	106	7.800	7.800	(1.017)	584558	200.000	196.99(A)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	160116	200.000	204.00(A)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1765878	200.000	198.43
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1392396	400.000	386.57(A)
17	Methylene Chloride	84	2.298	2.298	(0.550)	395941	200.000	194.38
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1253039	200.000	208.74(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2020256	200.000	198.39
92	Naphthalene	128	11.546	11.546	(1.194)	324019	200.000	242.98(A)
63	o-Xylene	106	8.244	8.244	(1.075)	671719	200.000	191.67(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1697221	200.000	197.83
64	Styrene	104	8.265	8.265	(1.078)	1162998	200.000	191.48(A)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1223524	200.000	197.03
56	Tetrachloroethene	164	6.933	6.933	(0.904)	364813	200.000	193.79(A)
50	Toluene	91	6.446	6.446	(0.840)	1593362	200.000	188.66(A)
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	373493	200.000	195.28
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	619261	200.000	204.17(A)
38	Trichloroethene	130	5.206	5.206	(1.048)	441183	200.000	200.98(A)
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	703498	200.000	207.96(A)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	586952	200.000	201.38(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D
Date : 11-MAY-2020 17:11
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\X200511.b\X051114.D Page 1
Report Date: 22-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 11-MAY-2020 18:23
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\X200511.b\8260W.m
Meth Date : 22-May-2020 16:12 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

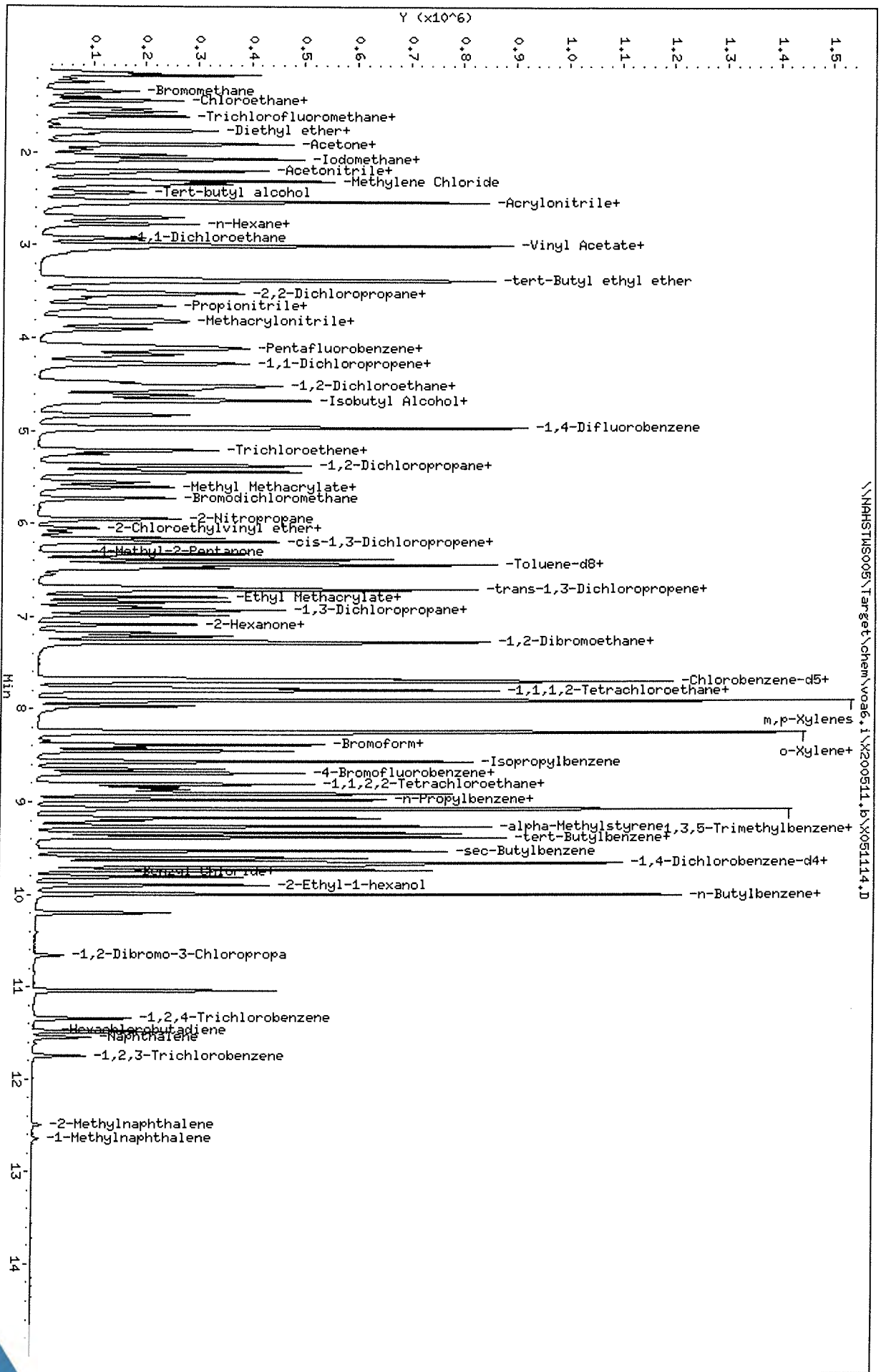
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	223155	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	318483	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	291498	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	148250	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	108653	48.8010	48.80
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	131529	47.8219	47.82
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	373137	50.9781	50.97
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	139766	50.1904	50.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	112251	48.9922	48.99
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	169785	47.5103	47.51
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	109996	46.1688	46.16
138 Freon TF	101	1.911	1.911	(0.457)	84460	48.9758	48.97
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	77614	47.8655	47.86
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	219255	45.2085	45.20
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	84626	47.6661	47.66
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	139963	48.0055	48.00
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	26202	54.6983	54.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96248	46.5901	46.59(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	50727	47.5210	47.52
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	387802	49.8683	49.86
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	10984	46.3748	46.37
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	104018	50.2268	50.22

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D Page 2
Report Date: 22-May-2020 16:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	200012	48.4298	48.42
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	164095	49.4853	49.48
42	1,2-Dichloropropane	63	5.436	5.443	(1.094)	123226	47.5336	47.53
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	380301	49.6820	49.68
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	220872	48.8921	48.89
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	162939	48.3385	48.33
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	223856	47.7723	47.77
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	167781	47.4860	47.48
24	2-Butanone	43	3.573	3.573	(0.854)	108411	107.793	107.79(H)
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	309354	46.7504	46.75
52	2-Hexanone	43	7.090	7.090	(0.924)	170807	94.7558	94.75
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	360081	47.2019	47.20
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	391936	50.3321	50.33
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	244532	92.9096	92.90
10	Acetone	43	1.969	1.969	(0.471)	75065	96.0427	96.04
37	Benzene	78	4.512	4.512	(0.908)	390116	47.9210	47.92
74	Bromobenzene	156	8.809	8.810	(0.912)	134325	48.3285	48.32
29	Bromochloromethane	128	3.795	3.795	(0.908)	61420	47.4371	47.43
39	Bromodichloromethane	83	5.729	5.729	(1.153)	144777	48.6994	48.69
66	Bromoform	173	8.415	8.416	(1.097)	83698	50.1152	50.11
6	Bromomethane	94	1.338	1.324	(0.320)	83523	50.9059	50.90
19	Carbon Disulfide	76	2.069	2.069	(0.495)	577912	95.5417	95.54
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	151724	47.4153	47.41
59	Chlorobenzene	112	7.699	7.699	(1.004)	282458	48.9065	48.90
7	Chloroethane	64	1.403	1.396	(0.336)	70901	44.8631	44.86
28	Chloroform	83	3.910	3.910	(0.935)	192179	48.1906	48.19
3	Chloromethane	50	1.073	1.073	(0.257)	154639	44.0442	44.04
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	112778	47.9068	47.90
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	172729	49.6114	49.61
55	Dibromochloromethane	129	7.176	7.176	(0.936)	117363	49.7444	49.74
44	Dibromomethane	93	5.557	5.557	(1.118)	70080	49.8406	49.84
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	122199	46.9573	46.95
61	Ethylbenzene	106	7.799	7.800	(1.017)	147940	48.8066	48.80
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	40239	49.7181	49.71
67	Isopropylbenzene	105	8.566	8.566	(1.117)	450333	49.5410	49.54
62	m,p-Xylenes	106	7.907	7.907	(1.031)	360956	98.1080	98.10
17	Methylene Chloride	84	2.305	2.298	(0.551)	104805	47.6717	47.67
87	n-Butylbenzene	91	9.999	9.999	(1.035)	318734	50.7307	50.73
73	n-Propylbenzene	91	8.917	8.917	(0.923)	511675	48.0076	48.00
92	Naphthalene	128	11.546	11.546	(1.195)	74280	53.2198	53.21
63	o-Xylene	106	8.244	8.244	(1.075)	175723	49.0898	49.08
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	435579	48.5089	48.50
64	Styrene	104	8.258	8.265	(1.077)	306849	49.4603	49.46
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	315264	48.5073	48.50
56	Tetrachloroethene	164	6.933	6.933	(0.904)	94634	49.2150	49.21
50	Toluene	91	6.446	6.446	(0.840)	420170	48.7050	48.70
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	97294	47.9280	47.92
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	157780	49.9712	49.97
38	Trichloroethene	130	5.206	5.206	(1.048)	112860	49.3869	49.38
8	Trichlorofluoromethane	101	1.560	1.553	(0.373)	174748	48.6710	48.67
5	Vinyl Chloride	62	1.138	1.138	(0.272)	143744	46.4673	46.46

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D
Date : 11-MAY-2020 18:23
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

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Lab File ID: X051201 BFB Injection Date: 05/12/20

Instrument ID: VOA6 BFB Injection Time: 1001

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	23.9
75	30.0 - 60.0% of mass 95	52.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.8 (1.2)1
174	Greater than 50.0% of mass 95	68.2
175	5.0 - 9.0% of mass 174	5.7 (8.4)1
176	95.0 - 101.0% of mass 174	65.4 (95.9)1
177	5.0 - 9.0% of mass 176	4.4 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X051203	05/12/20	1049
02	VLCSW-200512	VLCSW-200512	X051205	05/12/20	1137
03	VBLKW-200512	VBLKW-200512	X051207	05/12/20	1225
04	HS20050234-1	HS20050234-11	X051211	05/12/20	1401
05	HS20050234-0	HS20050234-01	X051215	05/12/20	1538
06	HS20050234-0	HS20050234-02	X051216	05/12/20	1602
07	HS20050234-0	HS20050234-03	X051217	05/12/20	1626
08	HS20050234-0	HS20050234-04	X051218	05/12/20	1650
09	HS20050234-0	HS20050234-05	X051219	05/12/20	1714
10	HS20050234-0	HS20050234-06	X051220	05/12/20	1738
11	HS20050234-0	HS20050234-07	X051221	05/12/20	1802
12	HS20050234-0	HS20050234-08	X051222	05/12/20	1826
13	HS20050234-0	HS20050234-09	X051223	05/12/20	1850
14	HS20050234-1	HS20050234-10	X051224	05/12/20	1914
15	HS20050234-0	HS20050234-01M	X051225	05/12/20	1938
16	HS20050234-0	HS20050234-01M	X051226	05/12/20	2002
17	CCV-END	CCV-END	X051227	05/12/20	2026
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Instrument ID: VOA6 Calibration Date: 05/12/20 Time: 1049

Lab File ID: X051203 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	0.2900000	0.2674167	0.2674167	0.1	7.79	20.00	AVRG
Vinyl Chloride	0.6930000	0.5949731	0.5949731	0.1	14.14	20.00	AVRG
Chloromethane	40.714081	50.000000	0.6606656	0.1	18.57	20.00	LINR
Bromomethane	47.787126	50.000000	0.3309279	0.1	4.42	20.00	LINR
Chloroethane	43.962815	50.000000	0.3070035	0.1	12.07	20.00	LINR
Methylene Chloride	47.204545	50.000000	0.4671189	0.1	5.59	20.00	LINR
Acetone	88.468172	100.00000	0.1339225	0.1	11.53	20.00	LINR
1,1-Dichloroethene	0.3980000	0.3544589	0.3544589	0.1	10.94	20.00	AVRG
trans-1,2-Dichloroethene	0.4550000	0.4300719	0.4300719	0.1	5.48	20.00	AVRG
Carbon Tetrachloride	0.5020000	0.4713252	0.4713252	0.1	6.11	20.00	AVRG
1,1-Dichloroethane	1.0870000	0.9636701	0.9636701	0.2	11.34	20.00	AVRG
Bromodichloromethane	0.4670000	0.4483614	0.4483614	0.2	3.99	20.00	AVRG
1,2-Dichloropropane	0.4070000	0.3588734	0.3588734	0.1	11.82	20.00	AVRG
cis-1,3-Dichloropropene	0.5470000	0.5152761	0.5152761	0.2	5.80	20.00	AVRG
2-Butanone	0.2250000	0.2151156	0.2151156	0.1	4.39	20.00	AVRG
Dibromochloromethane	0.4040000	0.3944112	0.3944112	0.1	2.37	20.00	AVRG
cis-1,2-Dichloroethene	0.5270000	0.5081948	0.5081948	0.1	3.57	20.00	AVRG
1,1,2-Trichloroethane	0.2780000	0.2504295	0.2504295	0.1	9.92	20.00	AVRG
Chloroform	0.8930000	0.8581019	0.8581019	0.2	3.91	20.00	AVRG
Benzene	1.2780000	1.1849918	1.1849918	0.5	7.28	20.00	AVRG
trans-1,3-Dichloropropene	0.4960000	0.4806197	0.4806197	0.1	3.10	20.00	AVRG
Bromoform	0.2860000	0.2768591	0.2768591	0.1	3.20	20.00	AVRG
4-Methyl-2-Pentanone	0.4510000	0.3929375	0.3929375	0.1	12.87	20.00	AVRG
1,1,1-Trichloroethane	0.8000000	0.7628773	0.7628773	0.1	4.64	20.00	AVRG
2-Hexanone	0.3090000	0.2663565	0.2663565	0.1	13.80	20.00	AVRG
1,2-Dichloroethane	0.5200000	0.5067079	0.5067079	0.1	2.56	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.8040000	0.7202899	0.7202899	0.3	10.41	20.00	AVRG
Trichloroethene	0.3590000	0.3410827	0.3410827	0.2	4.99	20.00	AVRG
Toluene	1.4800000	1.3588508	1.3588508	0.4	8.18	20.00	AVRG
Dichlorodifluoromethane	45.296910	50.000000	0.5370694	0.1	9.41	20.00	LINR
Trichlorofluoromethane	0.8040000	0.7648843	0.7648843	0.1	4.86	20.00	AVRG
Tetrachloroethene	0.3300000	0.3054844	0.3054844	0.2	7.43	20.00	AVRG
1,2-Dibromoethane	0.3550000	0.3430479	0.3430479	0.1	3.37	20.00	AVRG
Chlorobenzene	0.9900000	0.9262023	0.9262023	0.5	6.44	20.00	AVRG
1,3-Dichlorobenzene	1.5230000	1.4536286	1.4536286	0.6	4.55	20.00	AVRG
1,4-Dichlorobenzene	1.5800000	1.4700318	1.4700318	0.4	6.96	20.00	AVRG
1,2-Dichlorobenzene	1.3930000	1.2975215	1.2975215	0.4	6.85	20.00	AVRG
Ethylbenzene	0.5200000	0.4803426	0.4803426	0.1	7.63	20.00	AVRG
m,p-Xylenes	0.6310000	0.5872014	0.5872014	0.1	6.94	20.00	AVRG
o-Xylene	0.6140000	0.5767451	0.5767451	0.3	6.07	20.00	AVRG
Styrene	1.0640000	1.0134814	1.0134814	0.3	4.75	20.00	AVRG
Carbon Disulfide	1.3550000	1.2241545	1.2241545	0.1	9.66	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005023 4

Instrument ID: VOA6 Calibration Date: 05/12/20 Time: 1049

Lab File ID: X051203 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

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
2,2-Dichloropropane	0.7920000	0.6905014	0.6905014	0.1	12.82	20.00	AVRG
1,1-Dichloropropene	0.4580000	0.4176550	0.4176550	0.1	8.81	20.00	AVRG
Dibromomethane	0.2210000	0.2094253	0.2094253	0.1	5.24	20.00	AVRG
1,3-Dichloropropane	0.5780000	0.5336239	0.5336239	0.1	7.68	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3930000	0.3779899	0.3779899	0.1	3.82	20.00	AVRG
Isopropylbenzene	1.5590000	1.4643286	1.4643286	0.1	6.07	20.00	AVRG
Bromobenzene	0.9370000	0.8827519	0.8827519	0.1	5.79	20.00	AVRG
1,2,3-Trichloropropane	0.6970000	0.6461620	0.6461620	0.1	7.29	20.00	AVRG
n-Propylbenzene	3.5950000	3.3120521	3.3120521	0.1	7.87	20.00	AVRG
2-Chlorotoluene	2.2320000	2.0198829	2.0198829	0.1	9.50	20.00	AVRG
1,3,5-Trimethylbenzene	2.5820000	2.4635811	2.4635811	0.1	4.59	20.00	AVRG
4-Chlorotoluene	2.5730000	2.3521940	2.3521940	0.1	8.58	20.00	AVRG
tert-Butylbenzene	2.1920000	2.0498953	2.0498953	0.1	6.48	20.00	AVRG
1,2,4-Trimethylbenzene	2.6230000	2.5250509	2.5250509	0.1	3.73	20.00	AVRG
sec-Butylbenzene	3.0280000	2.8024387	2.8024387	0.1	7.45	20.00	AVRG
p-Isopropyltoluene	2.6260000	2.5167202	2.5167202	0.1	4.16	20.00	AVRG
n-Butylbenzene	2.1190000	2.0490549	2.0490549	0.5	3.30	20.00	AVRG
1,2-Dibromo-3-Chloropropane	47.779442	50.000000	7.74e-002	0.05	4.44	20.00	LINR
1,2,4-Trichlorobenzene	42.852173	50.000000	0.2928622	0.2	14.30	20.00	LINR
Hexachlorobutadiene	43.675022	50.000000	0.2461443	0.1	12.65	20.00	LINR
Naphthalene	0.4710000	0.4197458	0.4197458	0.2	10.88	20.00	AVRG
1,2,3-Trichlorobenzene	49.741557	50.000000	0.1486096	0.1	0.52	20.00	2RDR
Freon TF	0.3860000	0.3581243	0.3581243	0.1	7.22	20.00	AVRG
Dibromofluoromethane	50.186059	50.000000	0.4852564	0.1	-0.37	20.00	LINR
1,2-Dichloroethane-d4	49.715055	50.000000	0.6074482	0.1	0.57	20.00	LINR
Toluene-d8	50.735661	50.000000	1.2201788	0.1	-1.47	20.00	LINR
4-Bromofluorobenzene	50.625078	50.000000	0.4635140	0.1	-1.25	20.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Lab File ID (Standard): X051203 Date Analyzed: 05/12/20

Instrument ID: VOA6 Time Analyzed: 1049

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	199856	4.18	288768	4.97	266171	7.67
	UPPER LIMIT	399712	4.68	577536	5.47	532342	8.17
	LOWER LIMIT	99928	3.68	144384	4.47	133086	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-200512	207525	4.18	299977	4.97	276008	7.67
02	VBLKW-200512	255183	4.18	350554	4.97	301980	7.67
03	HS20050234-11	254610	4.18	359141	4.97	307451	7.67
04	HS20050234-01	260658	4.18	357709	4.97	307637	7.67
05	HS20050234-02	259220	4.18	358027	4.97	309425	7.67
06	HS20050234-03	261392	4.18	361924	4.97	307725	7.67
07	HS20050234-05	258329	4.18	358697	4.97	306113	7.67
08	HS20050234-05	259295	4.18	358495	4.97	307575	7.67
09	HS20050234-06	260487	4.18	356311	4.97	304859	7.67
10	HS20050234-07	259615	4.18	362636	4.97	308313	7.67
11	HS20050234-08	256825	4.18	353692	4.97	295213	7.67
12	HS20050234-09	264123	4.18	363304	4.97	315402	7.67
13	HS20050234-10	263784	4.18	366194	4.97	312025	7.67
14	HS20050234-01	254610	4.18	345884	4.97	298962	7.67
15	HS20050234-01	244179	4.18	336747	4.97	287002	7.67
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: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Lab File ID (Standard): X051203 Date Analyzed: 05/12/20

Instrument ID: VOA6 Time Analyzed: 1049

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	136045	9.66				
	UPPER LIMIT	272090	10.16				
	LOWER LIMIT	68023	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-200512	141106	9.67				
02	VBLKW-200512	145248	9.67				
03	HS20050234-11	146378	9.67				
04	HS20050234-01	146853	9.67				
05	HS20050234-02	151659	9.67				
06	HS20050234-03	152254	9.67				
07	HS20050234-05	141829	9.67				
08	HS20050234-05	145903	9.67				
09	HS20050234-06	153378	9.67				
10	HS20050234-07	147994	9.67				
11	HS20050234-08	140161	9.67				
12	HS20050234-09	150601	9.67				
13	HS20050234-10	151347	9.67				
14	HS20050234-01	147916	9.66				
15	HS20050234-01	142658	9.67				
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Instrument ID: VOA6 Calibration Date: 05/12/20 Time: 2026

Lab File ID: X051227 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Bromochloromethane	0.2900000	0.2674167	0.2674167	0.1	7.79	20.00	AVRG	
Vinyl Chloride	0.6930000	0.5949731	0.5949731	0.1	14.14	20.00	AVRG	
Chloromethane	42.020411	50.000000	0.6606656	0.1	15.96	20.00	LINR	
Bromomethane	44.922786	50.000000	0.3309279	0.1	10.15	20.00	LINR	
Chloroethane	43.335591	50.000000	0.3070035	0.1	13.33	20.00	LINR	
Methylene Chloride	47.408899	50.000000	0.4671189	0.1	5.18	20.00	LINR	
Acetone	75.938700	100.00000	0.1339225	0.1	24.06	20.00	LINR	<-
1,1-Dichloroethene	0.3980000	0.3544589	0.3544589	0.1	10.94	20.00	AVRG	
trans-1,2-Dichloroethene	0.4550000	0.4300719	0.4300719	0.1	5.48	20.00	AVRG	
Carbon Tetrachloride	0.5020000	0.4713252	0.4713252	0.1	6.11	20.00	AVRG	
1,1-Dichloroethane	1.0870000	0.9636701	0.9636701	0.2	11.34	20.00	AVRG	
Bromodichloromethane	0.4670000	0.4483614	0.4483614	0.2	3.99	20.00	AVRG	
1,2-Dichloropropane	0.4070000	0.3588734	0.3588734	0.1	11.82	20.00	AVRG	
cis-1,3-Dichloropropene	0.5470000	0.5152761	0.5152761	0.2	5.80	20.00	AVRG	
2-Butanone	0.2250000	0.2151156	0.2151156	0.1	4.39	20.00	AVRG	
Dibromochloromethane	0.4040000	0.3944112	0.3944112	0.1	2.37	20.00	AVRG	
cis-1,2-Dichloroethene	0.5270000	0.5081948	0.5081948	0.1	3.57	20.00	AVRG	
1,1,2-Trichloroethane	0.2780000	0.2504295	0.2504295	0.1	9.92	20.00	AVRG	
Chloroform	0.8930000	0.8581019	0.8581019	0.2	3.91	20.00	AVRG	
Benzene	1.2780000	1.1849918	1.1849918	0.5	7.28	20.00	AVRG	
trans-1,3-Dichloropropene	0.4960000	0.4806197	0.4806197	0.1	3.10	20.00	AVRG	
Bromoform	0.2860000	0.2768591	0.2768591	0.1	3.20	20.00	AVRG	
4-Methyl-2-Pentanone	0.4510000	0.3929375	0.3929375	0.1	12.87	20.00	AVRG	
1,1,1-Trichloroethane	0.8000000	0.7628773	0.7628773	0.1	4.64	20.00	AVRG	
2-Hexanone	0.3090000	0.2663565	0.2663565	0.1	13.80	20.00	AVRG	
1,2-Dichloroethane	0.5200000	0.5067079	0.5067079	0.1	2.56	20.00	AVRG	
1,1,2,2-Tetrachloroethane	0.8040000	0.7202899	0.7202899	0.3	10.41	20.00	AVRG	
Trichloroethene	0.3590000	0.3410827	0.3410827	0.2	4.99	20.00	AVRG	
Toluene	1.4800000	1.3588508	1.3588508	0.4	8.18	20.00	AVRG	
Dichlorodifluoromethane	46.075009	50.000000	0.5370694	0.1	7.85	20.00	LINR	
Trichlorofluoromethane	0.8040000	0.7648843	0.7648843	0.1	4.86	20.00	AVRG	
Tetrachloroethene	0.3300000	0.3054844	0.3054844	0.2	7.43	20.00	AVRG	
1,2-Dibromoethane	0.3550000	0.3430479	0.3430479	0.1	3.37	20.00	AVRG	
Chlorobenzene	0.9900000	0.9262023	0.9262023	0.5	6.44	20.00	AVRG	
1,3-Dichlorobenzene	1.5230000	1.4536286	1.4536286	0.6	4.55	20.00	AVRG	
1,4-Dichlorobenzene	1.5800000	1.4700318	1.4700318	0.4	6.96	20.00	AVRG	
1,2-Dichlorobenzene	1.3930000	1.2975215	1.2975215	0.4	6.85	20.00	AVRG	
Ethylbenzene	0.5200000	0.4803426	0.4803426	0.1	7.63	20.00	AVRG	
m,p-Xylenes	0.6310000	0.5872014	0.5872014	0.1	6.94	20.00	AVRG	
o-Xylene	0.6140000	0.5767451	0.5767451	0.3	6.07	20.00	AVRG	
Styrene	1.0640000	1.0134814	1.0134814	0.3	4.75	20.00	AVRG	
Carbon Disulfide	1.3550000	1.2241545	1.2241545	0.1	9.66	20.00	AVRG	

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050234

Instrument ID: VOA6 Calibration Date: 05/12/20 Time: 2026

Lab File ID: X051227 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

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
2,2-Dichloropropane	0.7920000	0.6905014	0.6905014	0.1	12.82	20.00	AVRG
1,1-Dichloropropene	0.4580000	0.4176550	0.4176550	0.1	8.81	20.00	AVRG
Dibromomethane	0.2210000	0.2094253	0.2094253	0.1	5.24	20.00	AVRG
1,3-Dichloropropane	0.5780000	0.5336239	0.5336239	0.1	7.68	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3930000	0.3779899	0.3779899	0.1	3.82	20.00	AVRG
Isopropylbenzene	1.5590000	1.4643286	1.4643286	0.1	6.07	20.00	AVRG
Bromobenzene	0.9370000	0.8827519	0.8827519	0.1	5.79	20.00	AVRG
1,2,3-Trichloropropane	0.6970000	0.6461620	0.6461620	0.1	7.29	20.00	AVRG
n-Propylbenzene	3.5950000	3.3120521	3.3120521	0.1	7.87	20.00	AVRG
2-Chlorotoluene	2.2320000	2.0198829	2.0198829	0.1	9.50	20.00	AVRG
1,3,5-Trimethylbenzene	2.5820000	2.4635811	2.4635811	0.1	4.59	20.00	AVRG
4-Chlorotoluene	2.5730000	2.3521940	2.3521940	0.1	8.58	20.00	AVRG
tert-Butylbenzene	2.1920000	2.0498953	2.0498953	0.1	6.48	20.00	AVRG
1,2,4-Trimethylbenzene	2.6230000	2.5250509	2.5250509	0.1	3.73	20.00	AVRG
sec-Butylbenzene	3.0280000	2.8024387	2.8024387	0.1	7.45	20.00	AVRG
p-Isopropyltoluene	2.6260000	2.5167202	2.5167202	0.1	4.16	20.00	AVRG
n-Butylbenzene	2.1190000	2.0490549	2.0490549	0.5	3.30	20.00	AVRG
1,2-Dibromo-3-Chloropropane	48.354234	50.000000	7.74e-002	0.05	3.29	20.00	LINR
1,2,4-Trichlorobenzene	41.053625	50.000000	0.2928622	0.2	17.89	20.00	LINR
Hexachlorobutadiene	45.177077	50.000000	0.2461443	0.1	9.64	20.00	LINR
Naphthalene	0.4710000	0.4197458	0.4197458	0.2	10.88	20.00	AVRG
1,2,3-Trichlorobenzene	46.355457	50.000000	0.1486096	0.1	7.29	20.00	2RDR
Freon TF	0.3860000	0.3581243	0.3581243	0.1	7.22	20.00	AVRG
Dibromofluoromethane	48.635950	50.000000	0.4852564	0.1	2.73	20.00	LINR
1,2-Dichloroethane-d4	49.286904	50.000000	0.6074482	0.1	1.43	20.00	LINR
Toluene-d8	48.571306	50.000000	1.2201788	0.1	2.86	20.00	LINR
4-Bromofluorobenzene	48.493930	50.000000	0.4635140	0.1	3.01	20.00	LINR

FORM VII VOA

MSVOA06 -Logbook

Batch: 40534
Date: 05-12-2020
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-12-2020 10:01 am	1.00	50 mL	50 mL	X051201.D	Liquid	Y	NA
	Auto find/ purged									
2	CCV	CCV	05-12-2020 10:25 am	1.00	50 mL	50 mL	X051202a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	CCV	CCV	05-12-2020 10:49 am	1.00	50 mL	50 mL	X051203.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	05-12-2020 11:13 am	1.00	50 mL	50 mL	X051204.D	Liquid	Y	NA
5	VLCSW-200512	LCS	05-12-2020 11:37 am	1.00	50 mL	50 mL	X051205.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLANK	SAMP	05-12-2020 12:01 pm	1.00	50 mL	50 mL	X051206.D	Liquid	Y	NA
7	VBLKW-200512	MBLK	05-12-2020 12:25 pm	1.00	50 mL	50 mL	X051207.D	Liquid	Y	<2
8	HS20050292-04	SAMP	05-12-2020 12:49 pm	1.00	50 mL	50 mL	X051208.D	Liquid	Y	<2
9	HS20050292-05	SAMP	05-12-2020 01:13 pm	1.00	50 mL	50 mL	X051209.D	Liquid	Y	<2
10	HS20050292-09	SAMP	05-12-2020 01:37 pm	1.00	50 mL	50 mL	X051210.D	Liquid	Y	<2
11	HS20050234-11	SAMP	05-12-2020 02:01 pm	1.00	50 mL	50 mL	X051211.D	Liquid	Y	<2
12	HS20050292-06	SAMP	05-12-2020 02:25 pm	1.00	50 mL	50 mL	X051212.D	Liquid	Y	<2
13	HS20050292-07	SAMP	05-12-2020 02:49 pm	1.00	50 mL	50 mL	X051213.D	Liquid	Y	<2
14	HS20050292-08	SAMP	05-12-2020 03:13 pm	1.00	50 mL	50 mL	X051214.D	Liquid	Y	<2
15	HS20050234-01	SAMP	05-12-2020 03:38 pm	1.00	50 mL	50 mL	X051215.D	Liquid	Y	<2
16	HS20050234-02	SAMP	05-12-2020 04:02 pm	1.00	50 mL	50 mL	X051216.D	Liquid	Y	<2
17	HS20050234-03	SAMP	05-12-2020 04:26 pm	1.00	50 mL	50 mL	X051217.D	Liquid	Y	<2
18	HS20050234-04	SAMP	05-12-2020 04:50 pm	1.00	50 mL	50 mL	X051218.D	Liquid	Y	<2
19	HS20050234-05	SAMP	05-12-2020 05:14 pm	1.00	50 mL	50 mL	X051219.D	Liquid	Y	<2
20	HS20050234-06	SAMP	05-12-2020 05:38 pm	1.00	50 mL	50 mL	X051220.D	Liquid	Y	<2
21	HS20050234-07	SAMP	05-12-2020 06:02 pm	1.00	50 mL	50 mL	X051221.D	Liquid	Y	<2
22	HS20050234-08	SAMP	05-12-2020 06:26 pm	1.00	50 mL	50 mL	X051222.D	Liquid	Y	<2
23	HS20050234-09	SAMP	05-12-2020 06:50 pm	1.00	50 mL	50 mL	X051223.D	Liquid	Y	<2
24	HS20050234-10	SAMP	05-12-2020 07:14 pm	1.00	50 mL	50 mL	X051224.D	Liquid	Y	<2
25	HS20050234-01MS	MS	05-12-2020 07:38 pm	1.00	50 mL	50 mL	X051225.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
26	HS20050234-01MSD	MSD	05-12-2020 08:02 pm	1.00	50 mL	50 mL	X051226.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
27	CCV-END	CCV	05-12-2020 08:26 pm	1.00	50 mL	50 mL	X051227.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
28	HS20050231-02	SAMP	05-12-2020 08:50 pm	1.00	50 mL	50 mL	X051228.D	Liquid	Y	<2
29	HS20050305-03	SAMP	05-12-2020 09:14 pm	1.00	50 mL	50 mL	X051229.D	Liquid	Y	<2
30	HS20050305-02	SAMP	05-12-2020 09:38 pm	1.00	50 mL	50 mL	X051230.D	Liquid	Y	<2
31	BFB	TUNE	05-12-2020 10:02 pm	1.00	50 mL	50 mL	Y051201.D	Liquid	Y	Na
	Auto find/ purged									
32	CCV	CCV	05-12-2020 10:26 pm	1.00	50 mL	50 mL	Y051202a.D	Liquid	Y	Na
	10 uL cal std/50 mL DI									
33	CCV	CCV	05-12-2020 10:50 pm	1.00	50 mL	50 mL	Y051203.D	Liquid	Y	Na
	10 uL cal std/50 mL DI									
34	CCB	SAMP	05-12-2020 11:14 pm	1.00	50 mL	50 mL	Y051204.D	Liquid	Y	Na
35	VLCSW-200512	LCS	05-12-2020 11:38 pm	1.00	50 mL	50 mL	Y051205.D	Liquid	Y	Na
	4.0 uL cal std/50 mL DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	BLANK	SAMP	05-13-2020 12:02 am	1.00	50 mL	50 mL	Y051206.D	Liquid	Y	Na
37	VBLKW-200512	MBLK	05-13-2020 12:26 am	1.00	50 mL	50 mL	Y051207.D	Liquid	Y	<2
38	HS20050374-01	SAMP	05-13-2020 12:50 am	1.00	50 mL	50 mL	Y051208.D	Liquid	Y	<2
39	HS20050322-04	SAMP	05-13-2020 01:14 am	1.00	50 mL	50 mL	Y051209.D	Liquid	Y	<2
40	HS20050322-02	SAMP	05-13-2020 01:38 am	1.00	50 mL	50 mL	Y051210.D	Liquid	Y	<2
41	HS20050322-03	SAMP	05-13-2020 02:02 am	1.00	50 mL	50 mL	Y051211.D	Liquid	Y	<2
42	HS20050320-06	SAMP	05-13-2020 02:26 am	5.00	10 mL	50 mL	Y051212.D	Liquid	Y	<2
43	HS20050320-07	SAMP	05-13-2020 02:50 am	50.00	1 mL	50 mL	Y051213.D	Liquid	Y	<2
44	HS20050322-01	SAMP	05-13-2020 03:14 am	25.00	2 mL	50 mL	Y051214.D	Liquid	Y	<2
45	HS20050320-07MS	MS	05-13-2020 03:38 am	50.00	1 mL	50 mL	Y051215.D	Liquid	Y	<2
46	*3.5 uL cal std/40 mL samp* HS20050320-07MSD	MSD	05-13-2020 04:02 am	50.00	1 mL	50 mL	Y051216.D	Liquid	Y	<2
47	*3.5 uL cal std/40 mL samp* HS20050320-11	SAMP	05-13-2020 04:27 am	20.00	2.5 mL	50 mL	Y051217.D	Liquid	Y	<2
48	HS20050322-01	SAMP	05-13-2020 04:51 am	250.0(	200 µL	50 mL	Y051218.D	Liquid	Y	<2
49	HS20050320-13	SAMP	05-13-2020 05:15 am	5.00	10 mL	50 mL	Y051219.D	Liquid	Y	<2
50	HS20050330-01	SAMP	05-13-2020 05:39 am	1.00	50 mL	50 mL	Y051220.D	Liquid	Y	<2
51	HS20050339-03	SAMP	05-13-2020 06:03 am	1.00	50 mL	50 mL	Y051221.D	Liquid	Y	<2
52	HS20050339-07	SAMP	05-13-2020 06:27 am	1.00	50 mL	50 mL	Y051222.D	Liquid	Y	<2
53	HS20050337-03	SAMP	05-13-2020 06:51 am	1.00	50 mL	50 mL	Y051223.D	Liquid	Y	<2
54	HS20050337-01	SAMP	05-13-2020 07:15 am	1.00	50 mL	50 mL	Y051224.D	Liquid	Y	<2
55	HS20050293-12	SAMP	05-13-2020 07:39 am	5.00	10 mL	50 mL	Y051225.D	Liquid	Y	<2
56	HS20050293-17	SAMP	05-13-2020 08:03 am	10.00	5 mL	50 mL	Y051226.D	Liquid	Y	<2
57	HS20050369-04	SAMP	05-13-2020 08:27 am	1.00	50 mL	50 mL	Y051227.D	Liquid	Y	<2
58	HS20050369-06	SAMP	05-13-2020 08:51 am	5.00	10 mL	50 mL	Y051228.D	Liquid	Y	<2
59	HS20050369-06	SAMP	05-13-2020 09:15 am	50.00	1 mL	50 mL	Y051229.D	Liquid	Y	<2
60	BLANK	SAMP	05-13-2020 09:39 am	1.00	50 mL	50 mL	Y051240.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	31106-26-06
IS ID	31106-26-06
CAL STD ID	31106-29-01/02
BFB ID	31106-26-06
pH Paper	634-64-11

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051201.D

Date : 12-MAY-2020 10:01

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

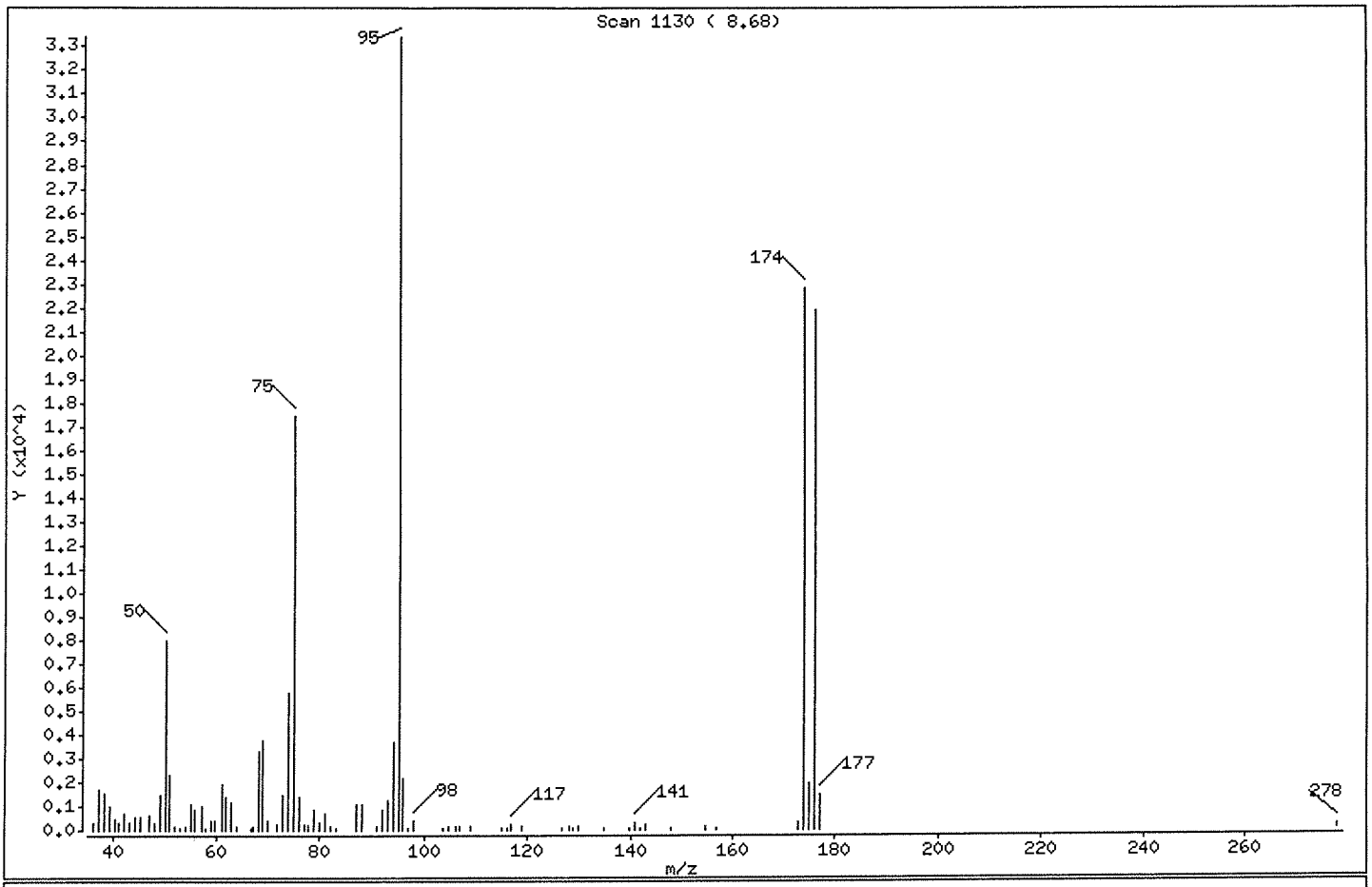
Volume Injected (uL): 2.0

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	23.87
75	30.00 - 60.00% of mass 95	52.21
96	5.00 - 9.00% of mass 95	6.55
173	Less than 2.00% of mass 174	0.83 (1.22)
174	Greater than 50.00% of mass 95	68.18
175	5.00 - 9.00% of mass 174	5.72 (8.40)
176	95.00 - 101.00% of mass 174	65.41 (95.93)
177	5.00 - 9.00% of mass 176	4.37 (6.68)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051201.D

Date : 12-MAY-2020 10:01

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: X051201.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 82

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.90	329	57.90	112	81.00	665	118.80	162
37.00	1679	59.00	400	81.90	120	126.80	97
38.00	1515	59.80	353	83.10	83	128.00	132
39.00	970	61.00	1928	86.90	1051	128.90	63
40.10	455	62.00	1416	88.10	1107	129.80	170
41.00	340	63.00	1166	90.90	161	134.90	72
42.00	667	64.00	168	91.90	848	139.80	58
43.00	307	66.70	62	93.00	1221	140.80	276
44.10	501	67.20	138	94.10	3677	141.90	95
45.10	558	68.10	3322	95.00	33416	143.00	218
47.10	603	69.00	3795	96.00	2189	147.90	95
47.90	297	70.00	359	97.00	64	154.80	142
49.00	1432	71.90	223	97.90	407	156.90	74
50.00	7975	73.00	1464	103.70	97	172.80	279
51.00	2301	74.00	5734	104.80	117	174.00	22784
52.00	160	75.00	17448	106.10	145	175.00	1913
53.10	54	76.00	1378	106.80	173	176.00	21856
54.10	189	76.90	222	109.00	179	177.00	1460
55.00	1071	77.90	198	115.10	93	278.10	176
55.90	839	78.90	861	115.90	88		
57.10	1022	80.00	314	116.80	200		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051201.D

Date : 12-MAY-2020 10:01

Client ID: BFB

Instrument: voa6.i

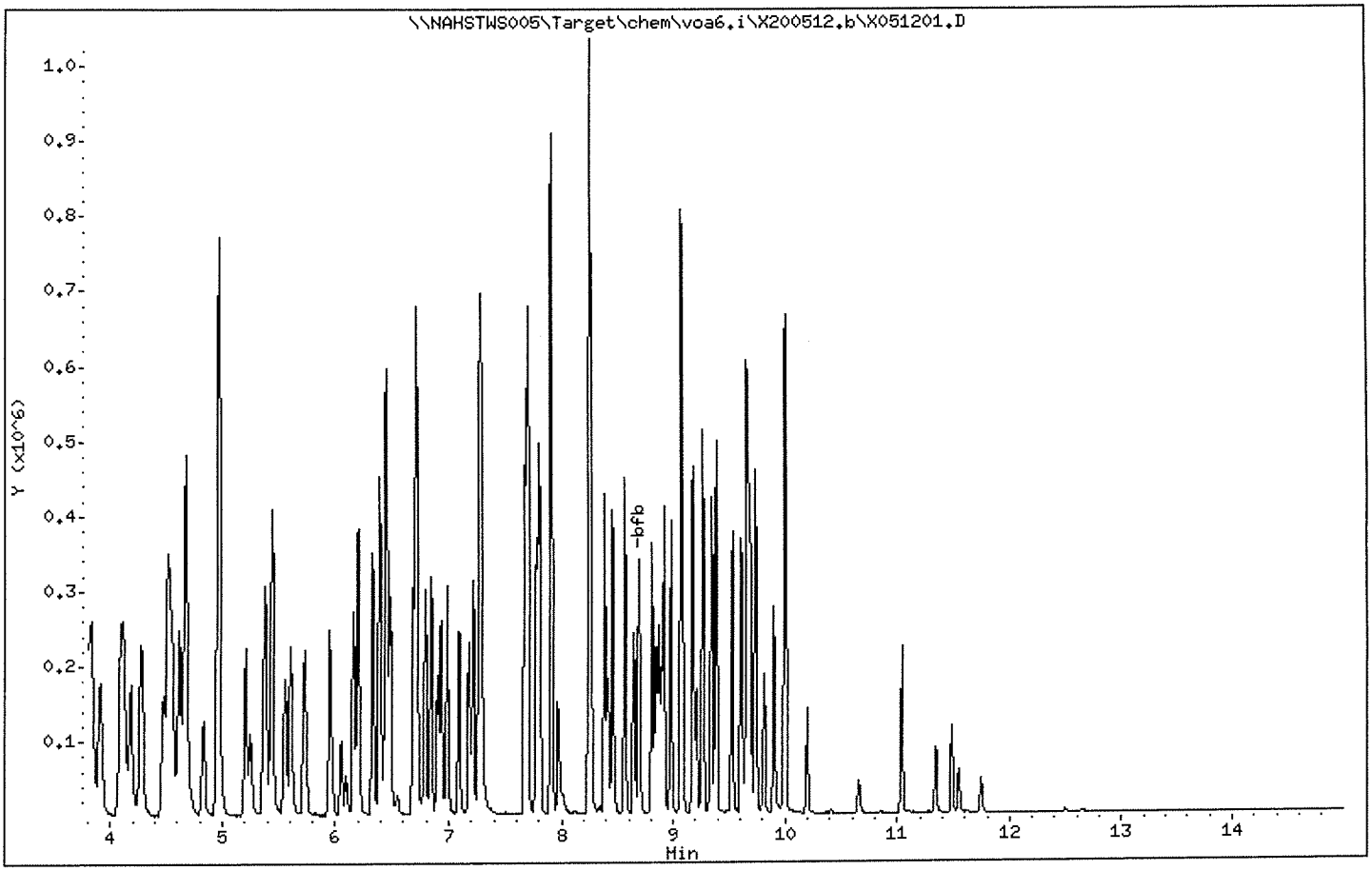
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051203.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051203.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 12-MAY-2020 10:49
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

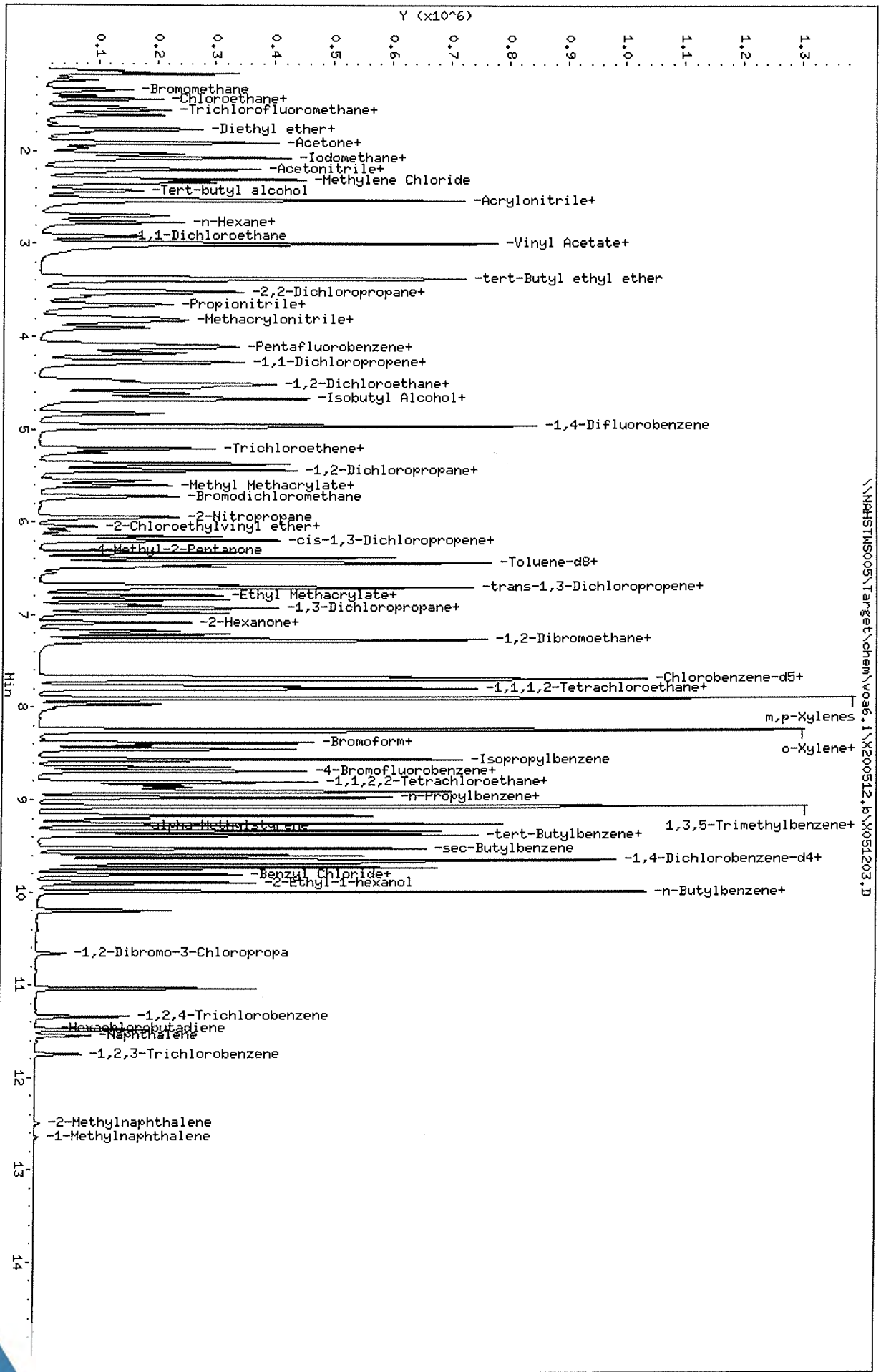
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	199856	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	288768	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	266171	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	136045	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	100057	50.0000	50.18
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	122456	50.0000	49.71
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	339111	50.0000	50.73
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	128711	50.0000	50.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	103602	50.0000	49.51
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	153628	50.0000	48.00
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	99042	50.0000	45.30
138 Freon TF	101	1.911	1.911	(0.457)	70336	50.0000	45.54
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	69364	50.0000	46.84
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	194206	50.0000	44.71
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	70884	50.0000	44.58
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	122392	50.0000	46.29
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21762	50.0000	49.74
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	89251	50.0000	47.07 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	41708	50.0000	42.85
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	338960	50.0000	47.49
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	10395	50.0000	47.77
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	94600	50.0000	50.02

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051203.D Page 2
Report Date: 22-May-2020 16:20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.991	9.991	(1.034)	179001	50.0000	47.23
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	155452	50.0000	51.70
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	109688	50.0000	46.66
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	331955	50.0000	47.25
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	199284	50.0000	48.07
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	148009	50.0000	48.08
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	201689	50.0000	46.90
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	152998	50.0000	48.35
24	2-Butanone	43	3.573	3.573	(0.854)	93134	100.000	103.39(H)
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	278237	50.0000	45.82
52	2-Hexanone	43	7.083	7.083	(0.923)	143621	100.000	87.25
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	321478	50.0000	45.92
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	335863	50.0000	47.00
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	209397	100.000	87.13
10	Acetone	43	1.969	1.969	(0.471)	62067	100.000	88.46
37	Benzene	78	4.512	4.512	(0.908)	345446	50.0000	46.80
74	Bromobenzene	156	8.809	8.809	(0.912)	123460	50.0000	48.40
29	Bromochloromethane	128	3.795	3.795	(0.908)	54279	50.0000	46.80
39	Bromodichloromethane	83	5.729	5.729	(1.153)	133217	50.0000	49.42
66	Bromoform	173	8.415	8.415	(1.097)	76899	50.0000	50.42
6	Bromomethane	94	1.338	1.338	(0.320)	70286	50.0000	47.78
19	Carbon Disulfide	76	2.069	2.069	(0.495)	492647	100.000	90.94
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	136954	50.0000	47.20
59	Chlorobenzene	112	7.692	7.692	(1.003)	254166	50.0000	48.19
7	Chloroethane	64	1.403	1.403	(0.336)	62236	50.0000	43.96
28	Chloroform	83	3.910	3.910	(0.935)	171513	50.0000	48.02
3	Chloromethane	50	1.073	1.073	(0.257)	127871	50.0000	40.71
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	101220	50.0000	48.00
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	155271	50.0000	49.18
55	Dibromochloromethane	129	7.176	7.176	(0.936)	107852	50.0000	50.06
44	Dibromomethane	93	5.557	5.557	(1.118)	62913	50.0000	49.34
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	105481	50.0000	45.29
61	Ethylbenzene	106	7.799	7.799	(1.017)	132390	50.0000	47.83
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	32349	50.0000	43.67
67	Isopropylbenzene	105	8.566	8.566	(1.117)	392699	50.0000	47.31
62	m,p-Xylenes	106	7.907	7.907	(1.031)	321064	100.000	95.56
17	Methylene Chloride	84	2.305	2.305	(0.551)	92963	50.0000	47.20
87	n-Butylbenzene	91	9.999	9.999	(1.035)	271580	50.0000	47.10
73	n-Propylbenzene	91	8.917	8.917	(0.923)	444735	50.0000	45.47
92	Naphthalene	128	11.546	11.546	(1.195)	62488	50.0000	48.78
63	o-Xylene	106	8.244	8.244	(1.075)	157531	50.0000	48.19
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	372053	50.0000	45.15
64	Styrene	104	8.258	8.258	(1.077)	276232	50.0000	48.76
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	274198	50.0000	45.97
56	Tetrachloroethene	164	6.933	6.933	(0.904)	83449	50.0000	47.52
50	Toluene	91	6.446	6.446	(0.840)	375679	50.0000	47.69
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	87393	50.0000	48.06
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	144647	50.0000	50.52
38	Trichloroethene	130	5.206	5.206	(1.048)	100047	50.0000	48.28
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	151858	50.0000	47.22
5	Vinyl Chloride	62	1.138	1.138	(0.272)	115944	50.0000	41.85

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051203.D
Date : 12-MAY-2020 10:49
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\X200512.b\X051205.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051205.D
Lab Smp Id: VLCSW-200512 Client Smp ID: VLCSW-200512
Inj Date : 12-MAY-2020 11:37
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200512;VLCSW-200512;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

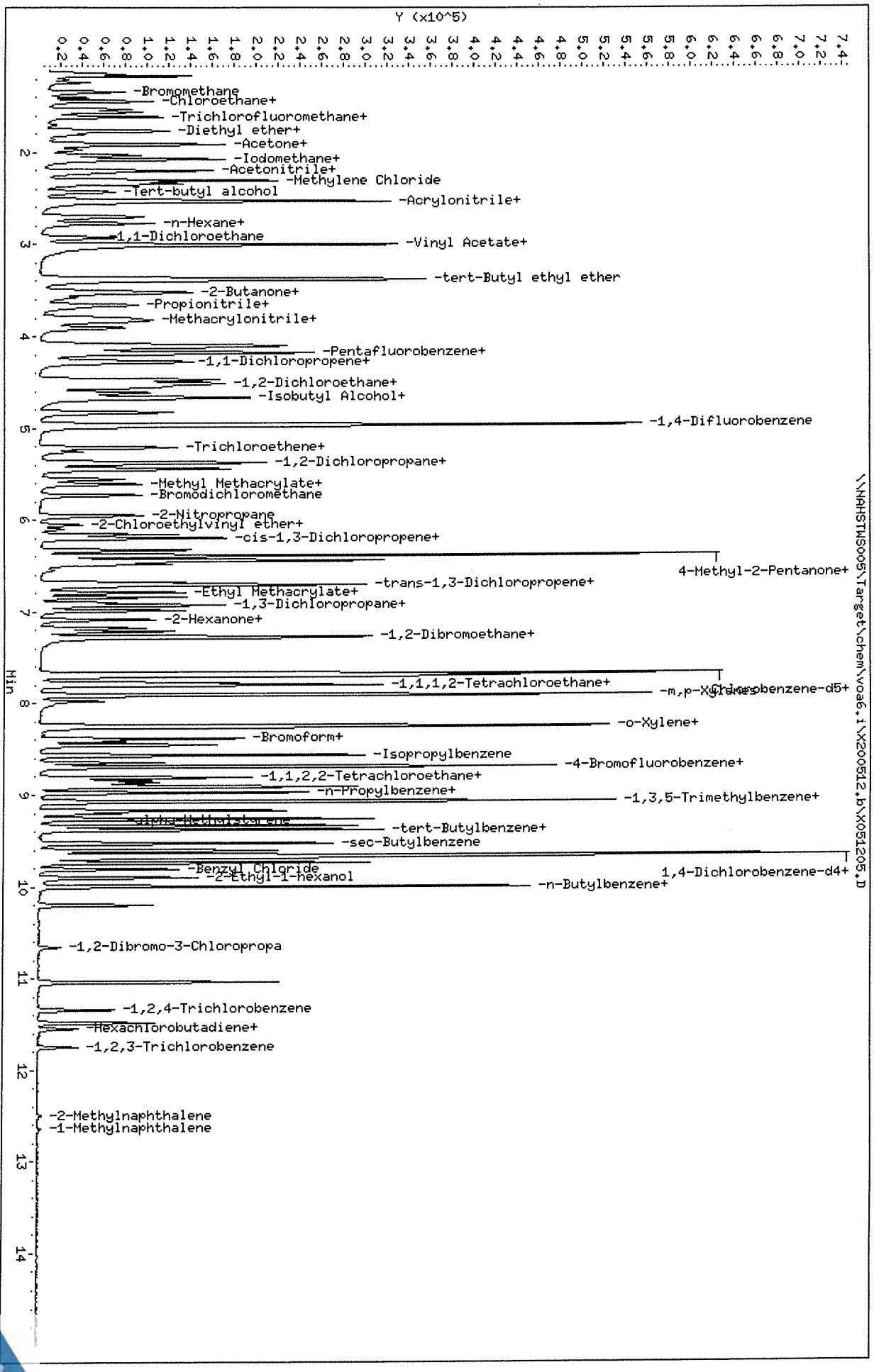
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	207525	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	299977	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	276008	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	141106	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	102421	49.4699	49.46
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	128165	50.1103	50.11
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	351995	50.7868	50.78
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	132774	50.3579	50.35
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	42552	19.6142	19.61
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	63790	19.1945	19.19
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	40837	18.0084	18.00
138 Freon TF	101	1.919	1.911	(0.459)	30282	18.8821	18.88
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	29001	18.8890	18.88
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	81032	17.9665	17.96
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	29161	17.6622	17.66
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	50620	18.4331	18.43
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	10136	22.7608	22.76
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	36306	18.4642	18.46 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	19577	20.8392	20.83
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	142520	19.2548	19.25
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	4331	20.0720	20.07
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	38720	19.7459	19.74

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051205.D Page 2
Report Date: 22-May-2020 16:20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.991	(1.034)	72580	18.4639	18.46
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	61569	19.7125	19.71
42	1,2-Dichloropropane	63	5.443	5.436	(1.095)	44986	18.4236	18.42
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	140052	19.2225	19.22
83	1,3-Dichlorobenzene	146	9.612	9.605	(0.994)	81271	18.9009	18.90
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	60471	18.9465	18.94
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	81957	18.3756	18.37
26	2,2-Dichloropropane	77	3.516	3.509	(0.841)	64035	19.4884	19.48
24	2-Butanone	43	3.580	3.573	(0.856)	35353	37.7990	37.79
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	114765	18.2217	18.22
52	2-Hexanone	43	7.090	7.083	(0.924)	59386	34.7935	34.79
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	132941	18.3091	18.30
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	144261	19.4638	19.46
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	87994	35.3095	35.30
10	Acetone	43	1.969	1.969	(0.471)	26300	34.5450	34.54
37	Benzene	78	4.512	4.512	(0.908)	141422	18.4437	18.44
74	Bromobenzene	156	8.809	8.809	(0.911)	50071	18.9270	18.92
29	Bromochloromethane	128	3.795	3.795	(0.908)	23607	19.6058	19.60
39	Bromodichloromethane	83	5.729	5.729	(1.153)	54737	19.5480	19.54
66	Bromoform	173	8.416	8.415	(1.097)	30726	19.4301	19.43
6	Bromomethane	94	1.338	1.338	(0.320)	32486	20.8563	20.85
19	Carbon Disulfide	76	2.069	2.069	(0.495)	204254	36.3110	36.31
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	56623	18.7869	18.78
59	Chlorobenzene	112	7.699	7.692	(1.004)	103992	19.0163	19.01
7	Chloroethane	64	1.403	1.403	(0.336)	26519	17.7921	17.79
28	Chloroform	83	3.910	3.910	(0.935)	71972	19.4069	19.40
3	Chloromethane	50	1.073	1.073	(0.257)	53558	16.7969	16.79
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	41859	19.1204	19.12
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	62508	19.0612	19.06
55	Dibromochloromethane	129	7.176	7.176	(0.936)	44249	19.8075	19.80
44	Dibromomethane	93	5.557	5.557	(1.118)	25974	19.6122	19.61
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	43218	18.5180	18.51
61	Ethylbenzene	106	7.800	7.799	(1.017)	55050	19.1807	19.18
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	17918	23.7740	23.77
67	Isopropylbenzene	105	8.566	8.566	(1.117)	163505	18.9966	18.99
62	m,p-Xylenes	106	7.907	7.907	(1.031)	133722	38.3855	38.38
17	Methylene Chloride	84	2.305	2.305	(0.551)	40237	19.0510	19.05
87	n-Butylbenzene	91	9.999	9.999	(1.034)	119050	19.9077	19.90
73	n-Propylbenzene	91	8.917	8.917	(0.922)	184323	18.1696	18.16
92	Naphthalene	128	11.546	11.546	(1.194)	25322	19.0611	19.06
63	o-Xylene	106	8.244	8.244	(1.075)	65786	19.4093	19.40
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	159338	18.6433	18.64
64	Styrene	104	8.258	8.258	(1.077)	113567	19.3330	19.33
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	118397	19.1391	19.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	34650	19.0313	19.03
50	Toluene	91	6.446	6.446	(0.840)	156014	19.0997	19.09
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	36426	19.2953	19.29
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	58335	19.6153	19.61
38	Trichloroethene	130	5.206	5.206	(1.048)	42349	19.6749	19.67
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	61791	18.5063	18.50
5	Vinyl Chloride	62	1.138	1.138	(0.272)	48606	16.8960	16.89

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051205.D
Date : 12-MAY-2020 11:37
Client ID: VLCSW-200512
Sample Info: VLCSW-200512;VLCSW-200512;3;;LCS
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\X200512.b\X051207.D
Lab Smp Id: VBLKW-200512 Client Smp ID: VBLKW-200512
Inj Date : 12-MAY-2020 12:25
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200512;VBLKW-200512;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

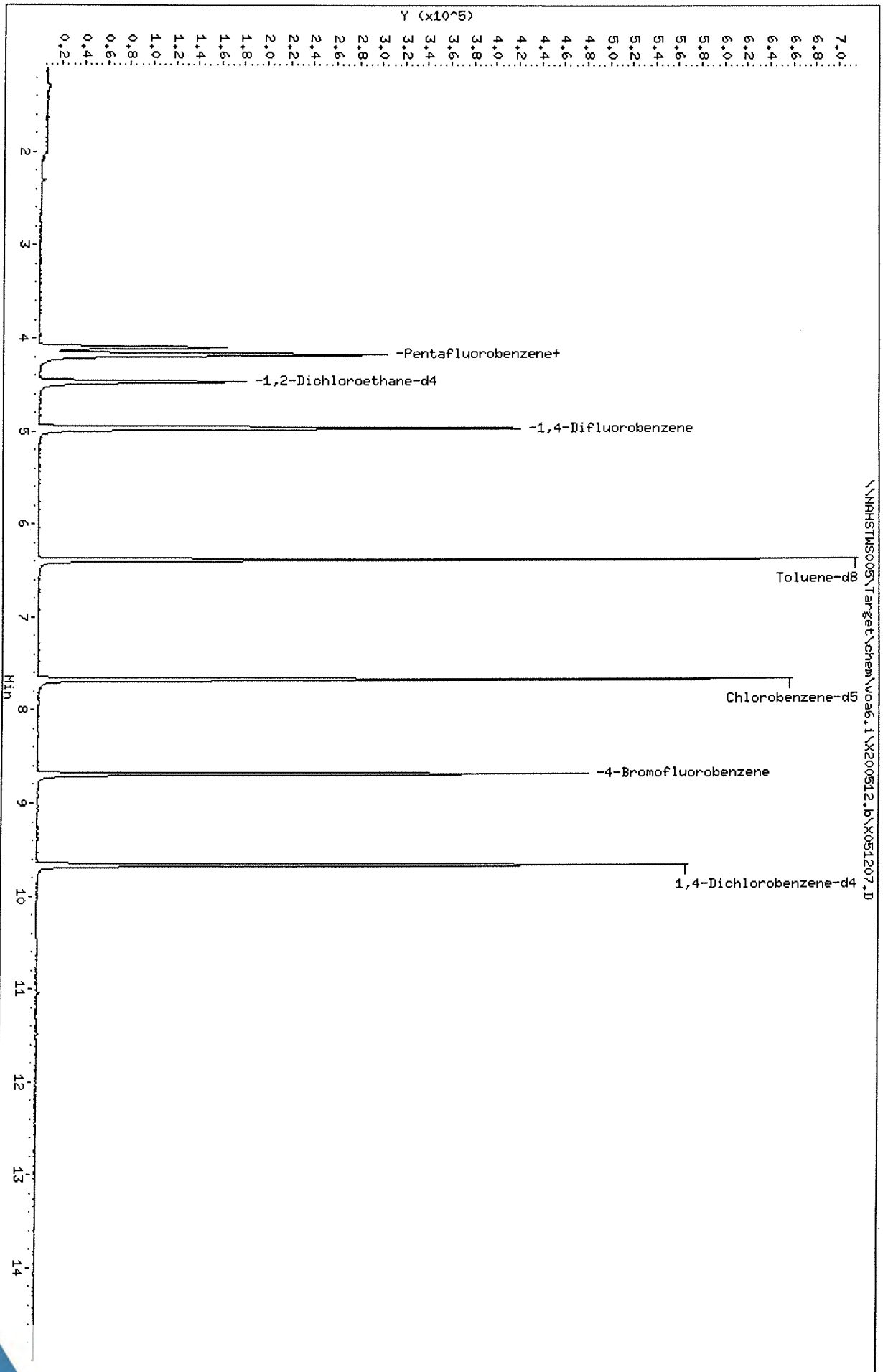
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	255183	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	350554	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	301980	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	145248	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	117431	46.1104	46.11
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	140604	44.7028	44.70
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	409818	54.0740	54.07
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	143035	49.5720	49.57

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051207.D
Date : 12-MAY-2020 12:25
Client ID: VBLKW-200512
Sample Info: VBLKW-200512;VBLKW-200512;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051211.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051211.D
Lab Smp Id: HS20050234-11 Client Smp ID: HS20050234-11
Inj Date : 12-MAY-2020 14:01
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-11;HS20050234-11;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	254610	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	359141	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	307451	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	146378	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	116929	46.0161	46.01
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	142052	45.2653	45.26
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	413722	53.6138	53.61
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	146812	49.9819	49.98

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051211.D

Date : 12-MAY-2020 14:01

Client ID: HS20050234-11

Instrument: voa6.i

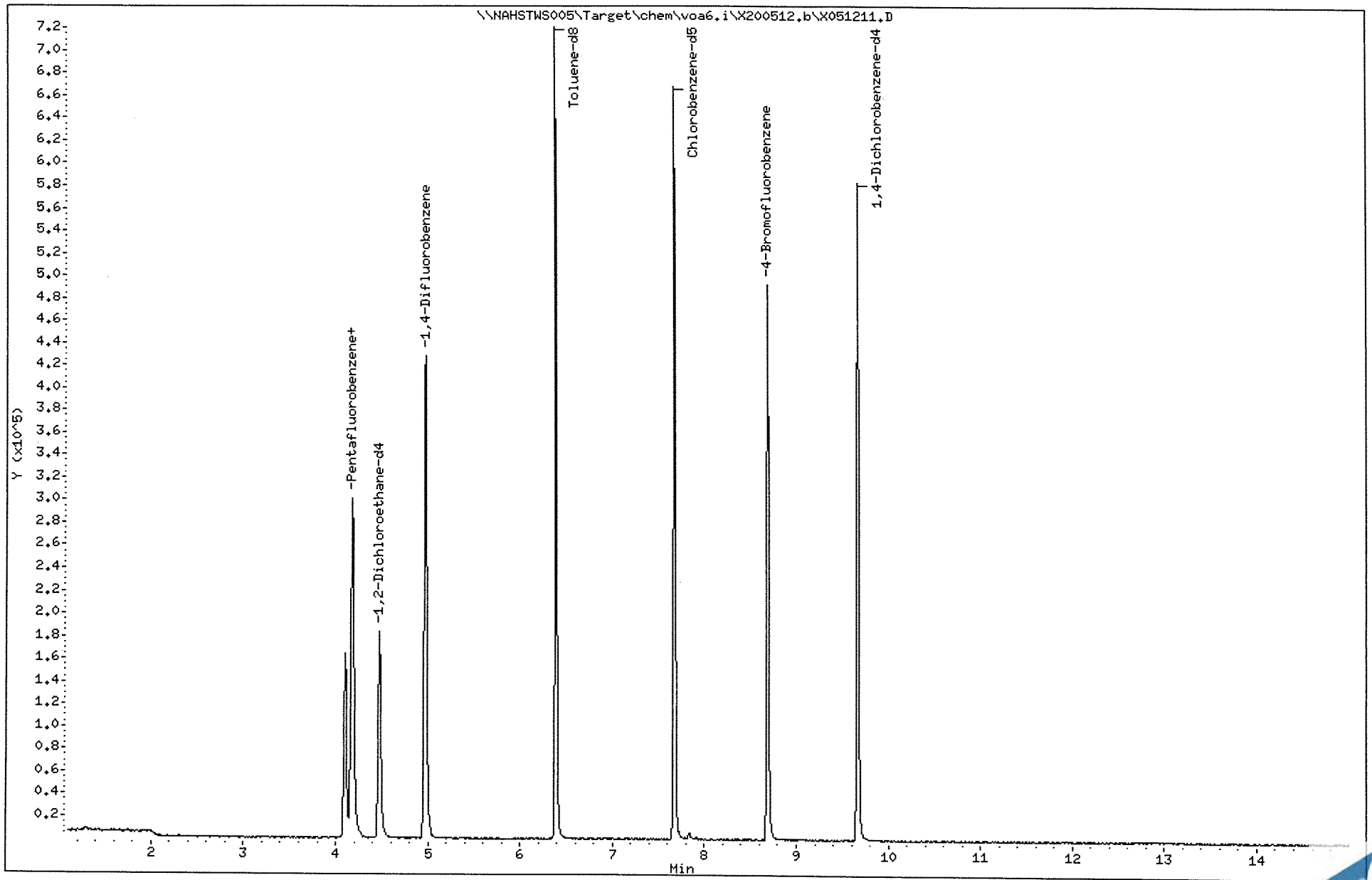
Sample Info: HS20050234-11;HS20050234-11;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051215.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051215.D
Lab Smp Id: HS20050234-01 Client Smp ID: HS20050234-01
Inj Date : 12-MAY-2020 15:38
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-01;HS20050234-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	260658	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	357709	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	307637	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	146853	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118179	45.4258	45.42
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	142079	44.2226	44.22
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	414070	53.6266	53.62
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	147280	50.1129	50.11
38 Trichloroethene	130	5.214	5.206	(1.049)	1644	0.64052	0.64(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051215.D

Date : 12-MAY-2020 15:38

Client ID: HS20050234-01

Instrument: voa6.i

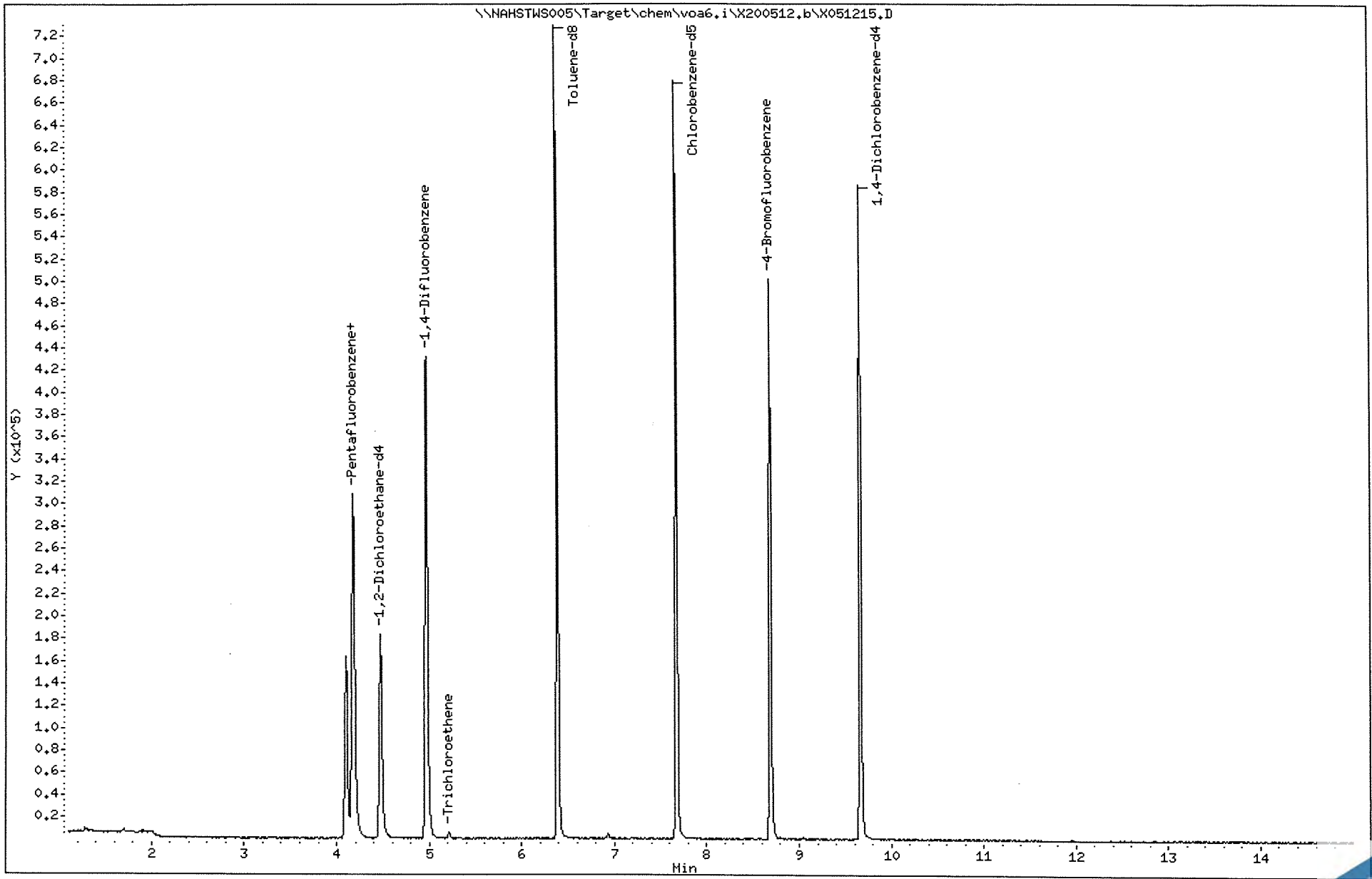
Sample Info: HS20050234-01;HS20050234-01;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051215.D

Date : 12-MAY-2020 15:38

Client ID: HS20050234-01

Instrument: voa6.i

Sample Info: HS20050234-01;HS20050234-01;;;

Purge Volume: 5.0

Operator: PC

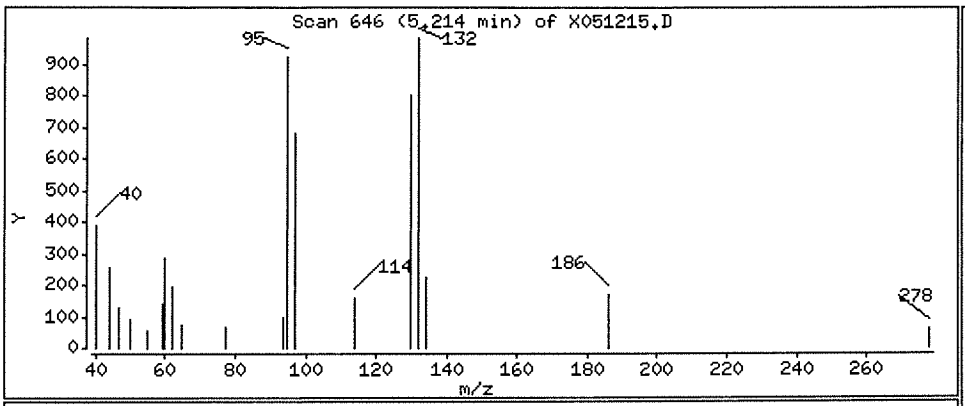
Column phase: DB624

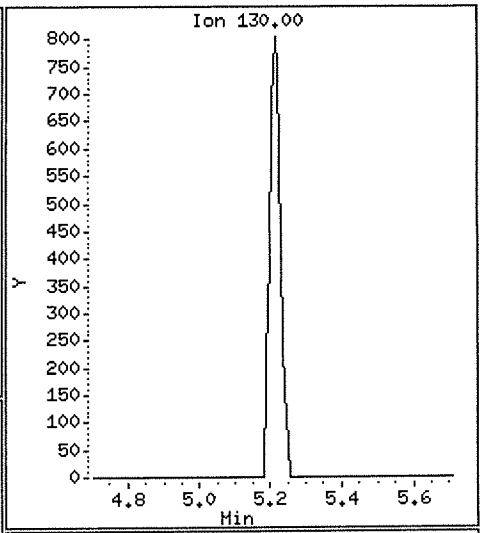
Column diameter: 0.18

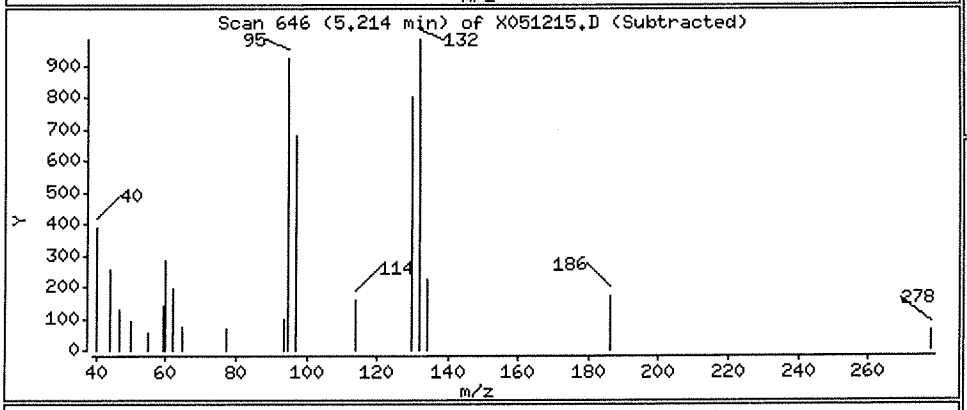
38 Trichloroethene

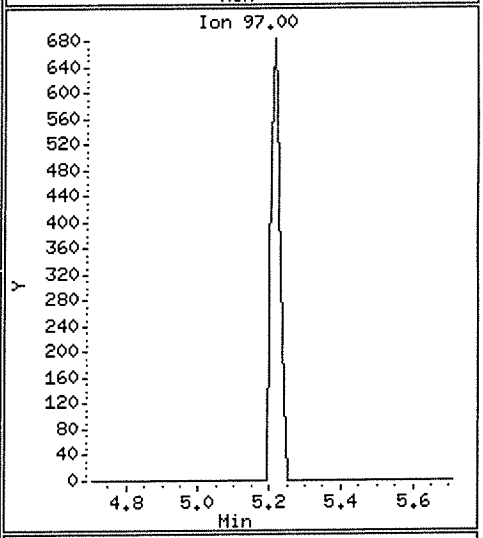
Concentration: 0.64 ug/l

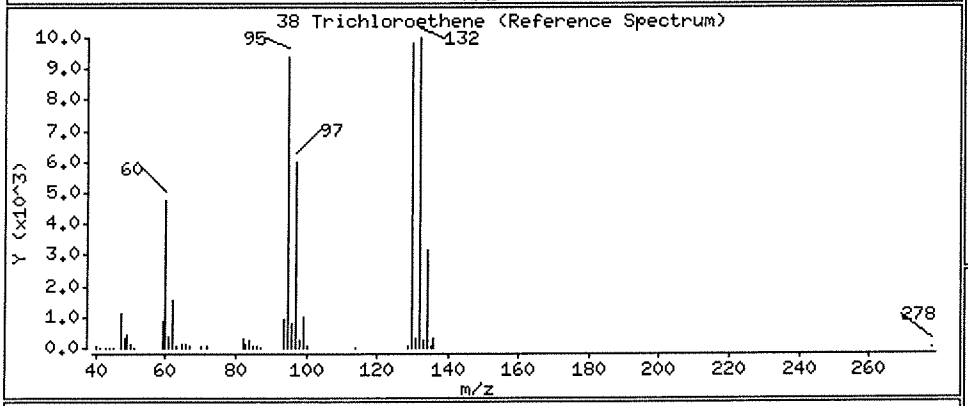
Review Code:

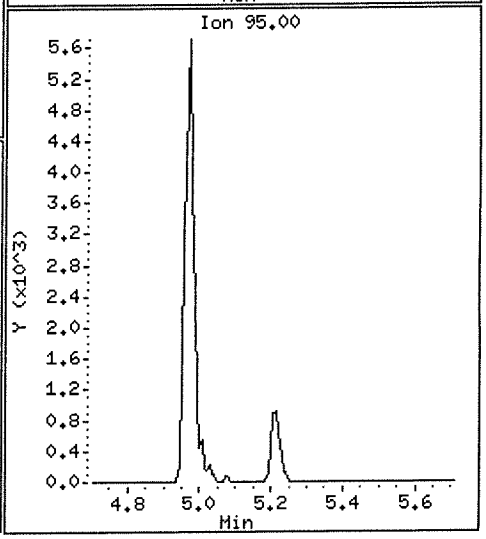


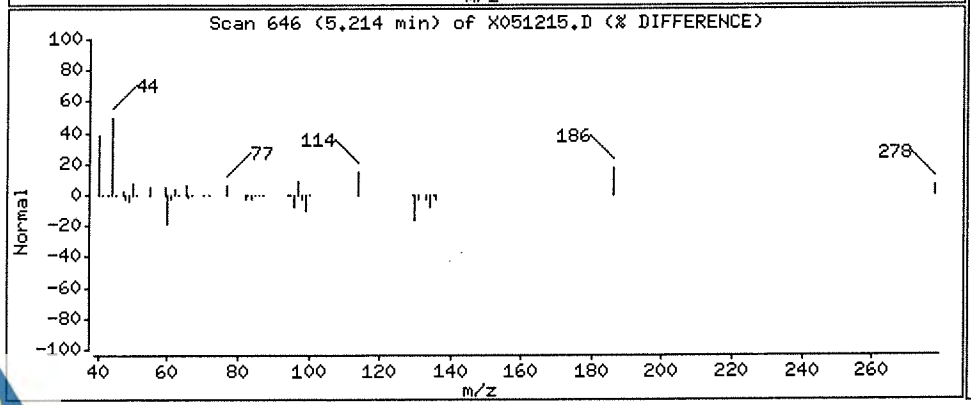












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051216.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051216.D
Lab Smp Id: HS20050234-02 Client Smp ID: HS20050234-02
Inj Date : 12-MAY-2020 16:02
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-02;HS20050234-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

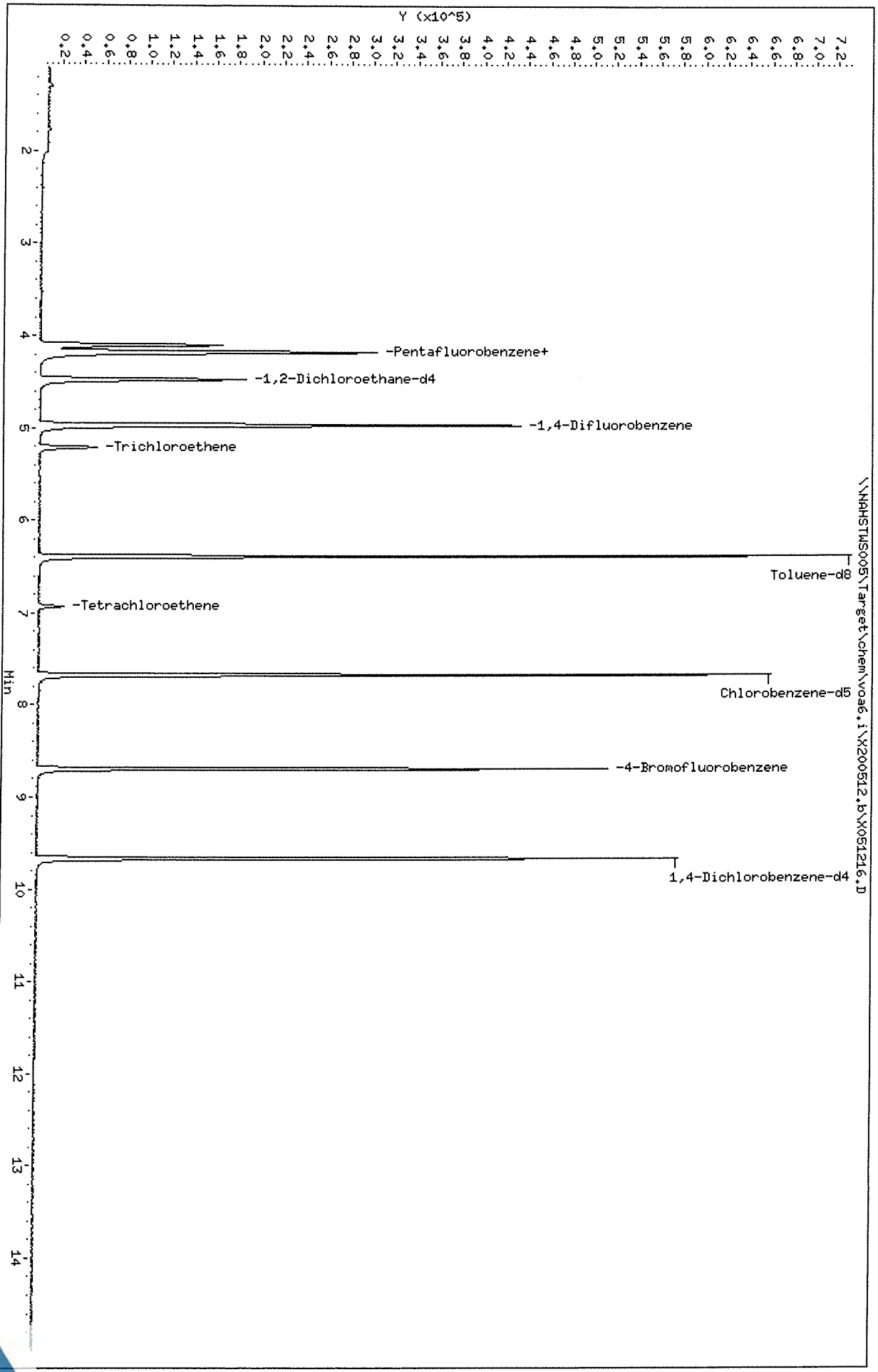
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	259220	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	358027	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	309425	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	151659	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118404	45.7666	45.76
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	145081	45.4084	45.40
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	414146	53.3239	53.32
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	144627	48.9076	48.90
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4830	2.36634	2.36
38 Trichloroethene	130	5.214	5.206	(1.049)	18849	7.33721	7.33

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051216.D
Date : 12-MAY-2020 16:02
Client ID: HS20050234-02
Sample Info: HS20050234-02;HS20050234-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051216.D

Date : 12-MAY-2020 16:02

Client ID: HS20050234-02

Instrument: voa6.i

Sample Info: HS20050234-02;HS20050234-02;;;

Purge Volume: 5.0

Operator: PC

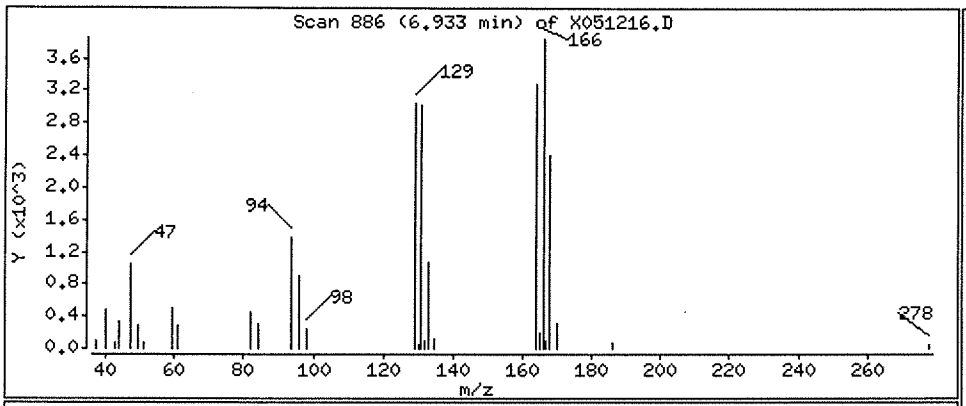
Column phase: DB624

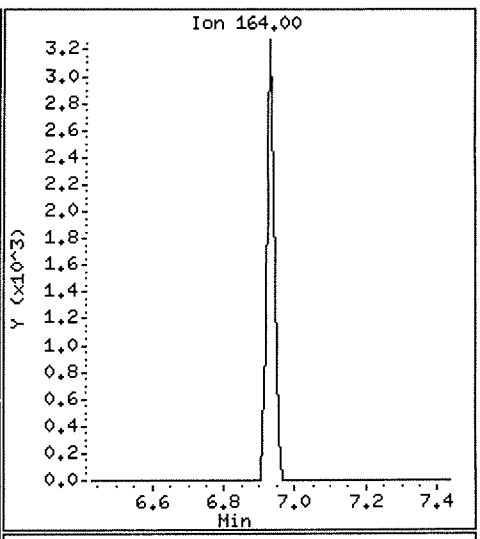
Column diameter: 0.18

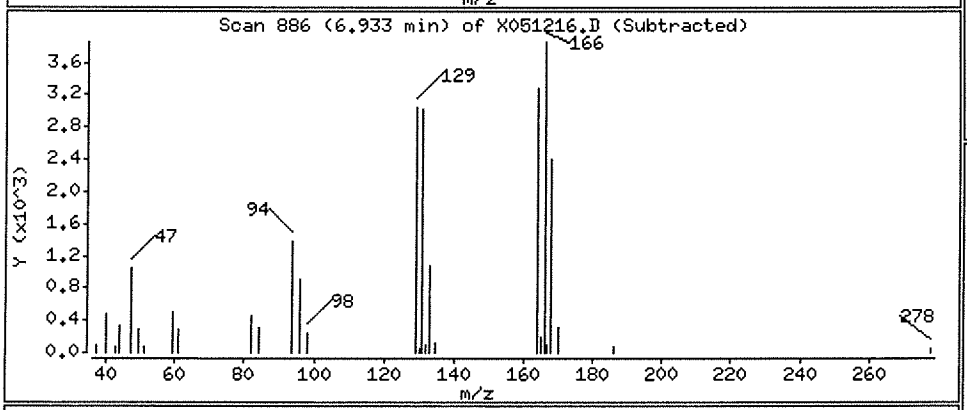
56 Tetrachloroethene

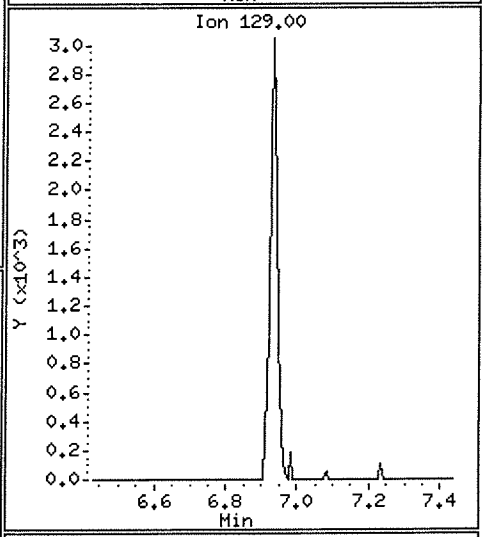
Concentration: 2.36 ug/l

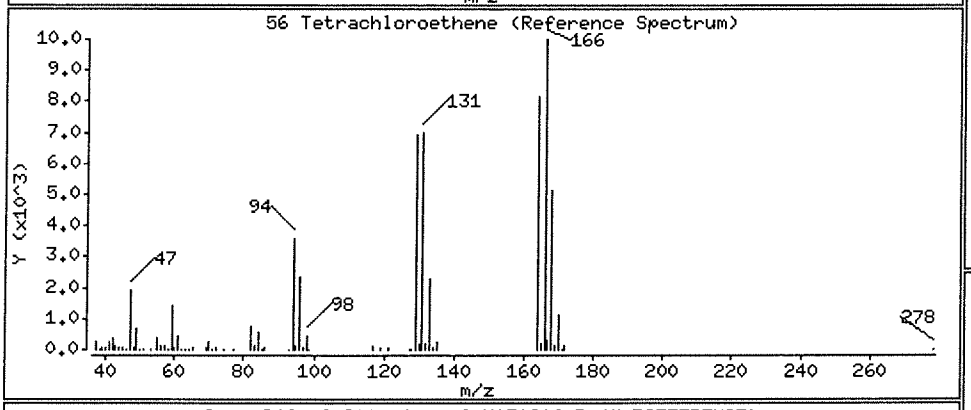
Review Code:

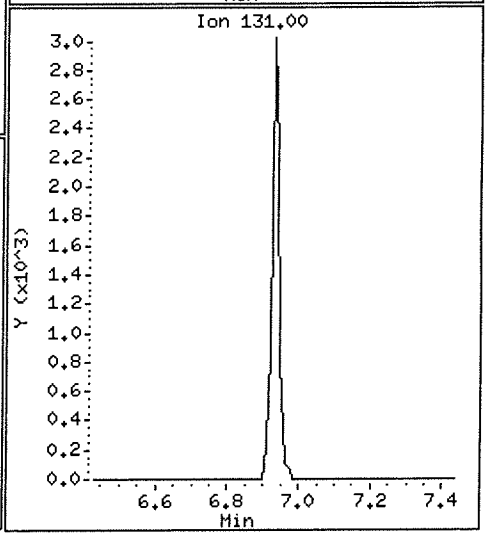


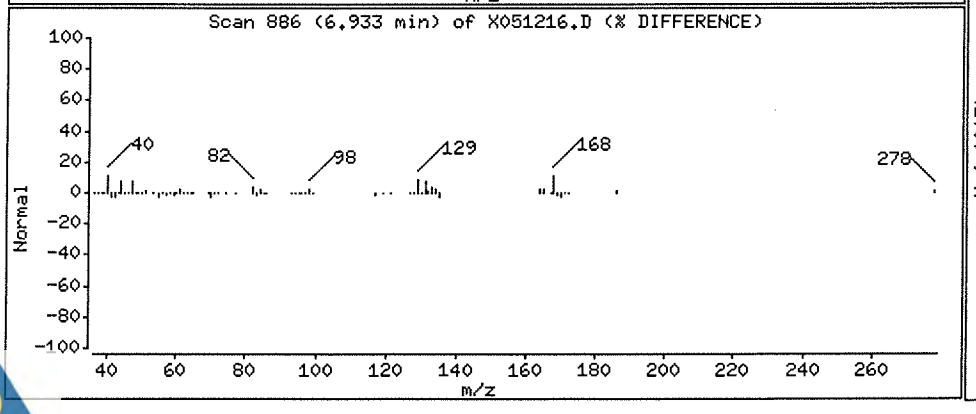












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051216.D Page 4

Date : 12-MAY-2020 16:02

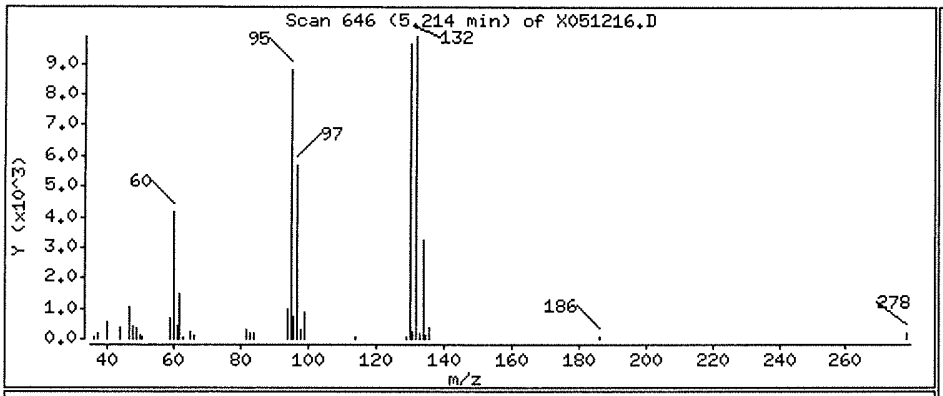
Client ID: HS20050234-02 Instrument: voa6.i

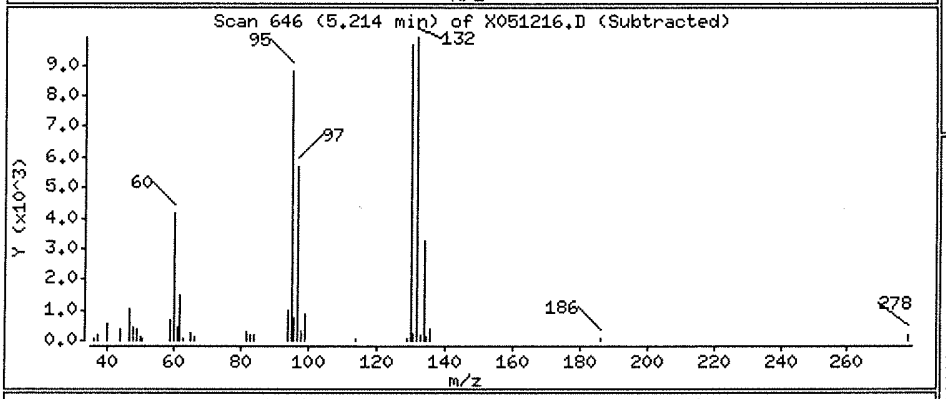
Sample Info: HS20050234-02;HS20050234-02;;;

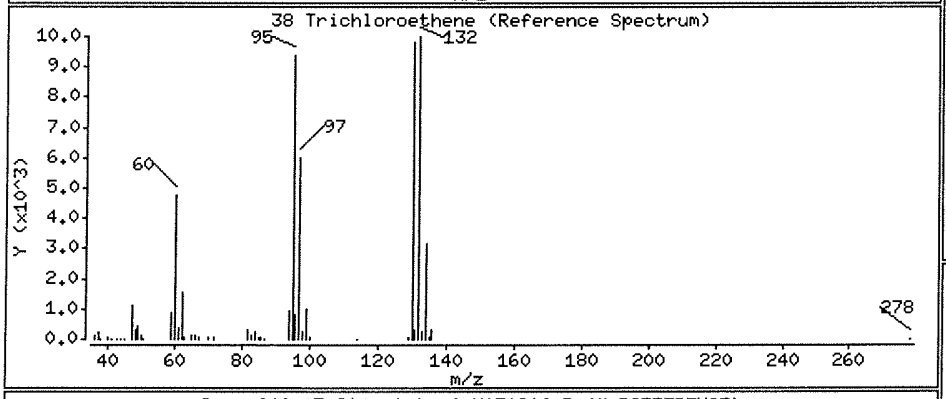
Purge Volume: 5.0 Operator: PC

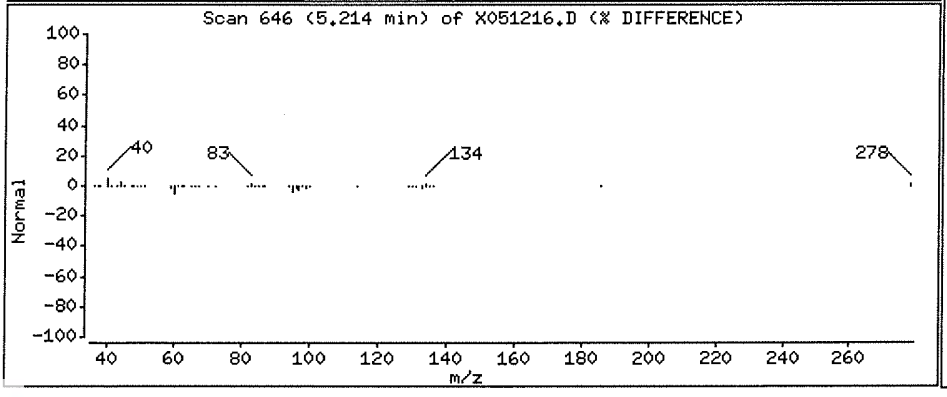
Column phase: DB624 Column diameter: 0.18

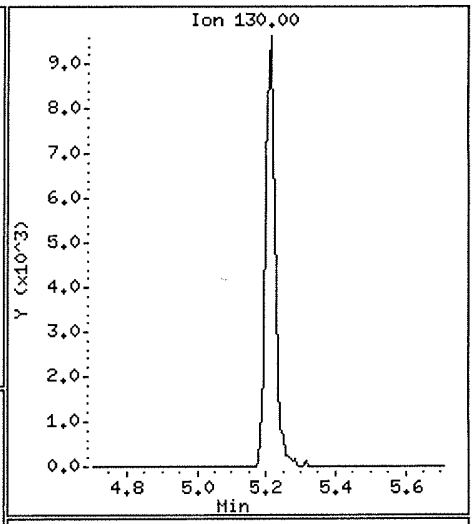
38 Trichloroethene Concentration: 7.33 ug/l Review Code:

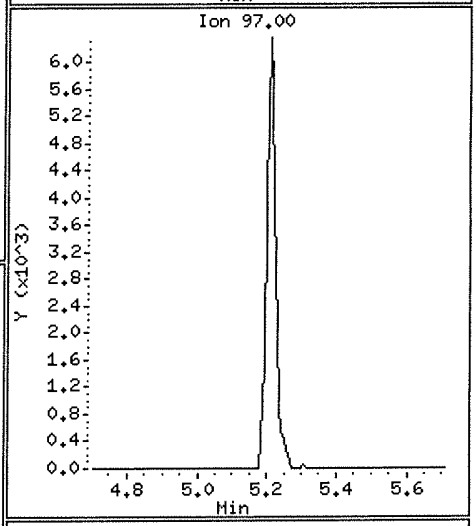


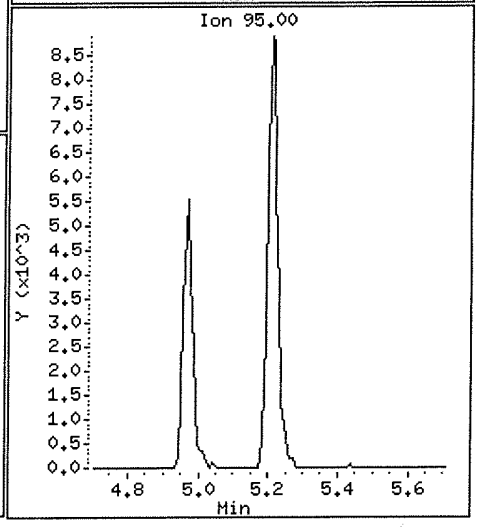












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051217.D
Lab Smp Id: HS20050234-03 Client Smp ID: HS20050234-03
Inj Date : 12-MAY-2020 16:26
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-03;HS20050234-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

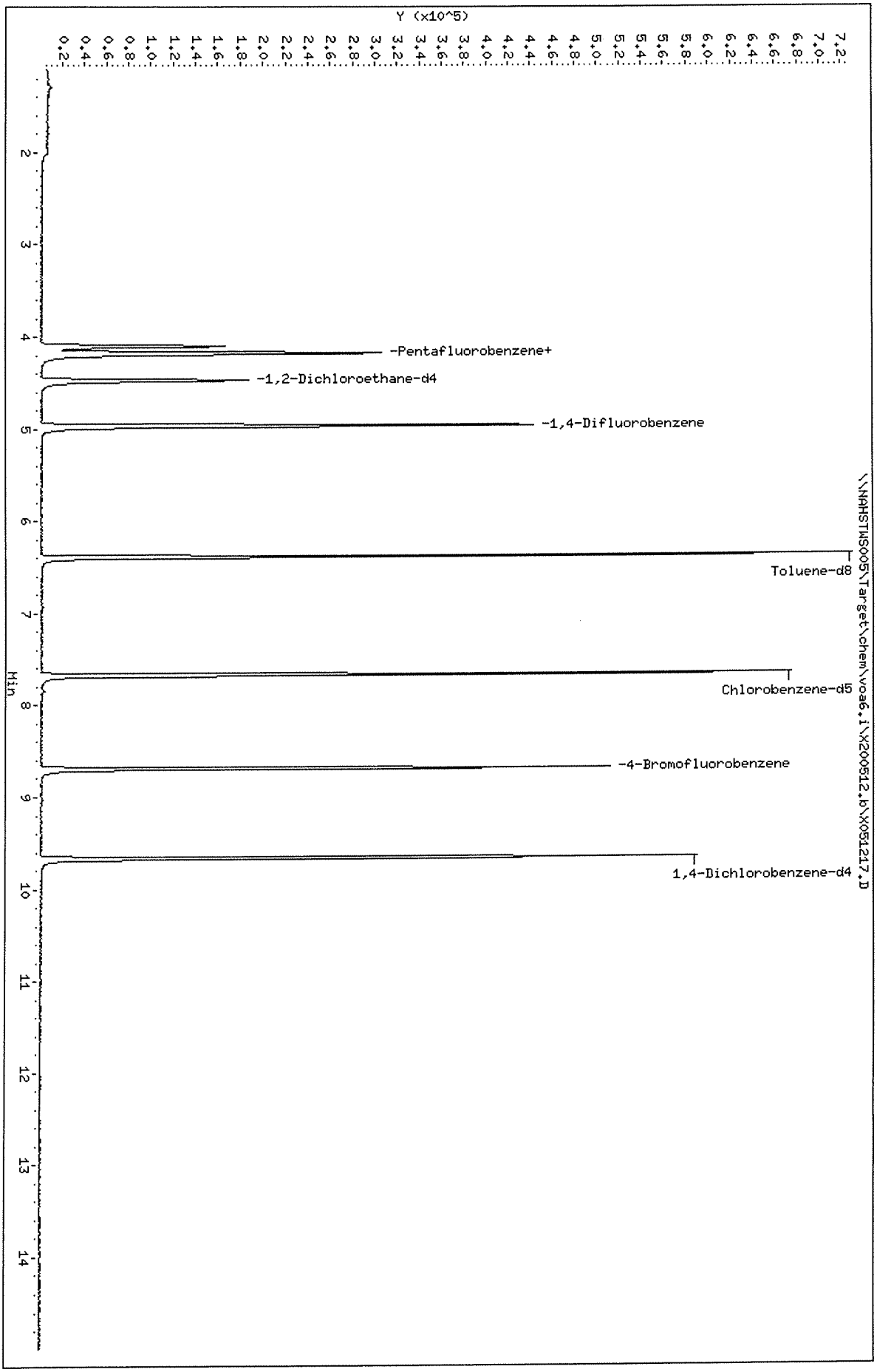
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	261392	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	361924	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	307725	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	152254	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	117681	45.1057	45.10
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	145930	45.2946	45.29
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	411105	53.2239	53.22
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	147290	50.1018	50.10

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051217.D
Date : 12-MAY-2020 16:26
Client ID: HS200502234-03
Sample Info: HS200502234-03;HS200502234-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051218.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051218.D
Lab Smp Id: HS20050234-04 Client Smp ID: HS20050234-05
Inj Date : 12-MAY-2020 16:50
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-04;HS20050234-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

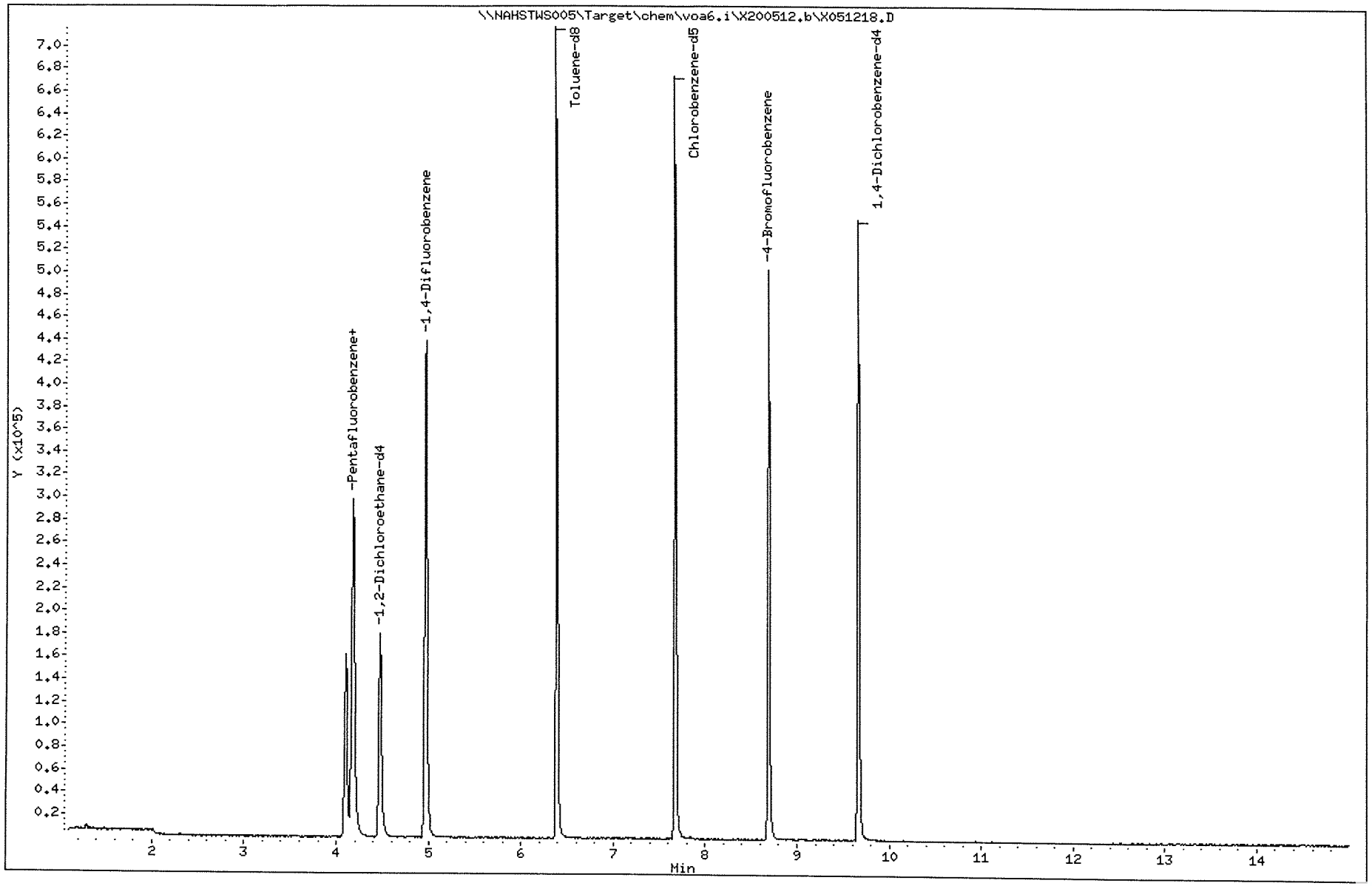
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	258329	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	358697	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	306113	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	141829	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	117541	45.5888	45.58
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	144000	45.2254	45.22
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	413057	53.7629	53.76
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	143355	49.0034	49.00

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051218.D
Date : 12-MAY-2020 16:50
Client ID: HS20050234-05
Sample Info: HS20050234-04;HS20050234-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051219.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051219.D
Lab Smp Id: HS20050234-05 Client Smp ID: HS20050234-05
Inj Date : 12-MAY-2020 17:14
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-05;HS20050234-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

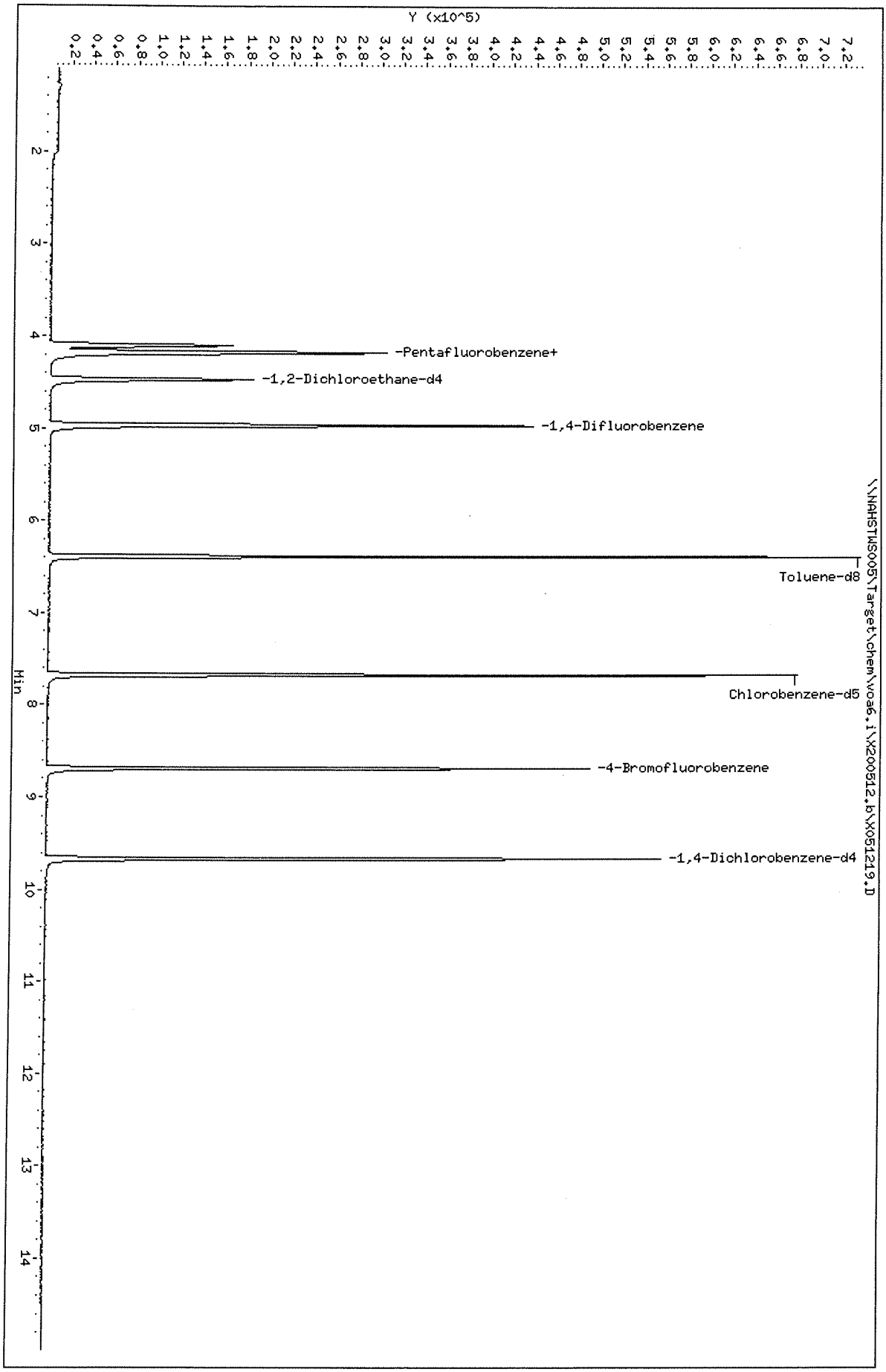
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	259295	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	358495	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	307575	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	145903	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118130	45.6469	45.64
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	145133	45.4116	45.41
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	414047	53.6345	53.63
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	142895	48.6079	48.60

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051219.D
Date : 12-MAY-2020 17:14
Client ID: HS20050234-05
Sample Info: HS20050234-05;HS20050234-05;;;
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\X200512.b\X051220.D
Lab Smp Id: HS20050234-06 Client Smp ID: HS20050234-06
Inj Date : 12-MAY-2020 17:38
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-06;HS20050234-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

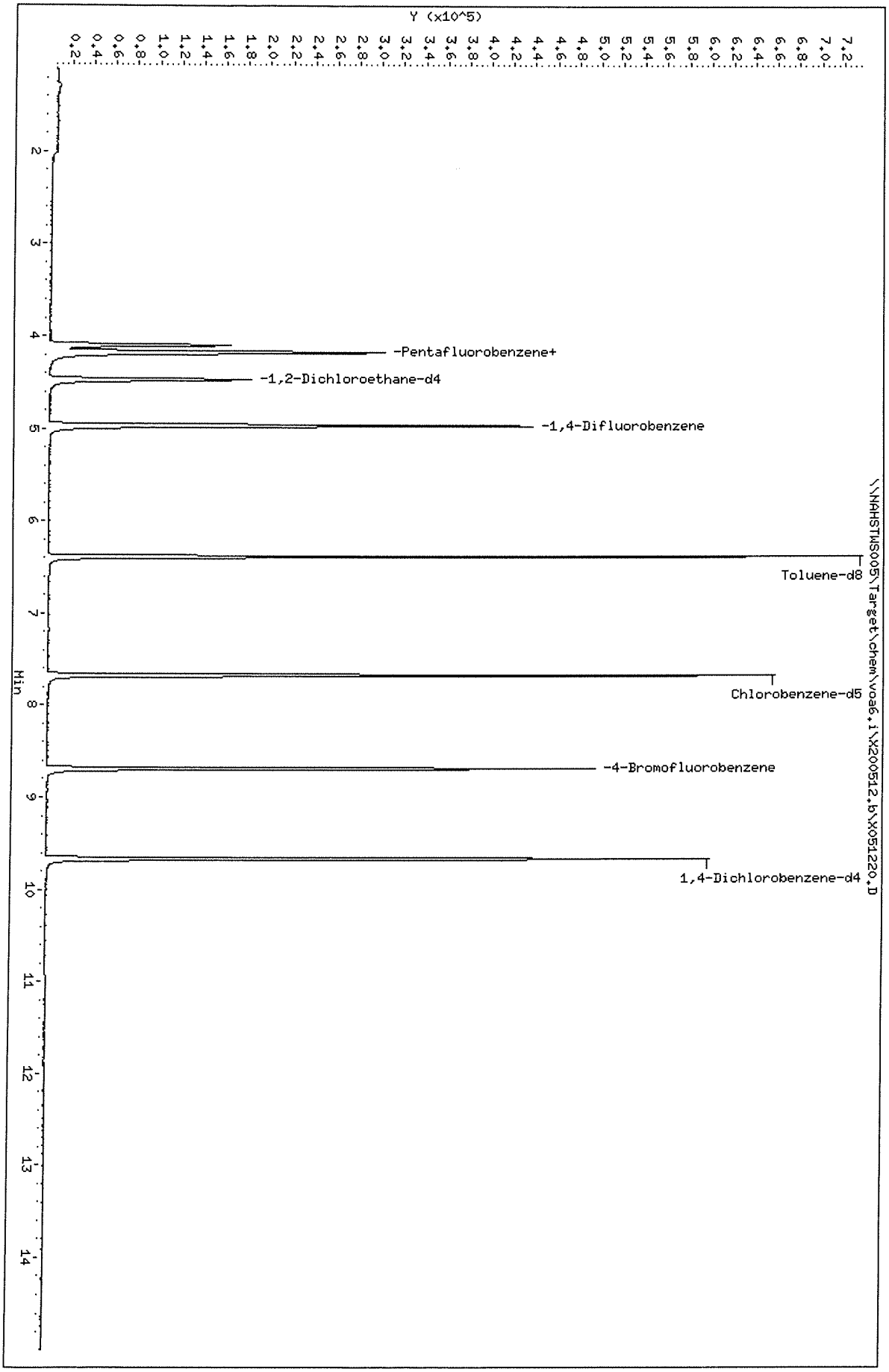
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	260487	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	356311	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	304859	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	153378	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	117221	45.0854	45.08
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	144171	44.9037	44.90
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	412096	53.8593	53.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	148853	51.1250	51.12

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051220.D
Date : 12-MAY-2020 17:38
Client ID: HS200502234-06
Sample Info: HS200502234-06;HS200502234-06;;;
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\X200512.b\X051221.D
Lab Smp Id: HS20050234-07 Client Smp ID: HS20050234-07
Inj Date : 12-MAY-2020 18:02
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-07;HS20050234-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	259615	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	362636	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	308313	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	147994	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118582	45.7657	45.76
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	146443	45.7653	45.76
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	417869	54.0032	54.00
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	145428	49.3629	49.36
56 Tetrachloroethene	164	6.933	6.933	(0.904)	13100	6.44118	6.44
38 Trichloroethene	130	5.206	5.206	(1.048)	1851	0.71137	0.71(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051221.D

Date : 12-MAY-2020 18:02

Client ID: HS20050234-07

Sample Info: HS20050234-07;HS20050234-07;;;

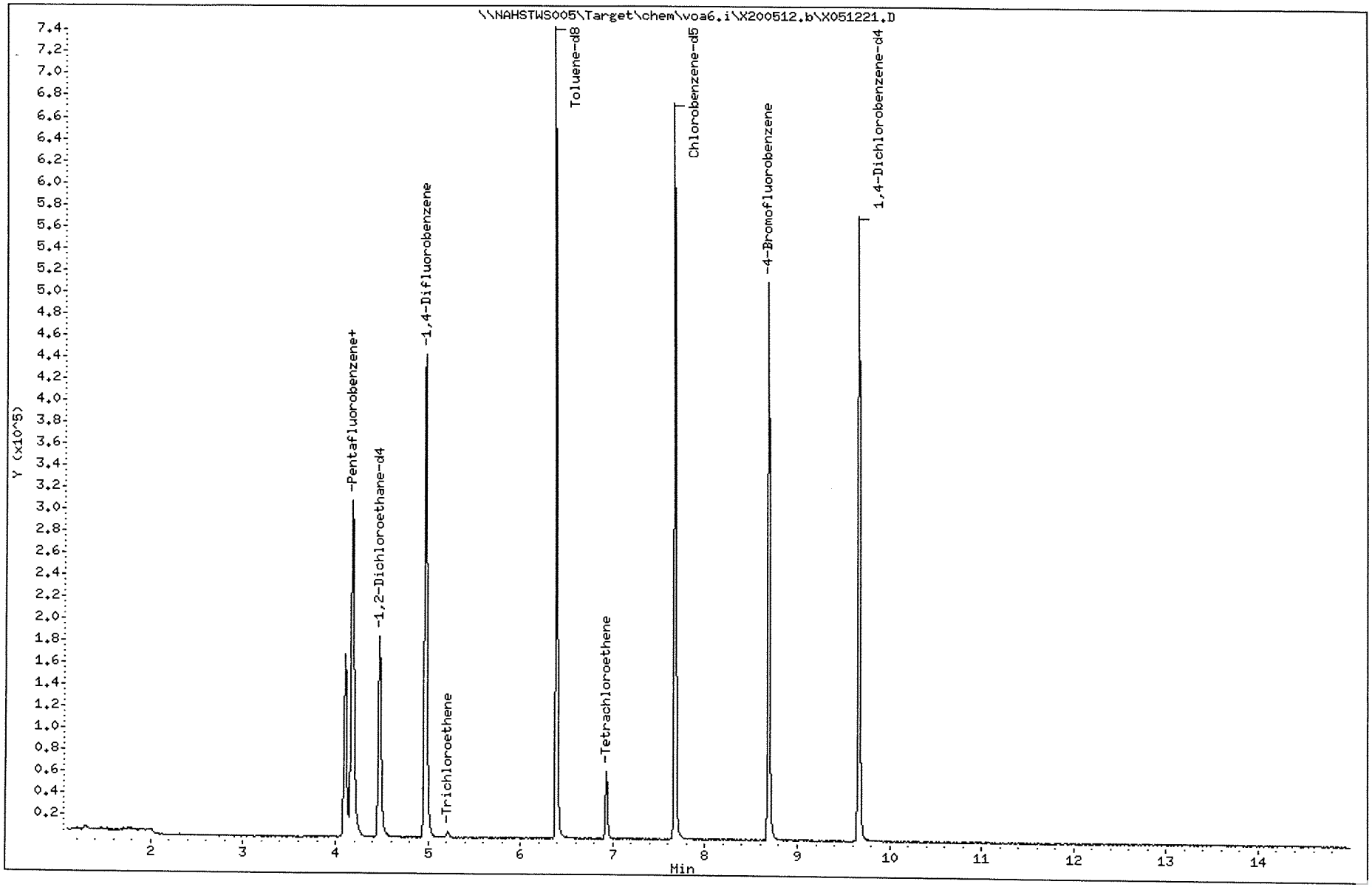
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051221.D

Date : 12-MAY-2020 18:02

Client ID: HS20050234-07

Instrument: voa6.i

Sample Info: HS20050234-07;HS20050234-07;;;

Purge Volume: 5.0

Operator: PC

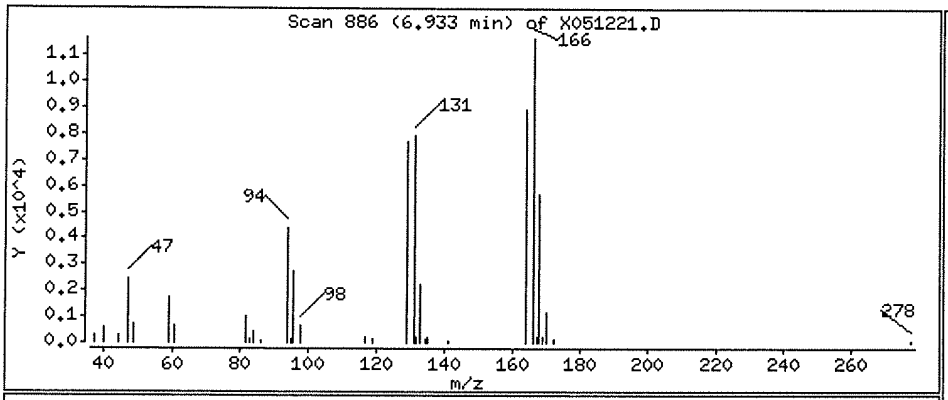
Column phase: DB624

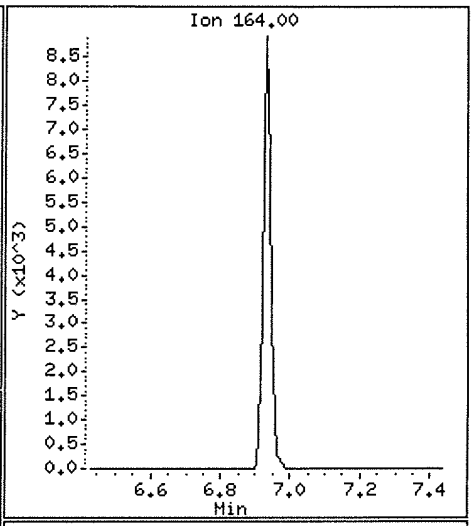
Column diameter: 0.18

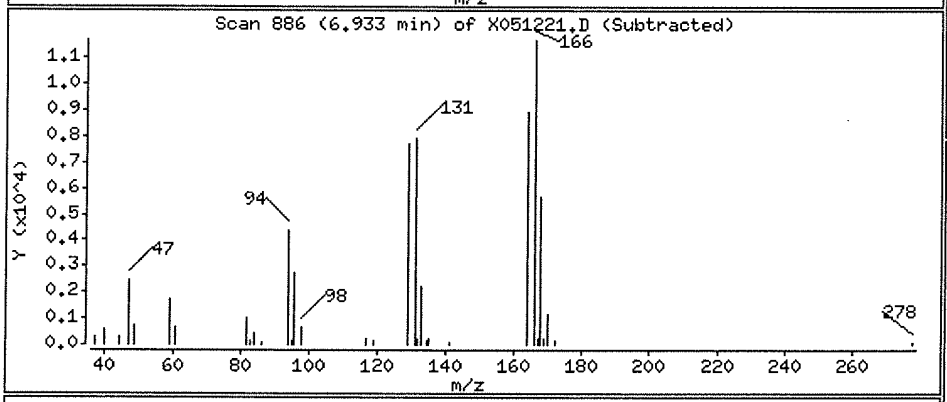
56 Tetrachloroethene

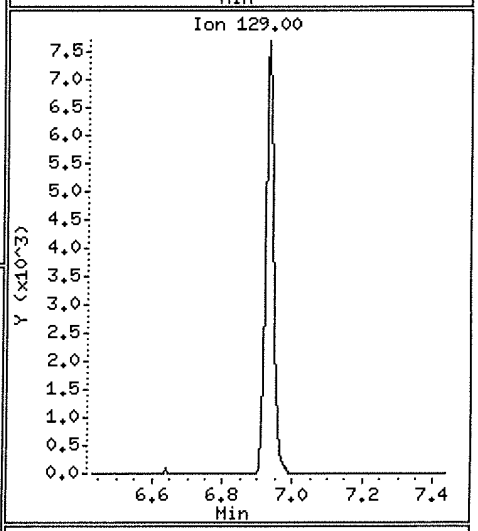
Concentration: 6.44 ug/l

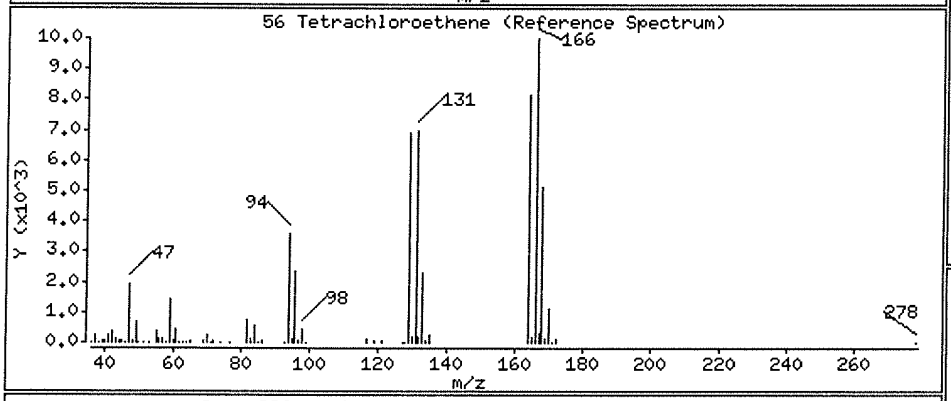
Review Code:

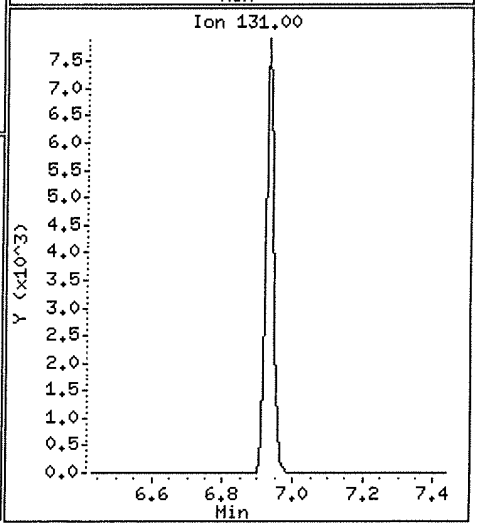


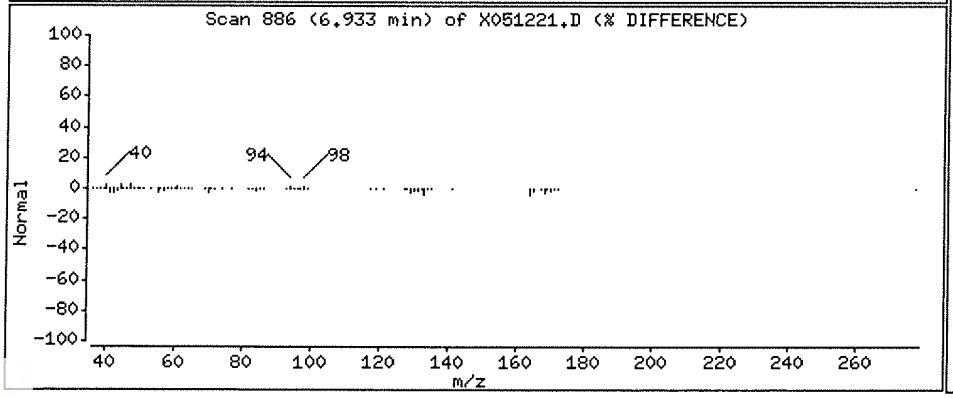












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051221.D

Date : 12-MAY-2020 18:02

Client ID: HS20050234-07

Instrument: voa6.i

Sample Info: HS20050234-07;HS20050234-07;;;

Purge Volume: 5.0

Operator: PC

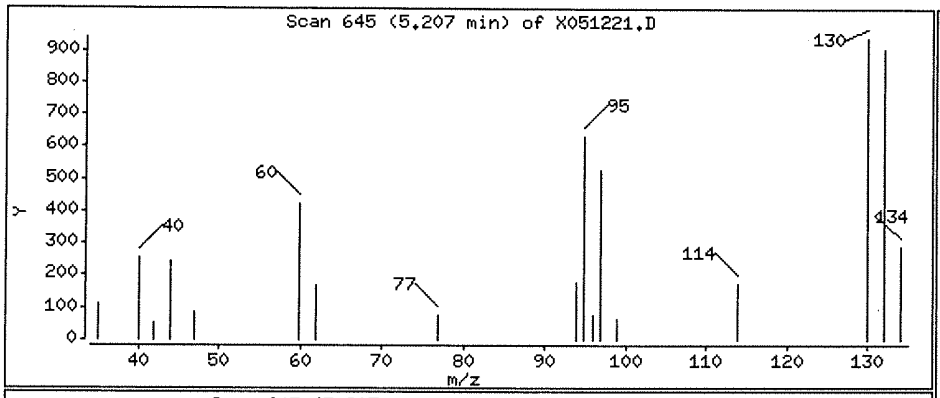
Column phase: DB624

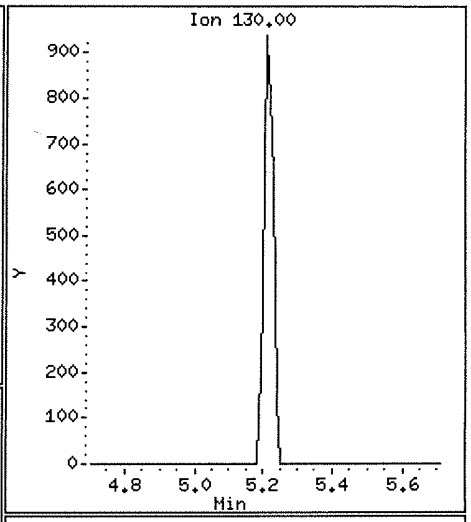
Column diameter: 0.18

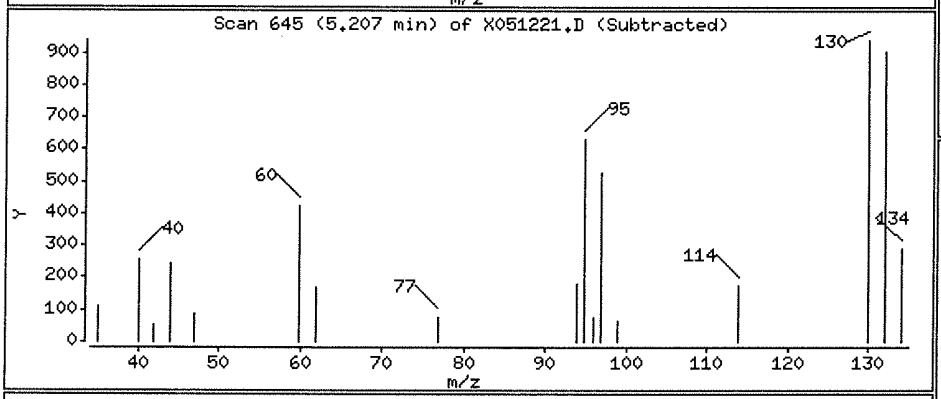
38 Trichloroethene

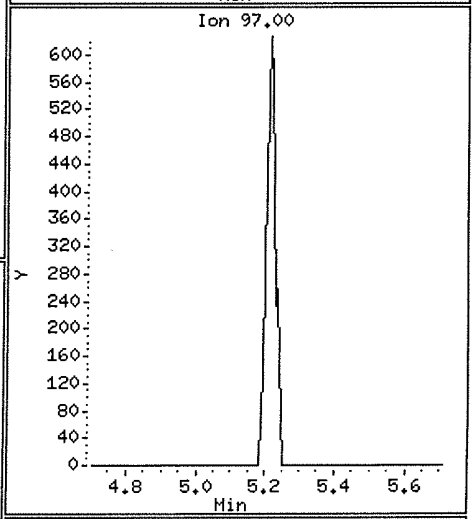
Concentration: 0.71 ug/l

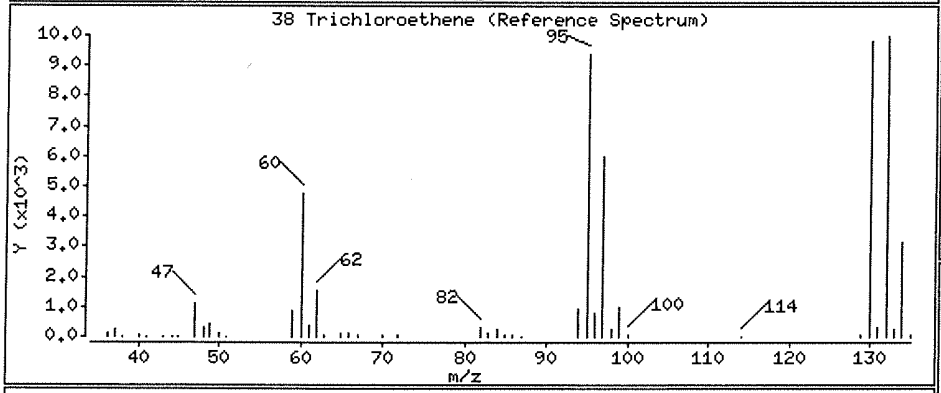
Review Code:

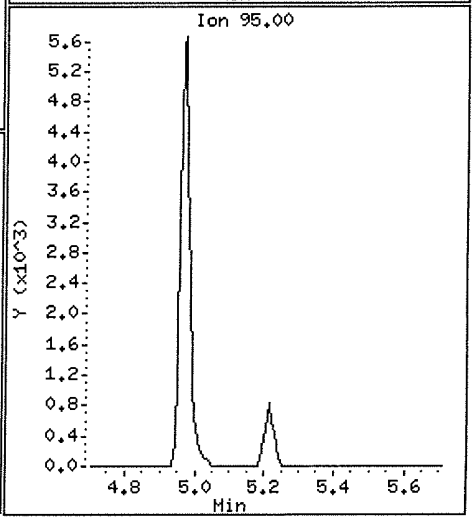


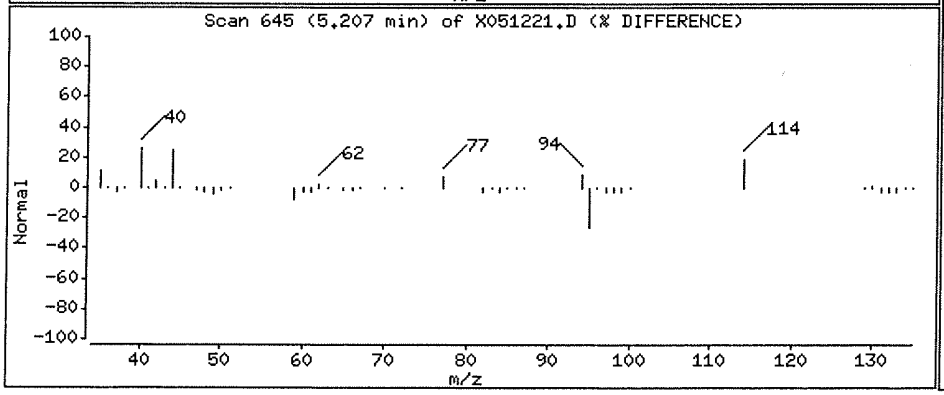












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051222.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051222.D
Lab Smp Id: HS20050234-08 Client Smp ID: HS20050234-08
Inj Date : 12-MAY-2020 18:26
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-08;HS20050234-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

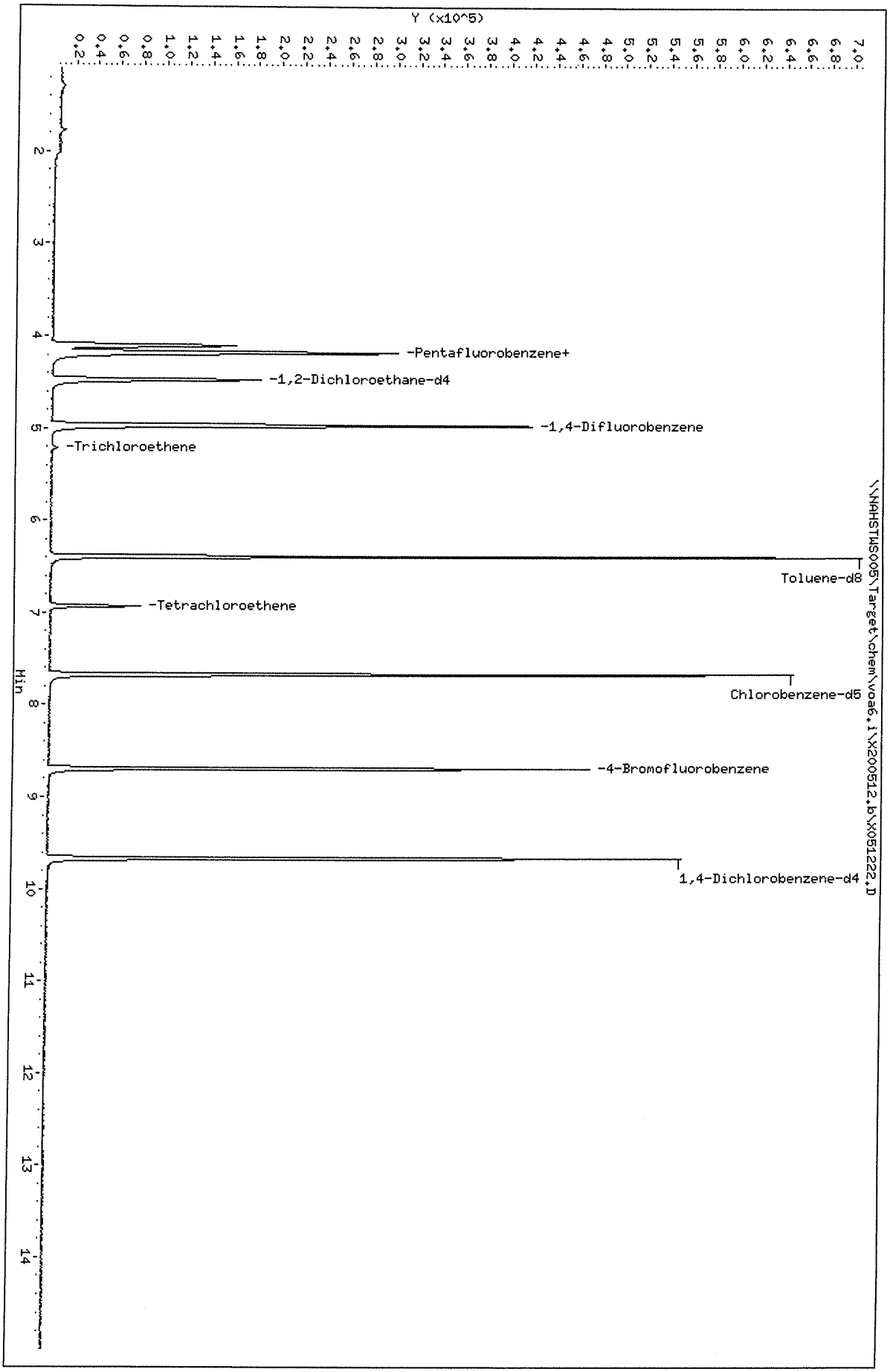
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	256825	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	353692	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	295213	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	140161	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	116589	45.4838	45.48
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	141980	44.8518	44.85
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	405989	54.8030	54.80
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	136071	48.2187	48.21
56 Tetrachloroethene	164	6.933	6.933	(0.904)	16636	8.54278	8.54
38 Trichloroethene	130	5.214	5.206	(1.049)	1541	0.60721	0.60(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200512,b\X051222.D
Date : 12-MAY-2020 18:26
Client ID: HS20050234-08
Sample Info: HS20050234-08;HS20050234-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051222.D

Date : 12-MAY-2020 18:26

Client ID: HS20050234-08

Instrument: voa6.i

Sample Info: HS20050234-08;HS20050234-08;;;

Purge Volume: 5.0

Operator: PC

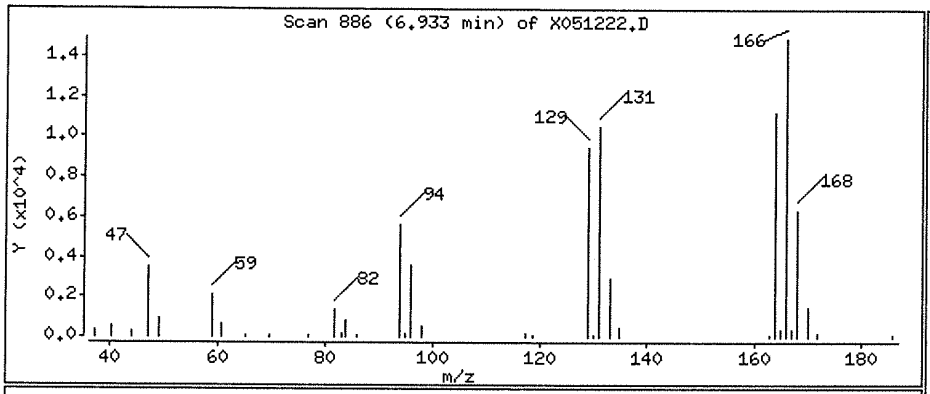
Column phase: DB624

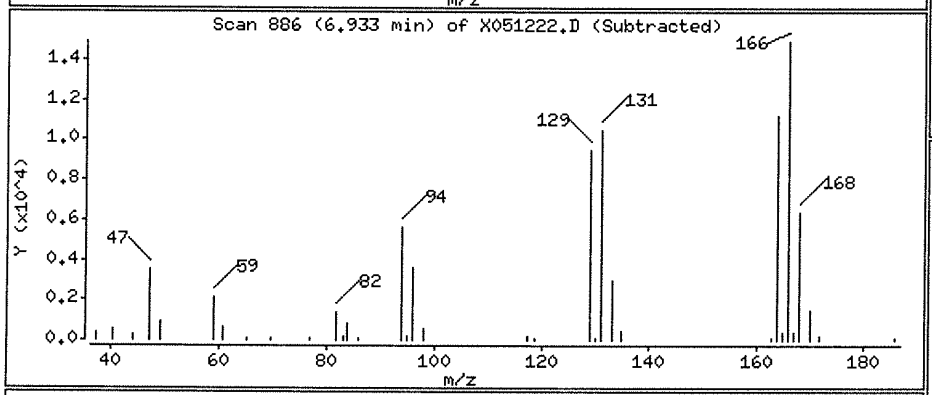
Column diameter: 0.18

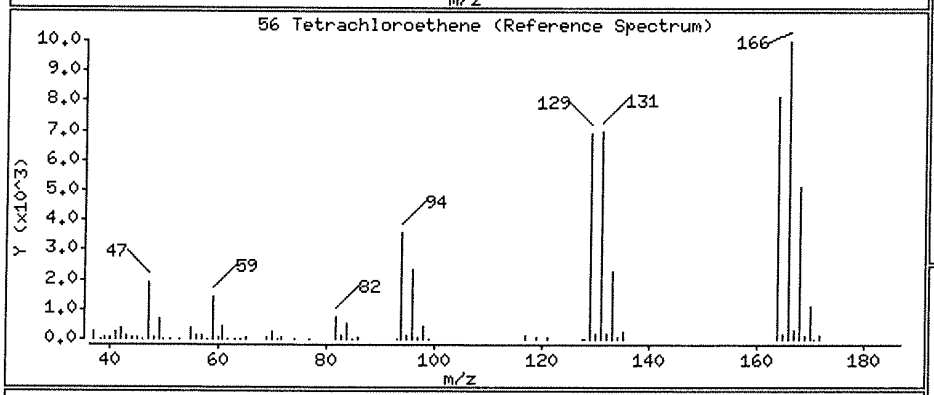
56 Tetrachloroethene

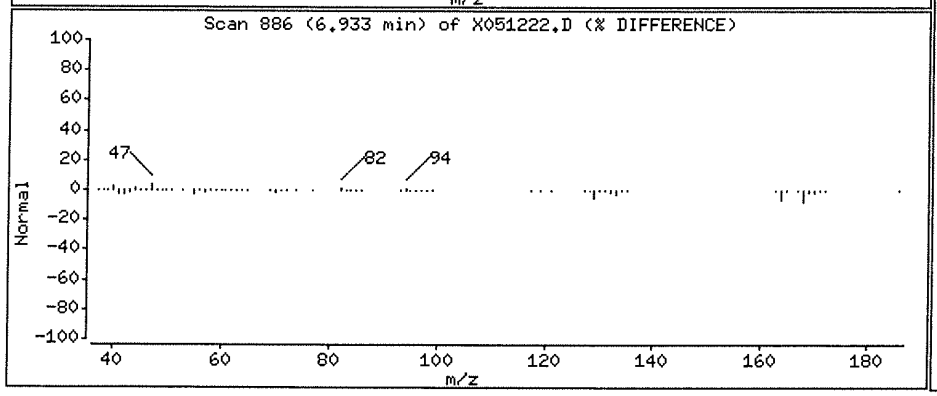
Concentration: 8.54 ug/l

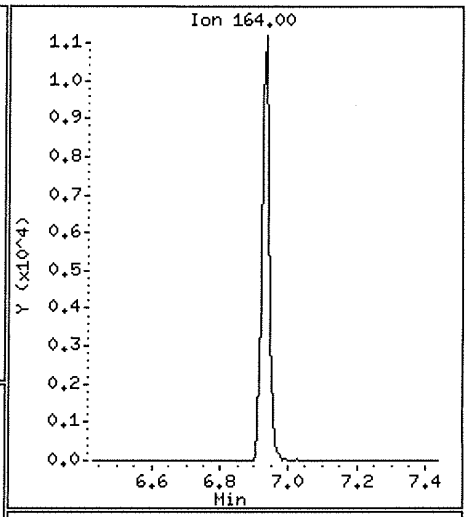
Review Code:

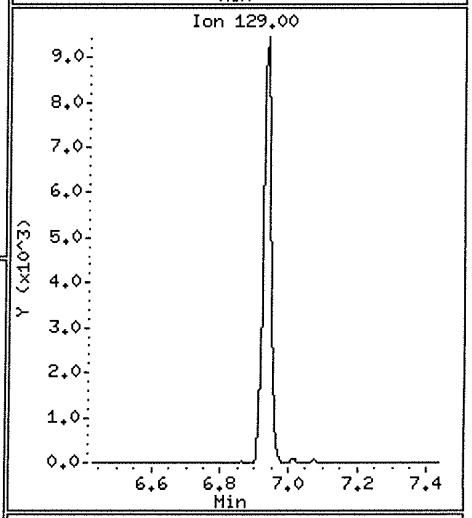


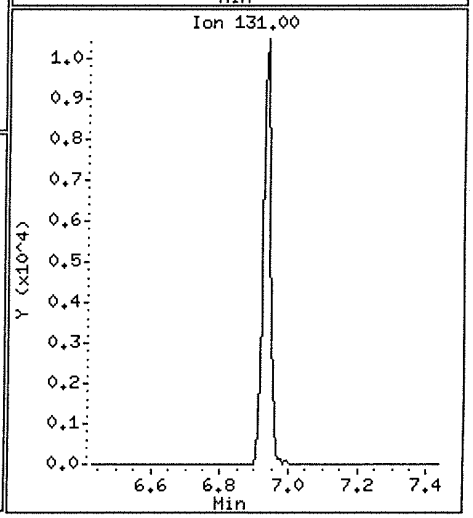












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051222.D

Date : 12-MAY-2020 18:26

Client ID: HS20050234-08

Instrument: voa6.i

Sample Info: HS20050234-08;HS20050234-08;;;

Purge Volume: 5.0

Operator: PC

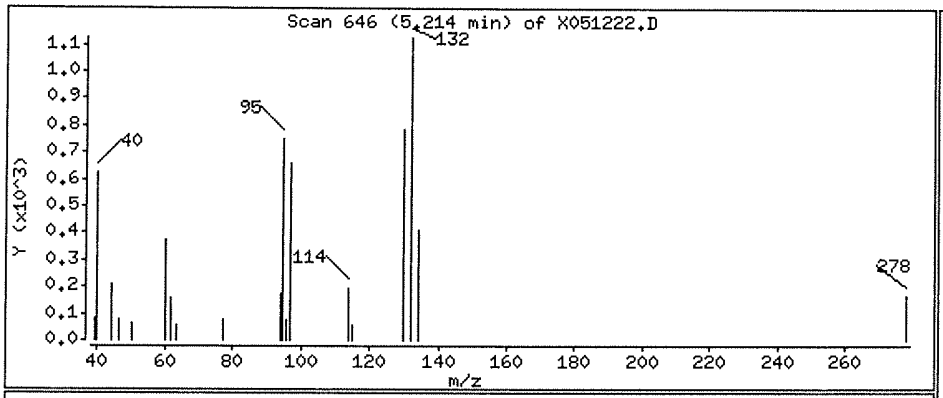
Column phase: DB624

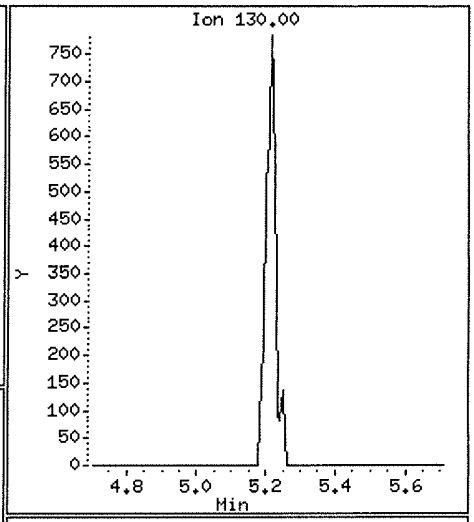
Column diameter: 0.18

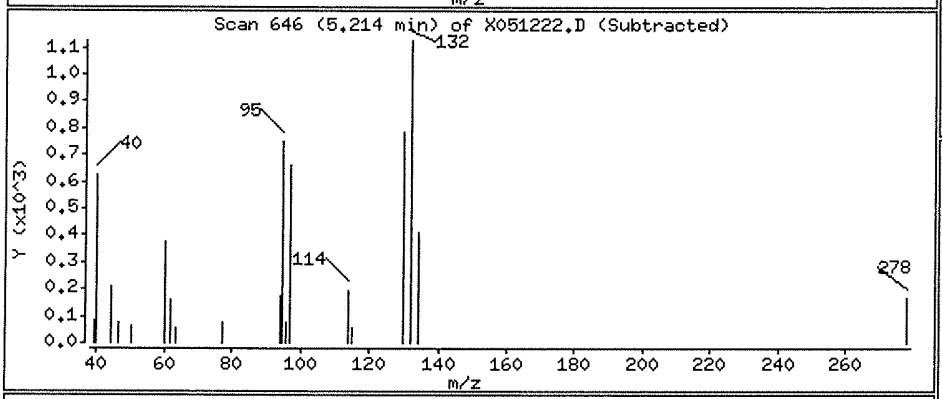
38 Trichloroethene

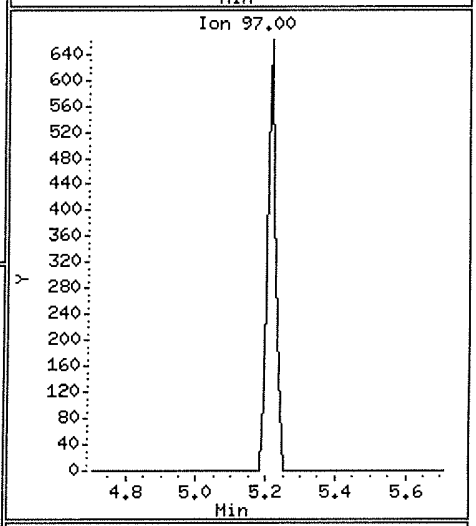
Concentration: 0.60 ug/l

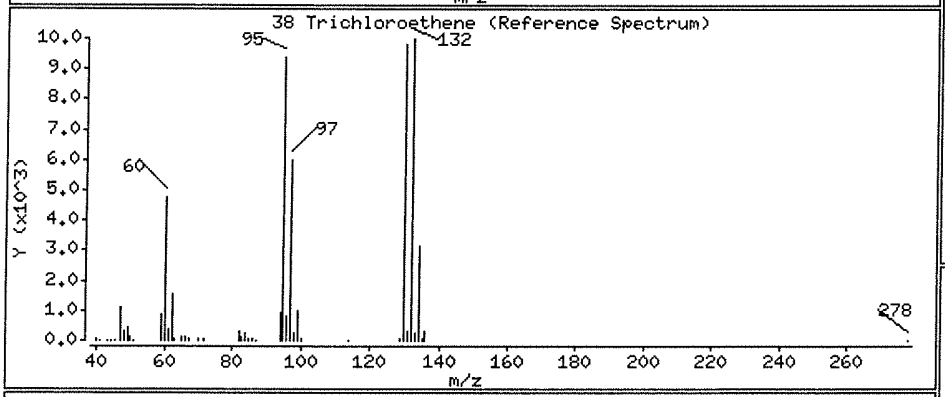
Review Code:

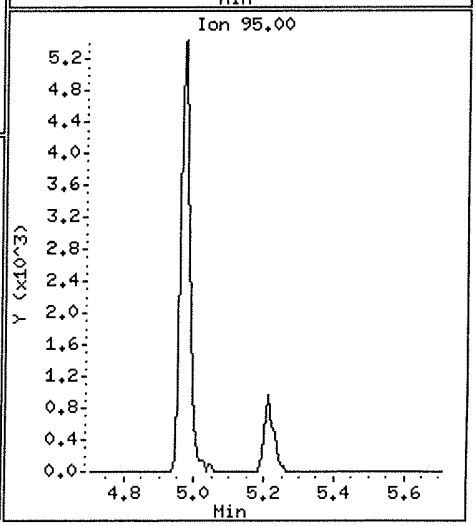


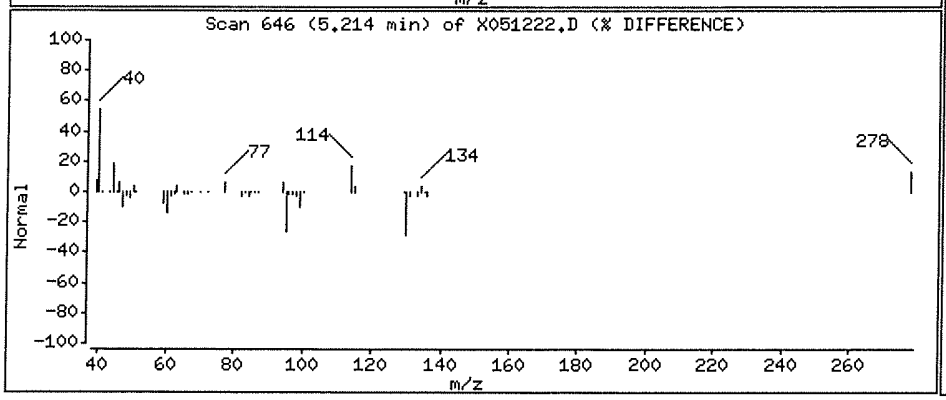












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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051223.D
Lab Smp Id: HS20050234-09 Client Smp ID: HS20050234-09
Inj Date : 12-MAY-2020 18:50
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-09;HS20050234-09;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

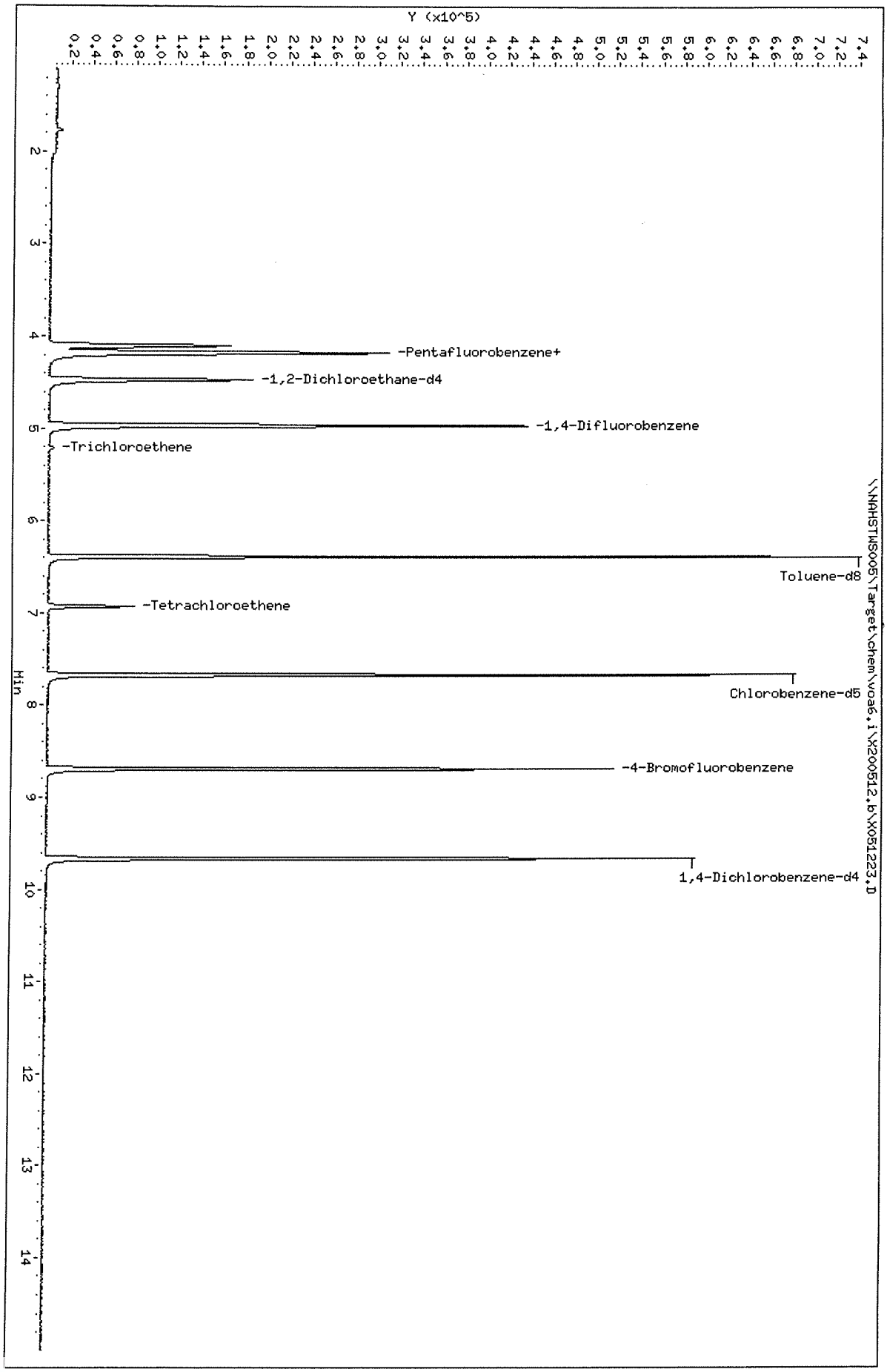
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	264123	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	363304	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	315402	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	150601	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	120689	45.7839	45.78
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	145118	44.5762	44.57
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	420593	53.1260	53.12
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	147653	48.9858	48.98
56 Tetrachloroethene	164	6.933	6.933	(0.904)	17770	8.54101	8.54
38 Trichloroethene	130	5.214	5.206	(1.049)	1877	0.72003	0.72(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051223.D
Date : 12-MAY-2020 18:50
Client ID: HS20050234-09
Sample Info: HS20050234-09;HS20050234-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051223.D Page 3

Date : 12-MAY-2020 18:50

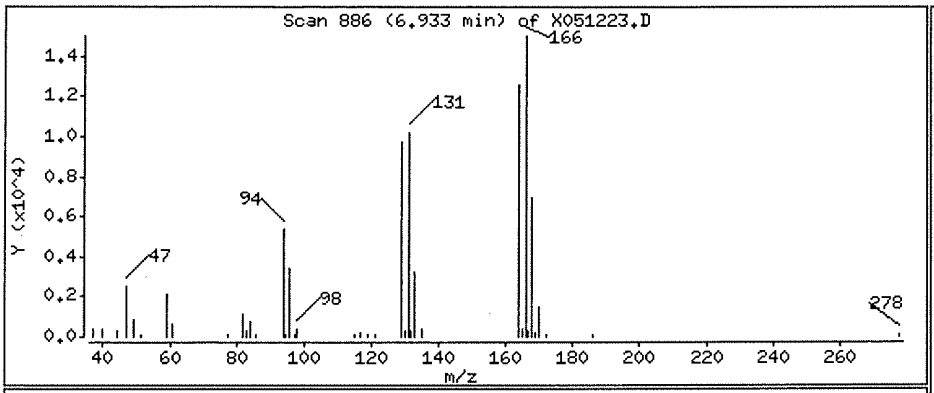
Client ID: HS20050234-09 Instrument: voa6.i

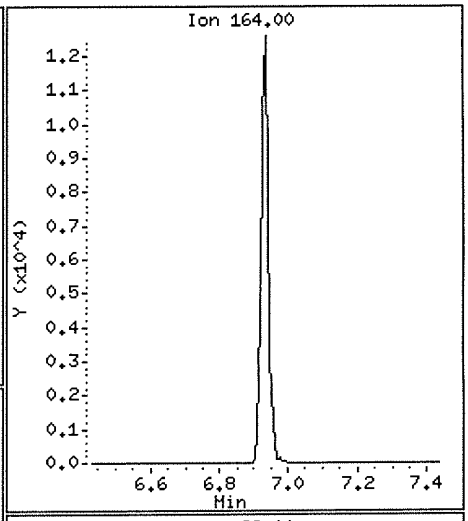
Sample Info: HS20050234-09;HS20050234-09;;;

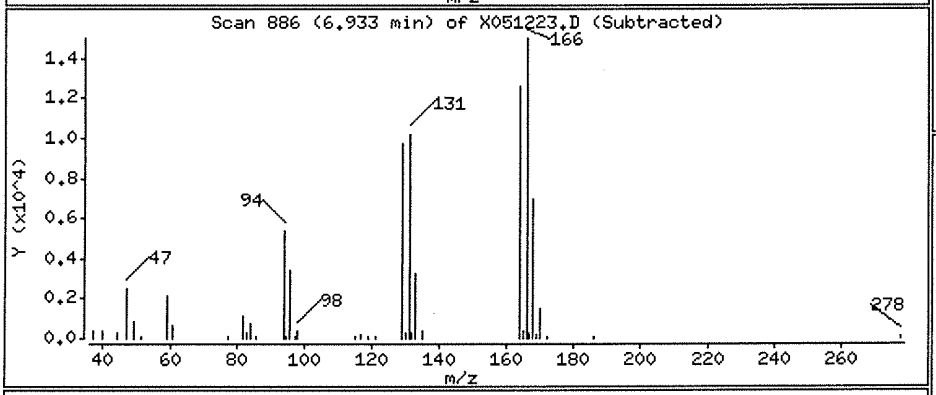
Purge Volume: 5.0 Operator: PC

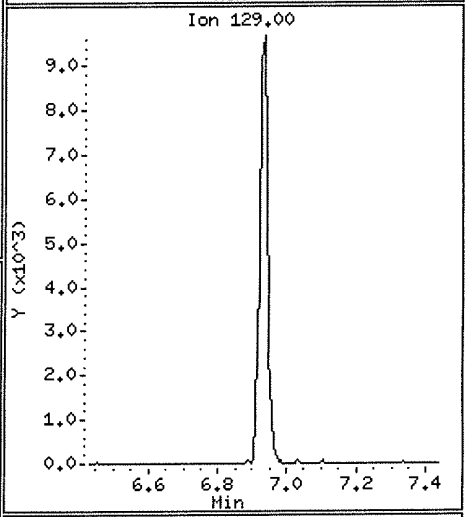
Column phase: DB624 Column diameter: 0.18

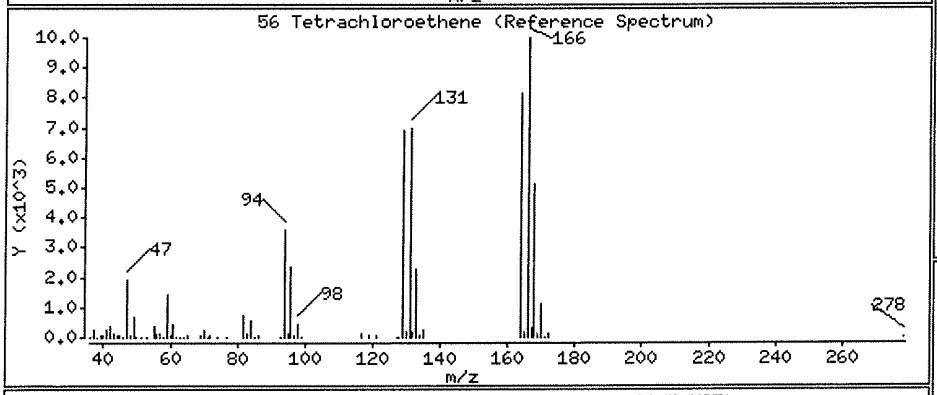
56 Tetrachloroethene Concentration: 8.54 ug/l Review Code:

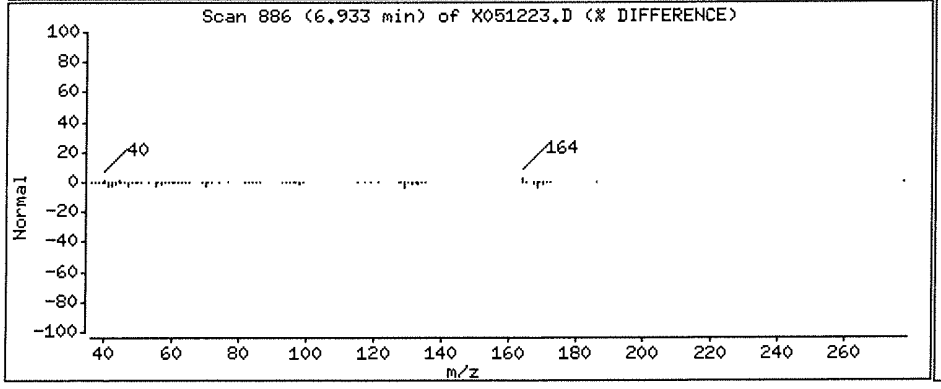


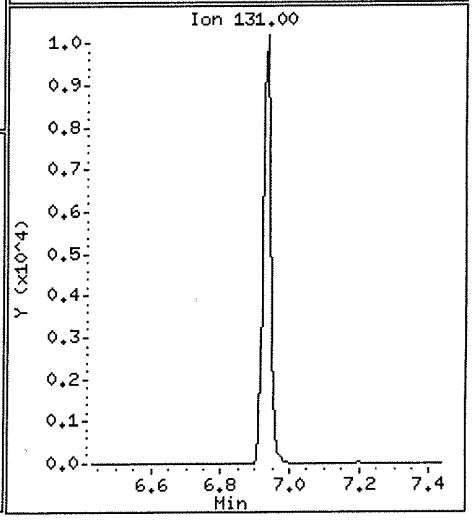












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051223.D

Date : 12-MAY-2020 18:50

Client ID: HS20050234-09

Instrument: voa6.i

Sample Info: HS20050234-09;HS20050234-09;;;

Purge Volume: 5.0

Operator: PC

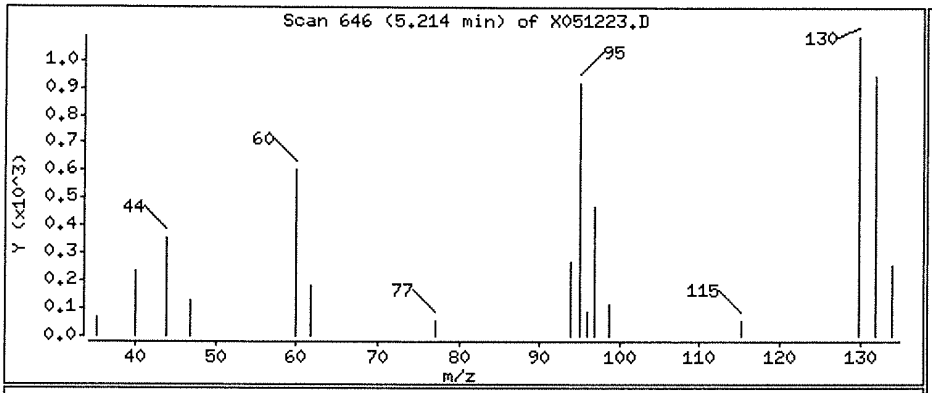
Column phase: DB624

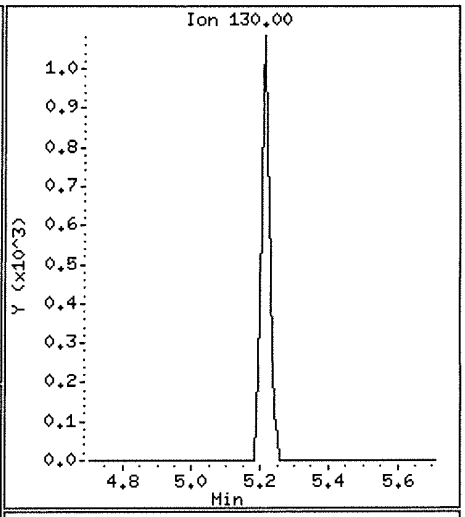
Column diameter: 0.18

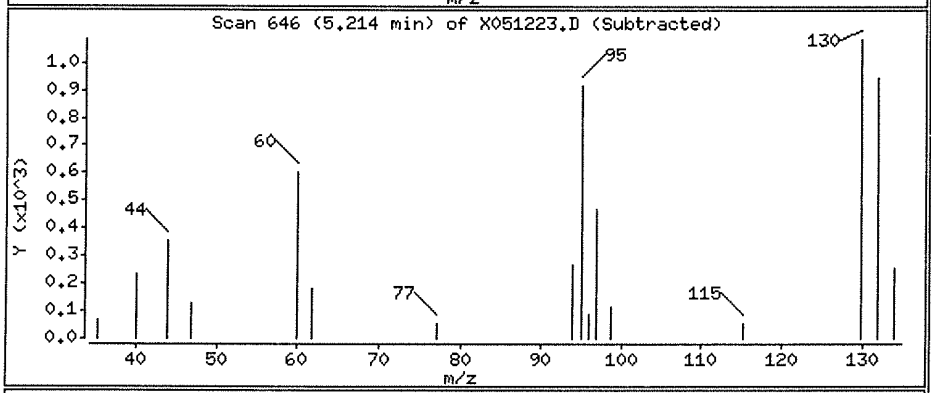
38 Trichloroethene

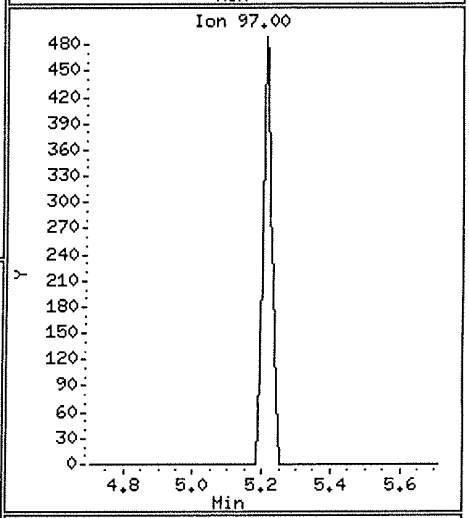
Concentration: 0.72 ug/l

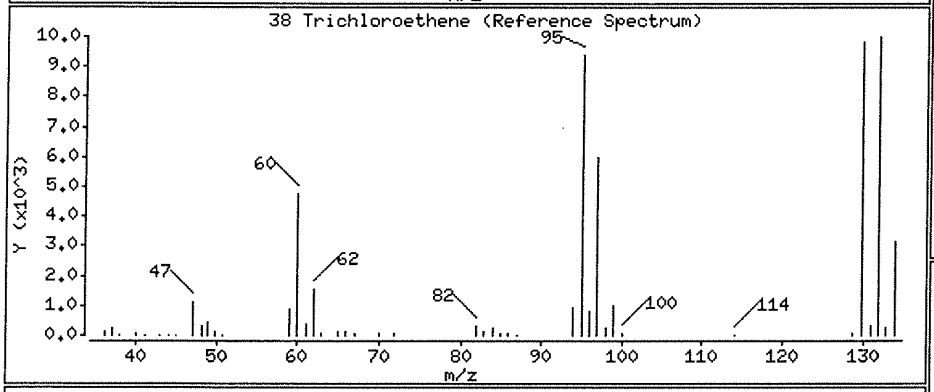
Review Code:

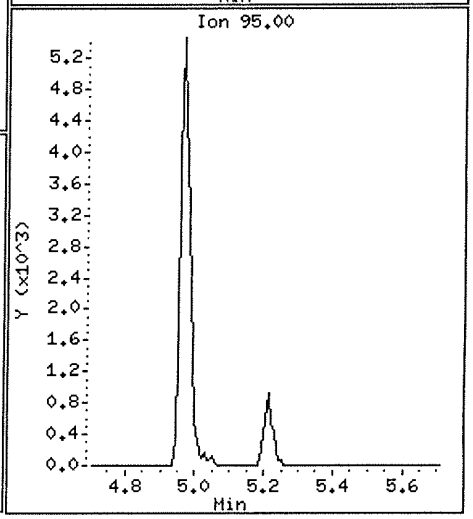


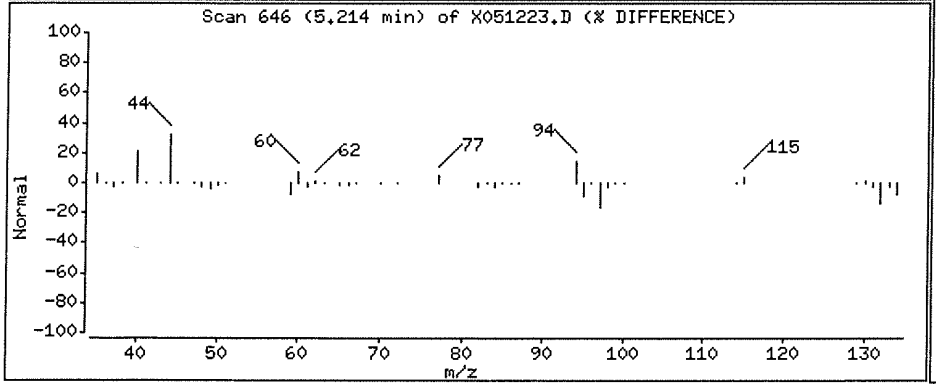












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051224.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051224.D
Lab Smp Id: HS20050234-10 Client Smp ID: HS20050234-10
Inj Date : 12-MAY-2020 19:14
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-10;HS20050234-10;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

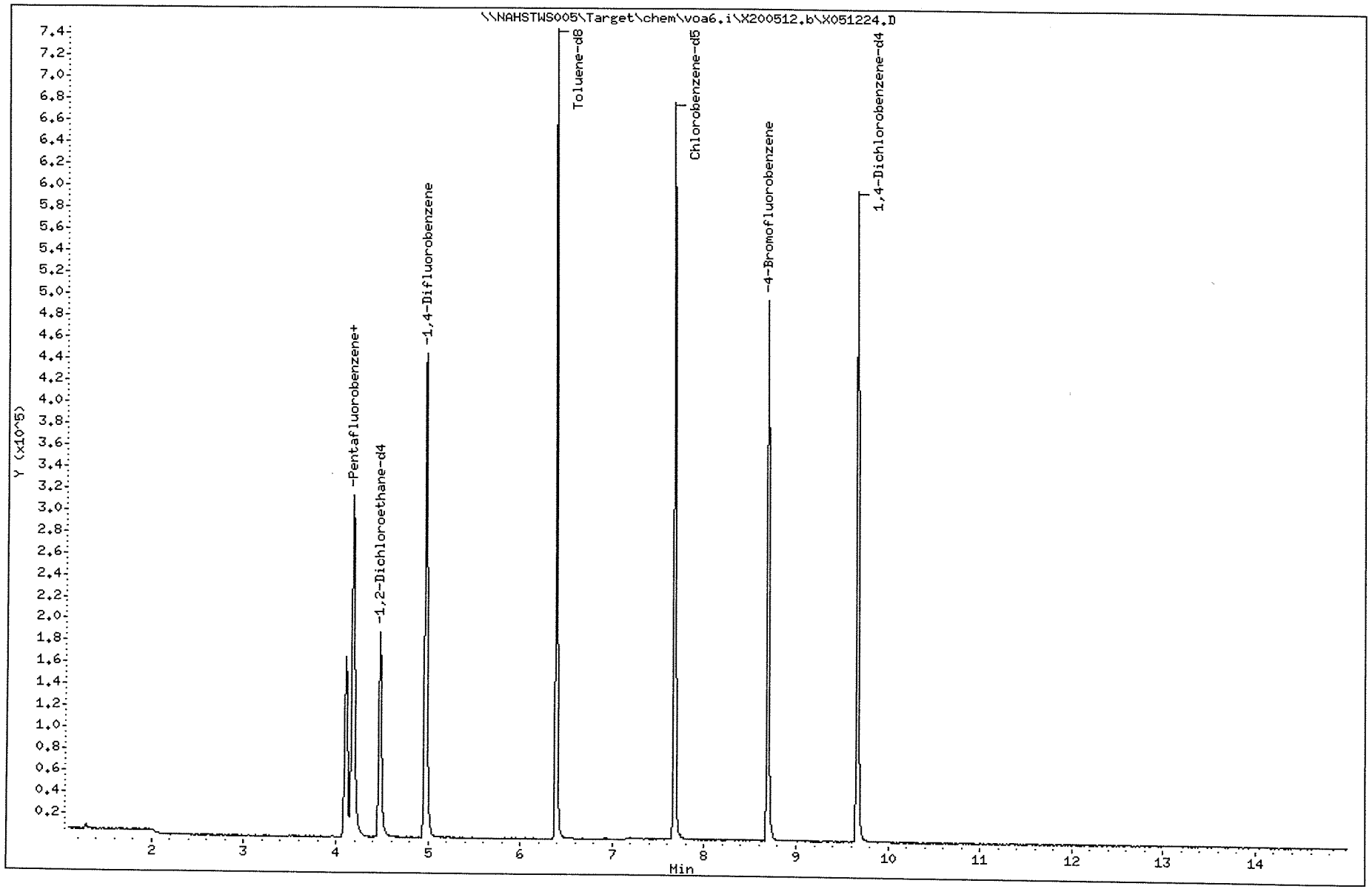
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	263784	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	366194	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	312025	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	151347	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	120995	45.9599	45.95
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	147072	45.2350	45.23
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	418851	53.4817	53.48
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	149305	50.0871	50.08

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051224.D
Date : 12-MAY-2020 19:14
Client ID: HS20050234-10
Sample Info: HS20050234-10;HS20050234-10;;;
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\X200512.b\X051225.D
Lab Smp Id: HS20050234-01MS Client Smp ID: HS20050234-01MS
Inj Date : 12-MAY-2020 19:38
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-01MS;HS20050234-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 25 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

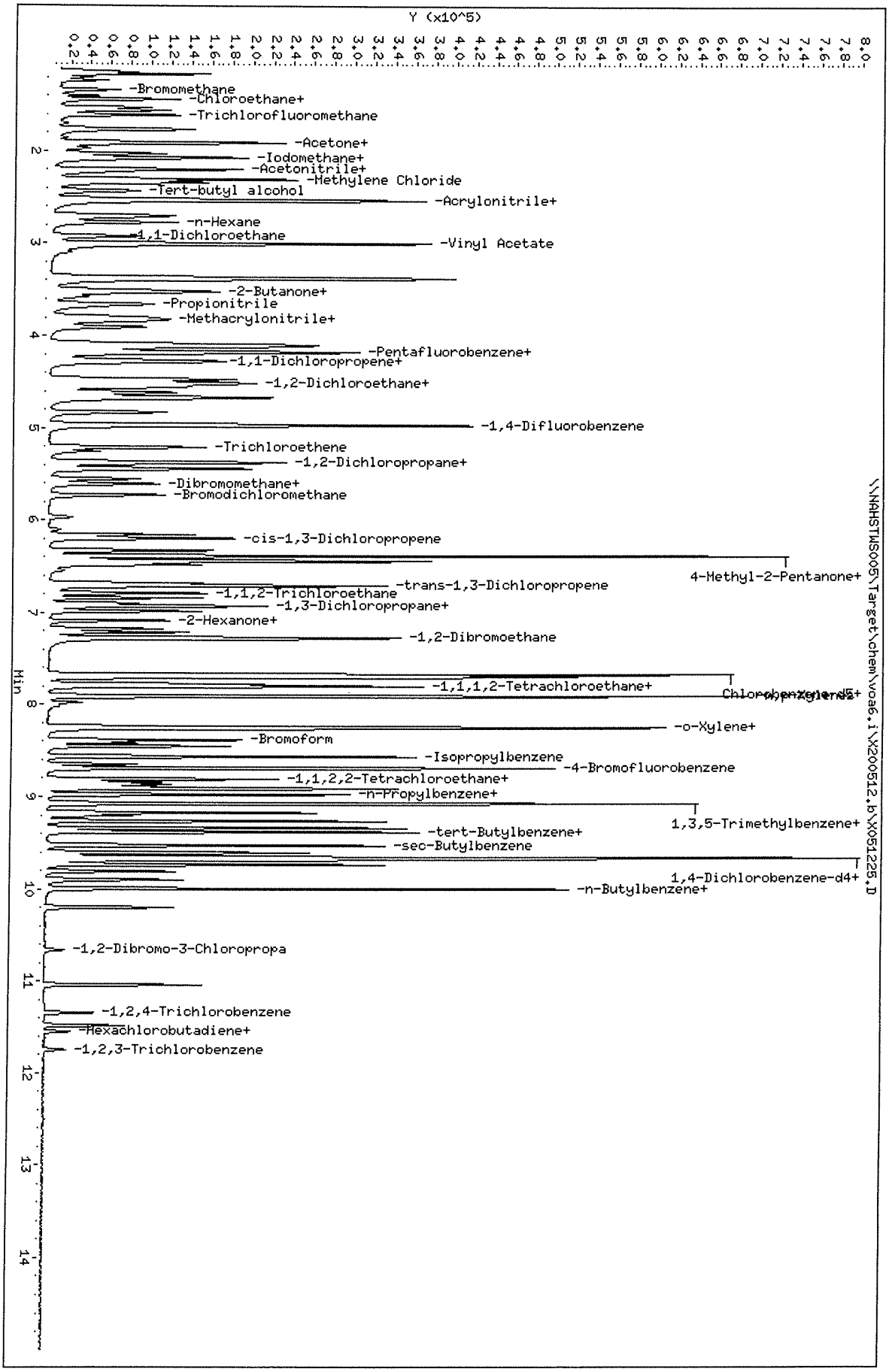
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	254610	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	345884	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	298962	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	147916	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	115981	45.6411	45.64
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	138033	43.9836	43.98
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	399173	53.1936	53.19
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	141695	49.6038	49.60
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	48762	20.7509	20.75
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	78488	19.2497	19.24
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	46131	19.4064	19.40
138 Freon TF	101	1.912	1.911	(0.457)	40066	20.3628	20.36
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	33393	20.0797	20.07
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	97476	17.6157	17.61
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	36413	17.9760	17.97
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	62351	19.6914	19.69
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	7075	15.1369	15.13
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	40129	19.4688	19.46 (M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.174)	14626	15.6114	15.61
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	168819	21.7578	21.75
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.104)	4350	19.2933	19.29
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	43601	20.5278	20.52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.991	(1.035)	83355	20.2287	20.22
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	73322	20.3597	20.35
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	53026	18.8340	18.83
75	1,3,5-Trimethylbenzene	105	9.068	9.067	(0.938)	165846	21.7148	21.71
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	95535	21.1953	21.19
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	70013	20.2519	20.25
84	1,4-Dichlorobenzene	146	9.684	9.683	(1.002)	94930	20.3044	20.30
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	72749	18.0460	18.04
24	2-Butanone	43	3.581	3.573	(0.856)	38546	33.5914	33.59
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	136960	20.7445	20.74
52	2-Hexanone	43	7.091	7.083	(0.924)	66370	35.8998	35.89
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	157788	20.7306	20.73
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	170285	21.9172	21.91
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	99278	36.7788	36.77
10	Acetone	43	1.969	1.969	(0.471)	24073	25.1045	25.10
37	Benzene	78	4.519	4.512	(0.909)	170924	19.3326	19.33
74	Bromobenzene	156	8.810	8.809	(0.912)	57883	20.8726	20.87
29	Bromochloromethane	128	3.796	3.795	(0.908)	27125	18.3615	18.36
39	Bromodichloromethane	83	5.730	5.729	(1.153)	62966	19.5023	19.50
66	Bromoform	173	8.416	8.415	(1.097)	35530	20.7429	20.74
6	Bromomethane	94	1.339	1.338	(0.320)	32496	16.8666	16.86
19	Carbon Disulfide	76	2.069	2.069	(0.495)	230483	33.3965	33.39
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	71601	20.6034	20.60
59	Chlorobenzene	112	7.699	7.692	(1.004)	122718	20.7177	20.71
7	Chloroethane	64	1.403	1.403	(0.336)	30864	16.8563	16.85
28	Chloroform	83	3.910	3.910	(0.935)	84678	18.6105	18.61
3	Chloromethane	50	1.074	1.073	(0.257)	53176	13.7126	13.71
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	49842	18.5566	18.55
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	71897	19.0144	19.01
55	Dibromochloromethane	129	7.176	7.176	(0.936)	50372	20.8172	20.81
44	Dibromomethane	93	5.558	5.557	(1.118)	29143	19.0844	19.08
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	32331	11.7068	11.70
61	Ethylbenzene	106	7.800	7.799	(1.017)	66751	21.4719	21.47
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	12927	16.6634	16.66
67	Isopropylbenzene	105	8.566	8.566	(1.117)	204042	21.8862	21.88
62	m,p-Xylenes	106	7.907	7.907	(1.031)	158042	41.8834	41.88
17	Methylene Chloride	84	2.306	2.305	(0.551)	44057	16.8867	16.88
87	n-Butylbenzene	91	9.999	9.999	(1.035)	136239	21.7332	21.73
73	n-Propylbenzene	91	8.917	8.917	(0.923)	227267	21.3713	21.37
92	Naphthalene	128	11.546	11.546	(1.195)	19803	14.2204	14.22
63	o-Xylene	106	8.244	8.244	(1.075)	76285	20.7788	20.77
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	193517	21.6000	21.59
64	Styrene	104	8.258	8.258	(1.077)	132732	20.8606	20.86
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	144421	22.2711	22.27
56	Tetrachloroethene	164	6.933	6.933	(0.904)	44519	22.5744	22.57
50	Toluene	91	6.446	6.446	(0.840)	185258	20.9385	20.93
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	44513	19.2186	19.21
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	67071	19.5595	19.55
38	Trichloroethene	130	5.207	5.206	(1.048)	50979	20.5409	20.54
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	77791	18.9897	18.98
5	Vinyl Chloride	62	1.138	1.138	(0.272)	52953	15.0031	15.00

QC Flag Legend

M - Compound response manually integrated.



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Date : 12-MAY-2020 19:38
Client ID: HS20050234-01MS
Sample Info: HS20050234-01MS;HS20050234-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051226.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051226.D
Lab Smp Id: HS20050234-01MSD Client Smp ID: HS20050234-01MSD
Inj Date : 12-MAY-2020 20:02
Operator : PC Inst ID: voa6.i
Smp Info : HS20050234-01MSD;HS20050234-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200512.b\8260W.m
Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 25 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

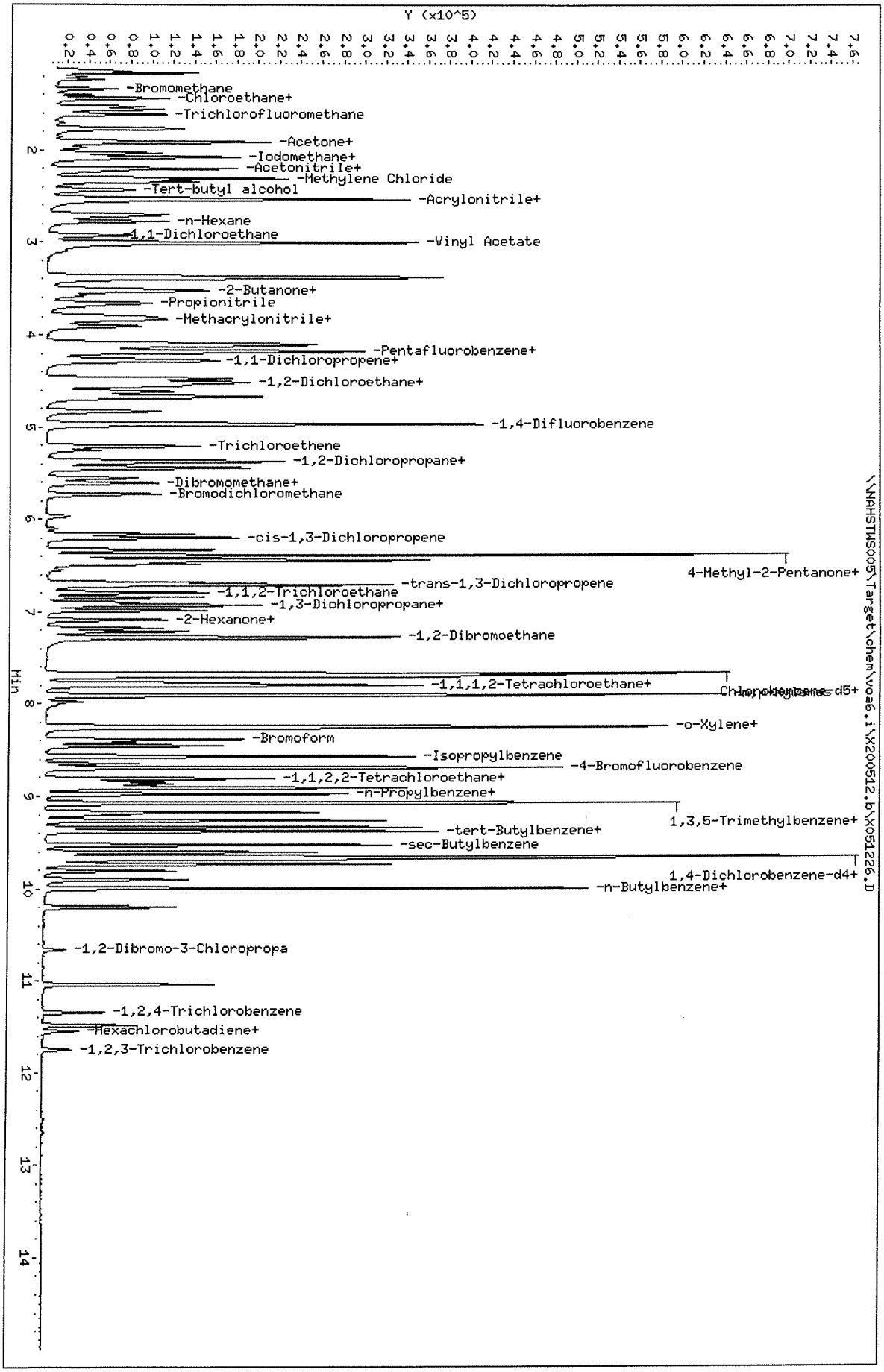
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	244179	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	336747	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	287002	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	142658	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	112185	46.0353	46.03
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	135465	45.0101	45.01
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	387950	53.8582	53.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	137584	50.1806	50.18
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	47845	21.2092	21.20
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	73807	18.8749	18.87
68 1,1,2,2-Tetrachloroethane	83	8.845	8.838	(0.915)	44962	19.6117	19.61
138 Freon TF	101	1.911	1.911	(0.457)	35917	19.0339	19.03
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	32914	20.6164	20.61
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	89108	16.7913	16.79
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	34317	17.6650	17.66
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	59016	19.1439	19.14
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	8320	18.4836	18.48
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	40450	20.3479	20.34(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	16558	17.8656	17.86
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	160154	21.4018	21.40
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	4254	19.5424	19.54
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	43159	21.1665	21.16

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051226.D Page 2
Report Date: 22-May-2020 16:20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.991	(1.034)	82920	20.8648	20.86
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	70989	20.2467	20.24
42	1,2-Dichloropropane	63	5.443	5.436	(1.095)	50726	18.5059	18.50
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	160256	21.7563	21.75
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	91824	21.1228	21.12
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	67605	20.3703	20.37
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	91494	20.2908	20.29
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	67290	17.4049	17.40
24	2-Butanone	43	3.580	3.573	(0.856)	40643	36.9319	36.93
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	130041	20.4225	20.42
52	2-Hexanone	43	7.090	7.083	(0.924)	63849	35.9753	35.97
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	150485	20.4999	20.49
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	166039	22.1584	22.15
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	97780	37.7334	37.73
10	Acetone	43	1.969	1.969	(0.471)	24223	26.4695	26.46
37	Benzene	78	4.519	4.512	(0.909)	161093	18.7151	18.71
74	Bromobenzene	156	8.809	8.809	(0.911)	55798	20.8624	20.86
29	Bromochloromethane	128	3.803	3.795	(0.909)	25916	18.2926	18.29
39	Bromodichloromethane	83	5.729	5.729	(1.153)	60886	19.3697	19.36
66	Bromoform	173	8.416	8.415	(1.097)	33630	20.4518	20.45
6	Bromomethane	94	1.338	1.338	(0.320)	30398	16.4333	16.43
19	Carbon Disulfide	76	2.069	2.069	(0.495)	213516	32.2597	32.25
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	66927	19.7810	19.78
59	Chlorobenzene	112	7.699	7.692	(1.004)	116570	20.4998	20.49
7	Chloroethane	64	1.403	1.403	(0.336)	27489	15.6243	15.62
28	Chloroform	83	3.910	3.910	(0.935)	79104	18.1281	18.12
3	Chloromethane	50	1.073	1.073	(0.257)	49129	13.2332	13.23
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	46965	18.2325	18.23
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	70187	19.0658	19.06
55	Dibromochloromethane	129	7.176	7.176	(0.936)	47815	20.5839	20.58
44	Dibromomethane	93	5.557	5.557	(1.118)	28458	19.1415	19.14
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	30036	11.3737	11.37
61	Ethylbenzene	106	7.799	7.799	(1.017)	63052	21.1272	21.12
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	15219	20.1277	20.12
67	Isopropylbenzene	105	8.566	8.566	(1.117)	189739	21.2001	21.20
62	m,p-Xylenes	106	7.907	7.907	(1.031)	150105	41.4377	41.43
17	Methylene Chloride	84	2.305	2.305	(0.551)	42023	16.7893	16.78
87	n-Butylbenzene	91	9.999	9.999	(1.034)	132190	21.8645	21.86
73	n-Propylbenzene	91	8.917	8.917	(0.922)	215616	21.0230	21.02
92	Naphthalene	128	11.546	11.546	(1.194)	23740	17.6759	17.67
63	o-Xylene	106	8.244	8.244	(1.075)	73254	20.7847	20.78
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	186910	21.6315	21.63
64	Styrene	104	8.258	8.258	(1.077)	126821	20.7622	20.76
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	136869	21.8845	21.88
56	Tetrachloroethene	164	6.933	6.933	(0.904)	41234	21.7799	21.77
50	Toluene	91	6.446	6.446	(0.840)	175279	20.6362	20.63
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	40953	18.4369	18.43
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	64030	19.1794	19.17
38	Trichloroethene	130	5.206	5.206	(1.048)	48631	20.1265	20.12
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	71268	18.1406	18.14
5	Vinyl Chloride	62	1.138	1.138	(0.272)	48835	14.4274	14.42

QC Flag Legend

M - Compound response manually integrated.



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Date : 12-MAY-2020 20:02
Client ID: HS20050234-01MSD
Sample Info: HS20050234-01MSD;HS20050234-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051227.D Page 1
Report Date: 22-May-2020 16:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051227.D
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Inj Date : 12-MAY-2020 20:26
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Comment :
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Meth Date : 22-May-2020 16:20 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 26 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

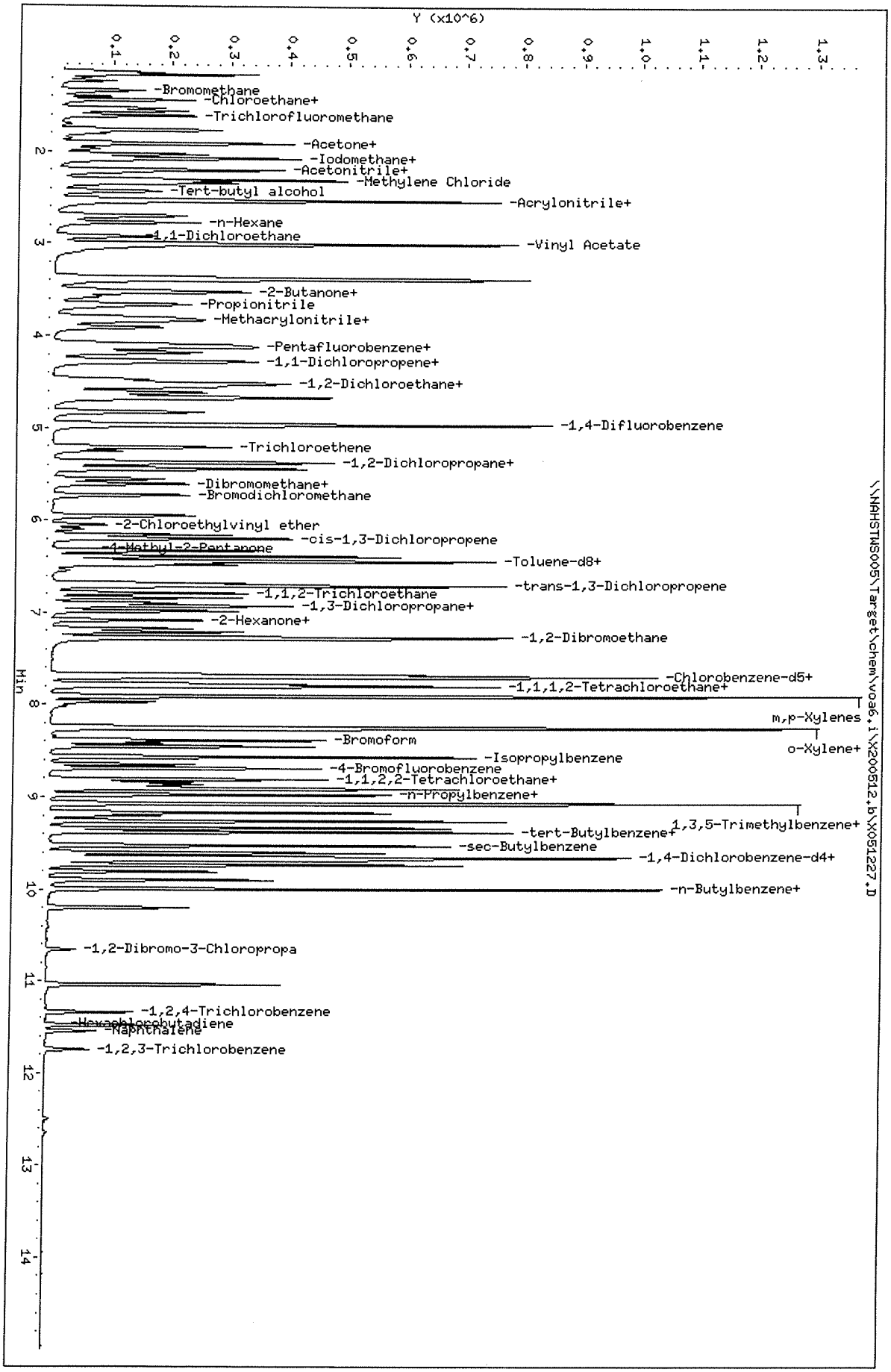
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	200799	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	291894	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	270076	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	135644	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	97439	50.0000	48.63
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	121975	50.0000	49.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	329541	50.0000	48.57
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	125184	50.0000	48.49
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	102086	50.0000	48.08
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	153185	50.0000	47.63
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	97703	50.0000	44.82
138 Freon TF	101	1.912	1.912	(0.457)	71911	50.0000	46.34
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	67635	50.0000	45.01
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	193504	50.0000	44.34
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	71175	50.0000	44.55
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	121911	50.0000	45.62
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	20158	50.0000	46.35
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	87648	50.0000	46.37(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	39725	50.0000	41.05
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	342508	50.0000	48.13
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	10493	50.0000	48.35
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	92649	50.0000	48.28

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051227.D Page 2
Report Date: 22-May-2020 16:20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.991	9.991	(1.034)	176001	50.0000	46.57
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	147905	50.0000	48.66
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	104753	50.0000	44.08
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	334170	50.0000	47.71
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	197176	50.0000	47.70
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	144119	50.0000	46.14
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	199401	50.0000	46.50
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	138652	50.0000	43.61
24 2-Butanone	43	3.573	3.573	(0.854)	86390	100.000	95.46
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	273985	50.0000	45.25
52 2-Hexanone	43	7.083	7.083	(0.923)	143873	100.000	86.14
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	319061	50.0000	45.71
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	341378	50.0000	47.91
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	212246	100.000	87.03
10 Acetone	43	1.969	1.969	(0.471)	53783	100.000	75.93
37 Benzene	78	4.512	4.512	(0.908)	345892	50.0000	46.35
74 Bromobenzene	156	8.810	8.810	(0.912)	119740	50.0000	47.08
29 Bromochloromethane	128	3.795	3.795	(0.908)	53697	50.0000	46.08
39 Bromodichloromethane	83	5.729	5.729	(1.153)	130874	50.0000	48.03
66 Bromoform	173	8.416	8.416	(1.097)	74773	50.0000	48.32
6 Bromomethane	94	1.339	1.339	(0.320)	66450	50.0000	44.92
19 Carbon Disulfide	76	2.069	2.069	(0.495)	491618	100.000	90.32
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	137577	50.0000	46.91
59 Chlorobenzene	112	7.699	7.699	(1.004)	250145	50.0000	46.74
7 Chloroethane	64	1.403	1.403	(0.336)	61646	50.0000	43.33
28 Chloroform	83	3.910	3.910	(0.935)	172306	50.0000	48.01
3 Chloromethane	50	1.073	1.073	(0.257)	132661	50.0000	42.02
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	102045	50.0000	48.17
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	150406	50.0000	47.13
55 Dibromochloromethane	129	7.176	7.176	(0.936)	106521	50.0000	48.73
44 Dibromomethane	93	5.558	5.558	(1.118)	61130	50.0000	47.43
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	107843	50.0000	46.07
61 Ethylbenzene	106	7.800	7.800	(1.017)	129729	50.0000	46.19
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	33388	50.0000	45.17
67 Isopropylbenzene	105	8.566	8.566	(1.117)	395480	50.0000	46.95
62 m,p-Xylenes	106	7.907	7.907	(1.031)	317178	100.000	93.04
17 Methylene Chloride	84	2.306	2.306	(0.551)	93797	50.0000	47.40
87 n-Butylbenzene	91	9.999	9.999	(1.035)	277942	50.0000	48.34
73 n-Propylbenzene	91	8.917	8.917	(0.923)	449260	50.0000	46.06
92 Naphthalene	128	11.546	11.546	(1.195)	56936	50.0000	44.58
63 o-Xylene	106	8.244	8.244	(1.075)	155765	50.0000	46.96
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	380134	50.0000	46.26
64 Styrene	104	8.258	8.258	(1.077)	273717	50.0000	47.61
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	278056	50.0000	46.75
56 Tetrachloroethene	164	6.933	6.933	(0.904)	82504	50.0000	46.31
50 Toluene	91	6.446	6.446	(0.840)	366993	50.0000	45.91
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	86358	50.0000	47.27
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	140290	50.0000	48.47
38 Trichloroethene	130	5.207	5.207	(1.048)	99560	50.0000	47.53
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	153588	50.0000	47.54
5 Vinyl Chloride	62	1.138	1.138	(0.272)	119470	50.0000	42.92

QC Flag Legend

M - Compound response manually integrated.



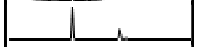
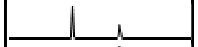
Data File: \\NAHSTWS005\Target\chem\voa6.i\X200512.b\X051227.D
Date : 12-MAY-2020 20:26
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

HS20050234 Wet Chem Raw Data (IC)

ALS WO# HS20050234

Sequence: 050720
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume [ul]	Status
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Program 02052020.1	Anions Pro	5.0	Finished
	STD2	NEW PRGM	Calibration	GA2	1.0000	2	Anions Program 02052020.1	Anions Pro	5.0	Finished
	STD3		Calibration	GA3	1.0000	3	Anions Program 02052020.1	Anions Pro	5.0	Finished
	STD4		Calibration	GA4	1.0000	4	Anions Program 02052020.1	Anions Pro	5.0	Finished
	STD5	NO2/PO4	Calibration	GA5	1.0000	5	Anions Program 02052020.1	Anions Pro	5.0	Finished
	STD6	MAX 10PPM	Calibration	GA6	1.0000	6	Anions Program 02052020.1	Anions Pro	5.0	Finished
	ICV	2970209123	Unknown	GA7	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	ICB		Unknown	GA8	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCV1		Unknown	RA4	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCB		Unknown	RA5	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050230-01		Unknown	RB4	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050230-01MS		Unknown	RB5	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050230-01MSD		Unknown	RB6	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-06		Unknown	RB8	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-07		Unknown	RC1	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-08		Unknown	RC2	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-09		Unknown	RC3	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-10		Unknown	RC4	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCV		Unknown	RA2	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCB		Unknown	RA3	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCV1		Unknown	RA4	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCB		Unknown	RA5	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
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	HS20050234-07DF10		Unknown	RE5	10.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-08DF10		Unknown	RE6	10.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-09DF10		Unknown	RE7	10.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	HS20050234-10DF10		Unknown	RE8	10.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCV		Unknown	RA2	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished

Sequence: 050720
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume [ul]	Status
	CCB		Unknown	RA3	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	WBLKW1-050720	9056	Unknown	RB1	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	WLCSW1-050720	9056	Unknown	RB2	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	WLCSDW1-050720	9056	Unknown	RB3	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCV1		Unknown	RA4	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished
	CCB		Unknown	RA5	1.0000		Anions Program 02052020.1	Anions Pro	5.0	Finished

Sequence: 050720
Last Update Operator: alshs.nouser

Inject Time
2/5/2020 7:39:11 PM -06:00
2/5/2020 7:57:16 PM -06:00
2/5/2020 8:15:24 PM -06:00
2/5/2020 8:33:31 PM -06:00
2/5/2020 8:51:36 PM -06:00
2/5/2020 9:09:41 PM -06:00
2/5/2020 9:27:48 PM -06:00
2/5/2020 9:45:53 PM -06:00
5/7/2020 8:38:06 PM -05:00
5/7/2020 8:56:14 PM -05:00
5/7/2020 9:14:20 PM -05:00
5/7/2020 9:32:27 PM -05:00
5/7/2020 9:50:33 PM -05:00
5/7/2020 10:26:44 PM -05:00
5/7/2020 10:44:52 PM -05:00
5/7/2020 11:02:57 PM -05:00
5/7/2020 11:21:06 PM -05:00
5/7/2020 11:39:12 PM -05:00
5/7/2020 11:57:20 PM -05:00
5/8/2020 12:15:25 AM -05:00
5/8/2020 3:34:31 AM -05:00
5/8/2020 3:52:37 AM -05:00
5/8/2020 5:41:10 AM -05:00
5/8/2020 5:59:17 AM -05:00
5/8/2020 6:17:22 AM -05:00
5/8/2020 6:35:29 AM -05:00
5/8/2020 6:53:33 AM -05:00
5/8/2020 7:11:41 AM -05:00

Sequence: 050720
Last Update Operator: alshs.nouser

5/8/2020 7:29:47 AM -05:00
Inject Time
5/8/2020 7:47:53 AM -05:00
5/8/2020 8:05:58 AM -05:00
5/8/2020 8:24:05 AM -05:00
5/8/2020 9:36:35 AM -05:00
5/8/2020 9:54:40 AM -05:00

Sequence: 042320
Injection #6: STD6

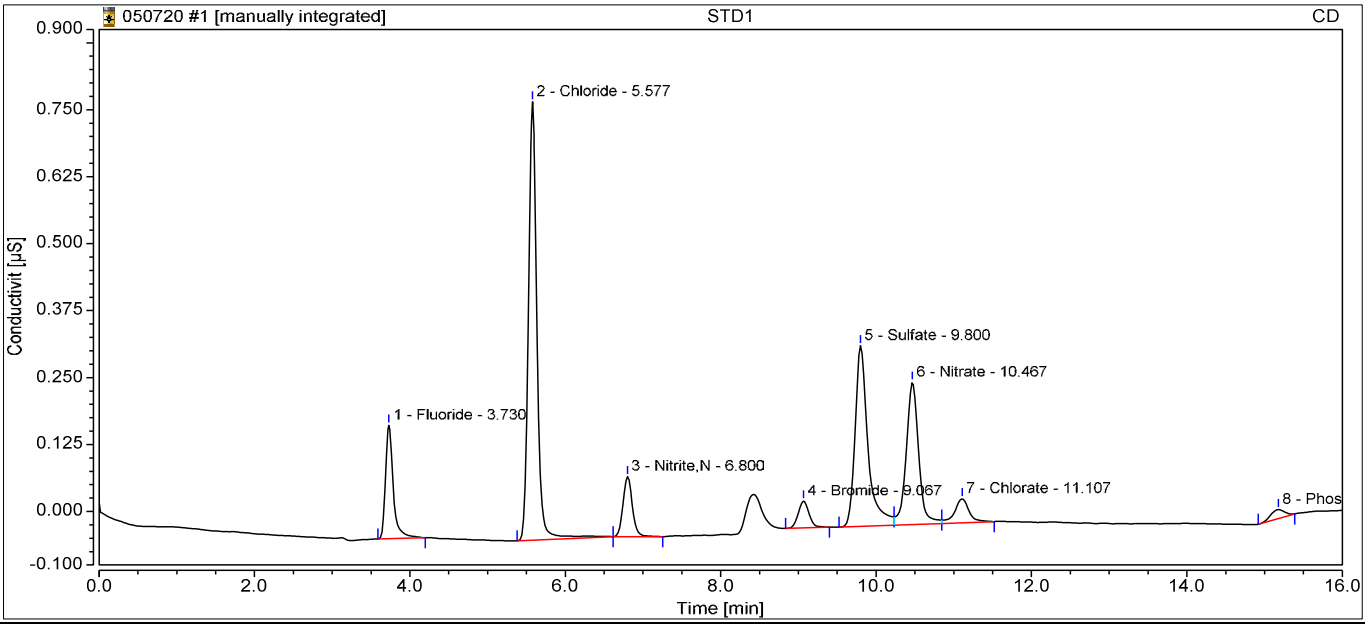
Calibration

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*	*13.4314*	*0.99915*	*-0.0083*	*0.3414*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	2.2020	0.99998	-0.0141	0.2320	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	19.9747	0.99771	-0.0251	0.4962	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	12.1436	0.99933	-0.0033	0.0991	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	4.2312	0.99991	-0.0170	0.1679	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.3081	0.99997	-0.0076	0.5843	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	9.7729	0.99945	0.0017	0.0949	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	5	18.6678	0.99857	-0.0214	0.2119	0.0000
Maximum					**19.9747**	0.99998			
Minimum					2.2020	**0.99771**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:39**	*Sample Weight:*	**1.0000**

Run Time:



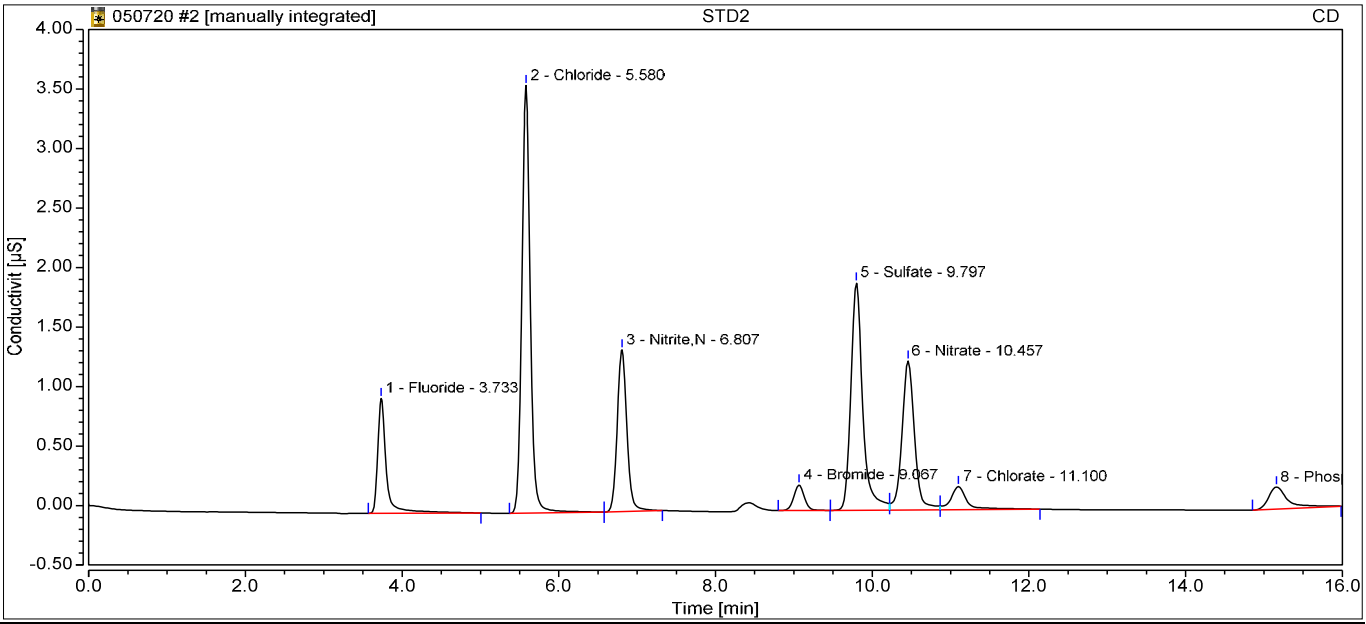
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.024	0.0955	0.0955	1.0000
2	5.58	Chloride	BMB	0.103	0.5065	0.5065	1.0000
3	6.80	Nitrite,N	BMB	0.016	0.0821	0.0821	1.0000
4	9.07	Bromide	BMB	0.008	0.1156	0.1156	1.0000
5	9.80	Sulfate	BM	0.065	0.4885	0.4885	1.0000
6	10.47	Nitrate	M	0.049	0.0974	0.0974	1.0000
7	11.11	Chlorate	MB	0.010	0.0834	0.0834	1.0000
8	15.18	Phosphate	BMB*	0.003	0.1173	0.1173	1.0000
Total:			**0.000**	**0.279**		**1.59**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:57**	*Sample Weight:*	**1.0000**

Run Time:



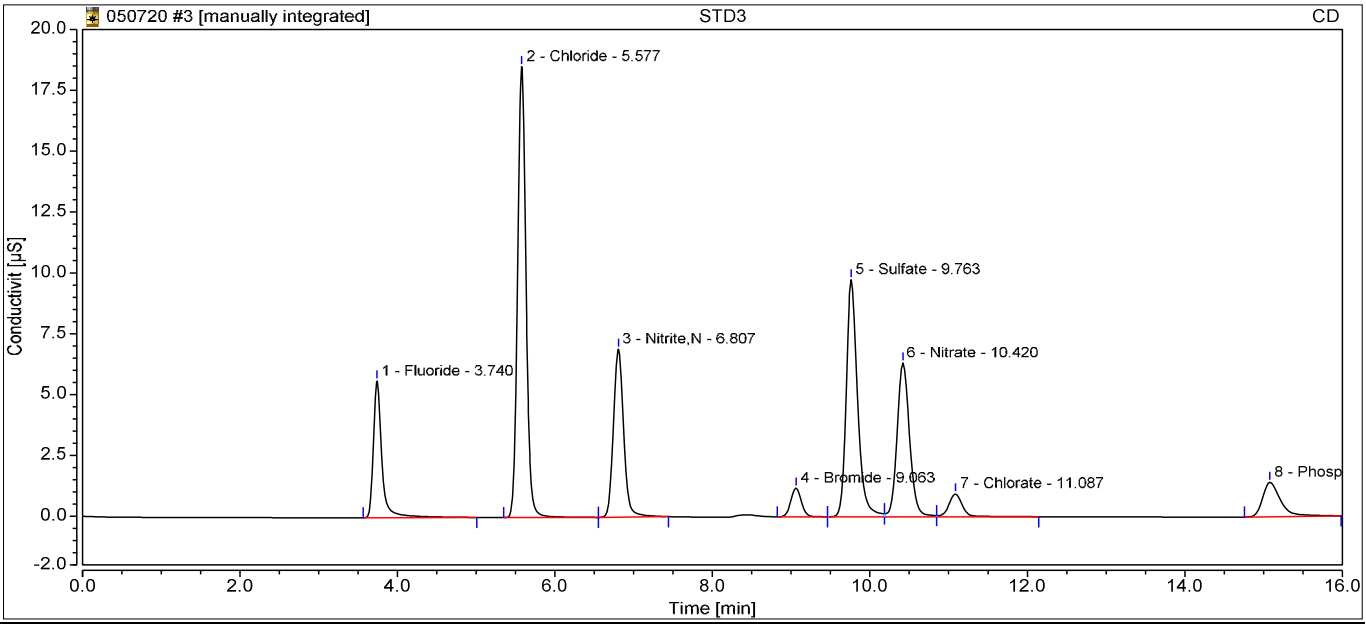
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.123	0.3833	0.3833	1.0000
2	5.58	Chloride	BMb*	0.449	1.9963	1.9963	1.0000
3	6.81	Nitrite,N	bMB*	0.194	0.4423	0.4423	1.0000
4	9.07	Bromide	BMB	0.034	0.3722	0.3722	1.0000
5	9.80	Sulfate	BM	0.335	2.0973	2.0973	1.0000
6	10.46	Nitrate	M	0.232	0.4103	0.4103	1.0000
7	11.10	Chlorate	MB	0.047	0.4759	0.4759	1.0000
8	15.16	Phosphate	BMB	0.053	0.3518	0.3518	1.0000
Total:			**0.000**	**1.467**		**6.53**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:15**	*Sample Weight:*	**1.0000**

Run Time:



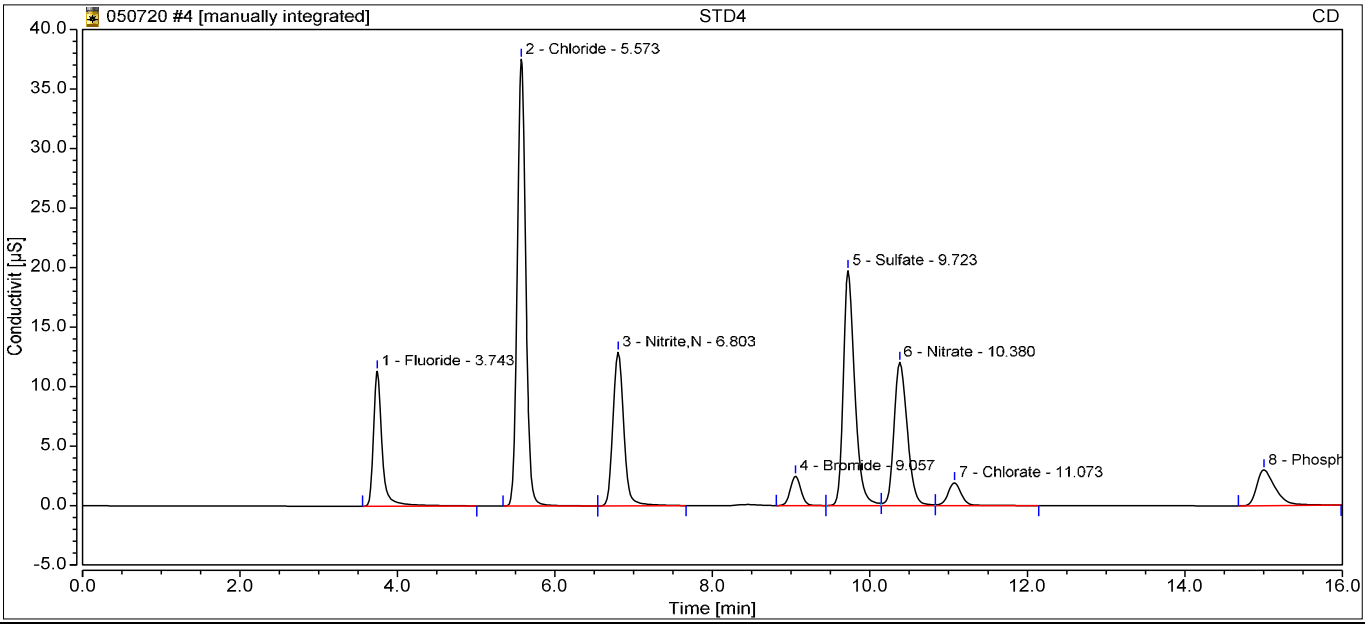
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.701	2.0769	2.0769	1.0000
2	5.58	Chloride	BMb*	2.284	9.9073	9.9073	1.0000
3	6.81	Nitrite,N	bMB*	1.029	2.1245	2.1245	1.0000
4	9.06	Bromide	BM	0.182	1.8657	1.8657	1.0000
5	9.76	Sulfate	M	1.624	9.7730	9.7730	1.0000
6	10.42	Nitrate	M	1.160	1.9980	1.9980	1.0000
7	11.09	Chlorate	MB	0.189	1.9689	1.9689	1.0000
8	15.08	Phosphate	BMB	0.374	1.8664	1.8664	1.0000
Total:			**0.000**	**7.542**		**31.58**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:33**	*Sample Weight:*	**1.0000**

Run Time:



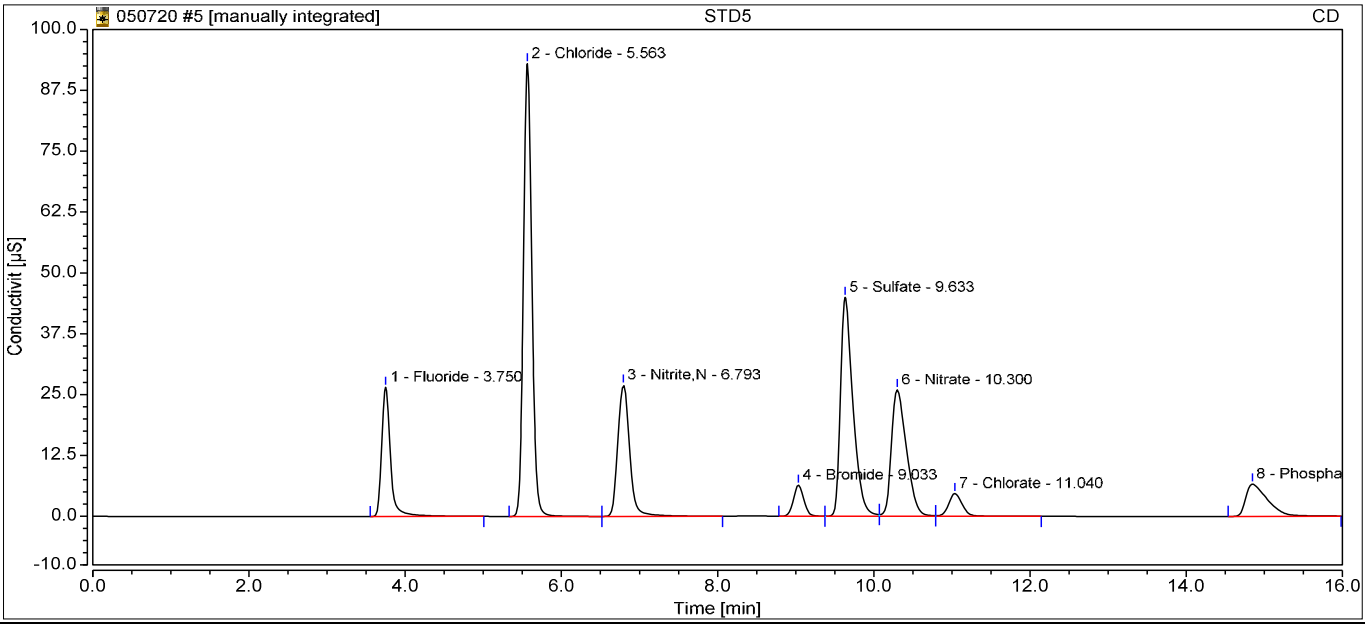
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.428	4.2080	4.2080	1.0000
2	5.57	Chloride	BMb*	4.627	20.0069	20.0069	1.0000
3	6.80	Nitrite,N	bMB*	2.046	4.1745	4.1745	1.0000
4	9.06	Bromide	BM	0.382	3.8871	3.8871	1.0000
5	9.72	Sulfate	M	3.337	19.9713	19.9713	1.0000
6	10.38	Nitrate	M	2.343	4.0228	4.0228	1.0000
7	11.07	Chlorate	MB	0.380	3.9830	3.9830	1.0000
8	15.00	Phosphate	BMB	0.824	3.9874	3.9874	1.0000
Total:			**0.000**	**15.366**		**64.24**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:51**	*Sample Weight:*	**1.0000**

Run Time:



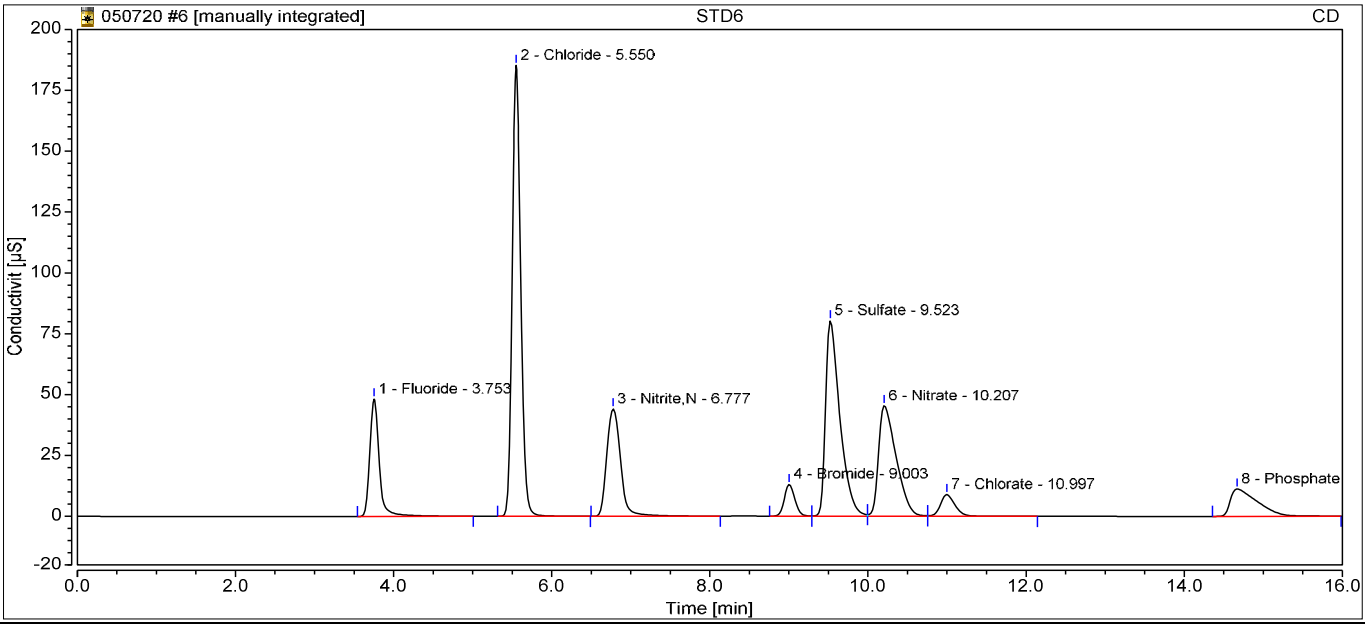
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.472	10.1940	10.1940	1.0000
2	5.56	Chloride	BMB	11.516	49.7057	49.7057	1.0000
3	6.79	Nitrite,N	BMB*	4.776	9.6766	9.6766	1.0000
4	9.03	Bromide	BM	0.981	9.9279	9.9279	1.0000
5	9.63	Sulfate	M	8.325	49.6811	49.6811	1.0000
6	10.30	Nitrate	M	5.799	9.9382	9.9382	1.0000
7	11.04	Chlorate	MB	0.944	9.9252	9.9252	1.0000
8	14.85	Phosphate	BMB	2.135	10.1771	10.1771	1.0000
Total:			**0.000**	**37.949**		**159.23**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:09**	*Sample Weight:*	**1.0000**

Run Time:



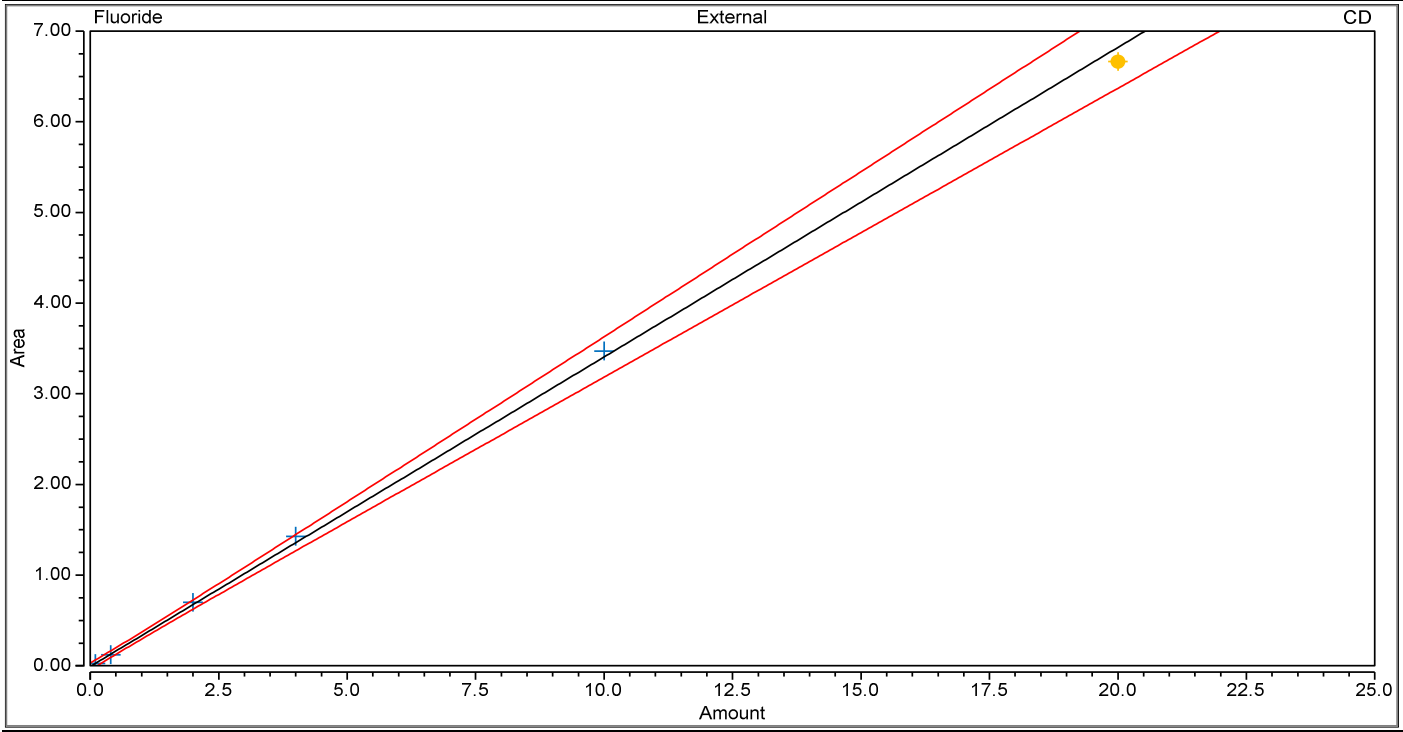
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	6.664	19.5424	19.5424	1.0000
2	5.55	Chloride	BMB	23.270	100.3774	100.3774	1.0000
3	6.78	Nitrite,N	BMB*	8.893	17.9725	17.9725	1.0000
4	9.00	Bromide	BM	2.012	20.3316	20.3316	1.0000
5	9.52	Sulfate	M	16.857	100.4888	100.4888	1.0000
6	10.21	Nitrate	M	11.698	20.0333	20.0333	1.0000
7	11.00	Chlorate	MB	1.906	20.0635	20.0635	1.0000
8	14.67	Phosphate	BMB	4.450	21.0985	21.0985	1.0000
Total:			**0.000**	**75.750**		**319.91**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0083
Evaluation Type	Area	*Slope (C1)*	0.3414
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**



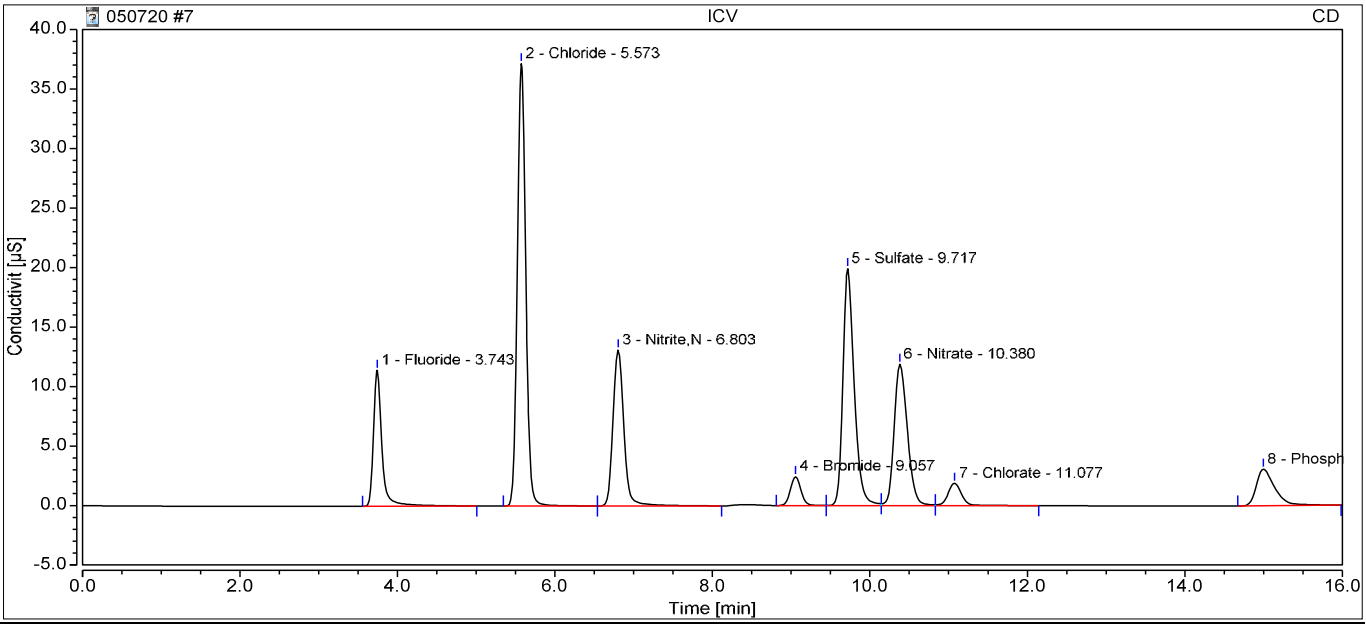
Calibration Results **Fluoride**

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	0.0243	0.0243	0.024	0.212
2	STD2	2	0.4000	0.1226	0.1226	0.123	0.964
3	STD3	3	2.0000	0.7008	0.7008	0.701	5.614
4	STD4	4	4.0000	1.4284	1.4284	1.428	11.345
5	STD5	5	10.0000	3.4723	3.4723	3.472	26.547
6	STD6	6	20.0000	6.6641	6.6641	6.664	48.233

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:27**	*Sample Weight:*	**1.0000**

Run Time:



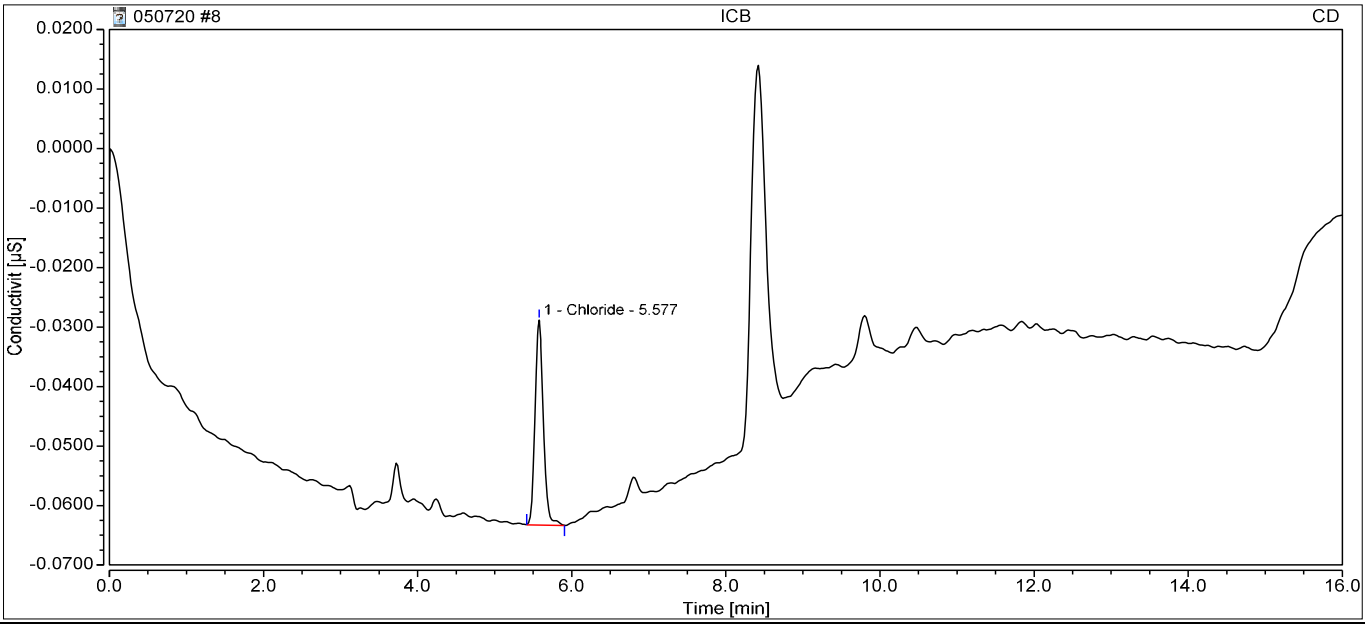
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.412	4.1607	4.1607	1.0000
2	5.57	Chloride	BMB	4.570	19.7627	19.7627	1.0000
3	6.80	Nitrite,N	BMB	2.081	4.2442	4.2442	1.0000
4	9.06	Bromide	BM	0.374	3.8104	3.8104	1.0000
5	9.72	Sulfate	M	3.327	19.9126	19.9126	1.0000
6	10.38	Nitrate	M	2.299	3.9478	3.9478	1.0000
7	11.08	Chlorate	MB	0.379	3.9799	3.9799	1.0000
8	15.00	Phosphate	BMB	0.835	4.0417	4.0417	1.0000
Total:			**0.000**	**15.278**		**63.86**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:45**	*Sample Weight:*	**1.0000**

Run Time:



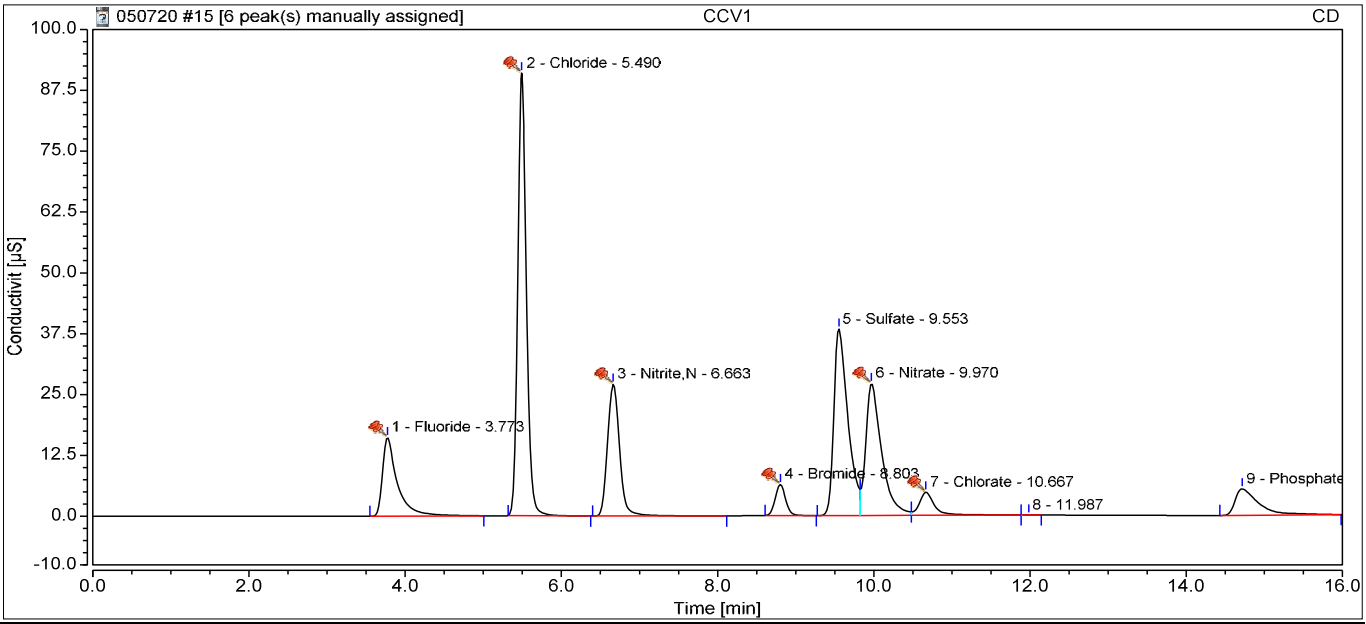
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.58	Chloride	BMB	0.004	0.0794	0.0794	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**	**0.004**		**0.08**	

15 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 20:38**	*Sample Weight:*	**1.0000**

Run Time:



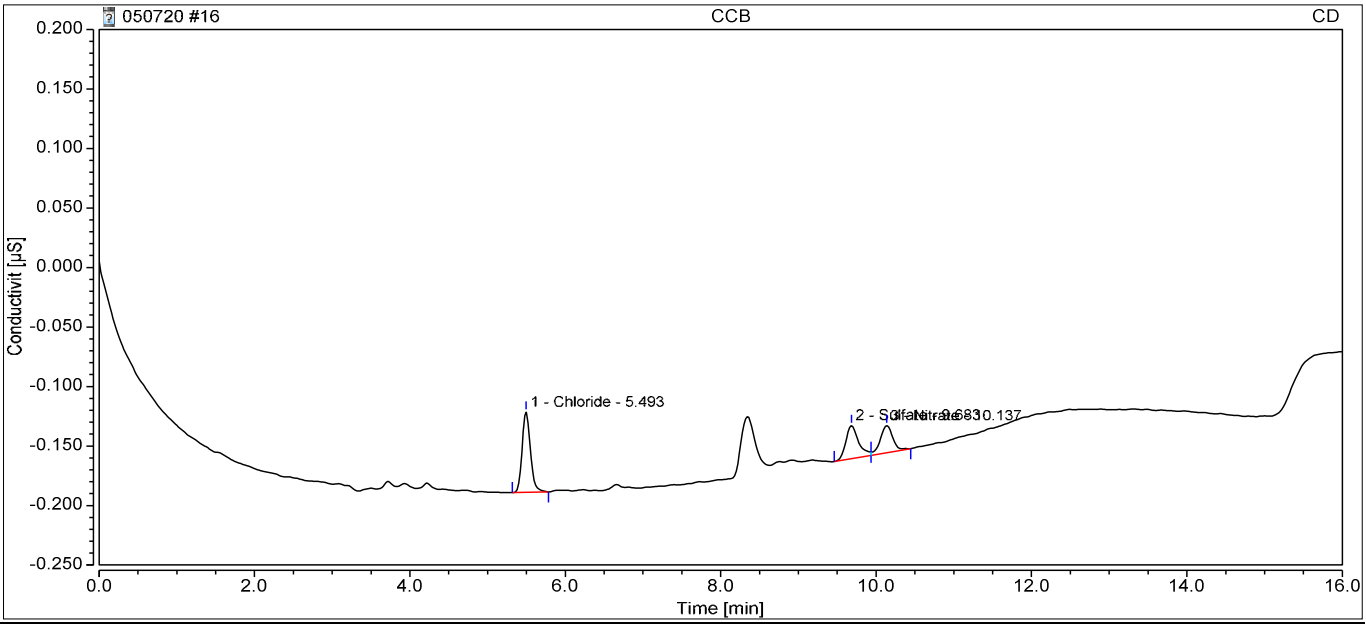
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.77	Fluoride	BMB^	3.567	10.4726	10.4726	1.0000
2	5.49	Chloride	BMB^	11.587	50.0140	50.0140	1.0000
3	6.66	Nitrite,N	BMB^	4.859	9.8435	9.8435	1.0000
4	8.80	Bromide	BMB^	0.977	9.8887	9.8887	1.0000
5	9.55	Sulfate	BM	8.020	47.8630	47.8630	1.0000
6	9.97	Nitrate	M ^	6.367	10.9090	10.9090	1.0000
7	10.67	Chlorate	M ^	1.097	11.5357	11.5357	1.0000
9	14.72	Phosphate	BMB	1.907	9.0993	9.0993	1.0000
Total:			**0.000**	**38.381**		**159.63**	

16 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 20:56**	*Sample Weight:*	**1.0000**

Run Time:



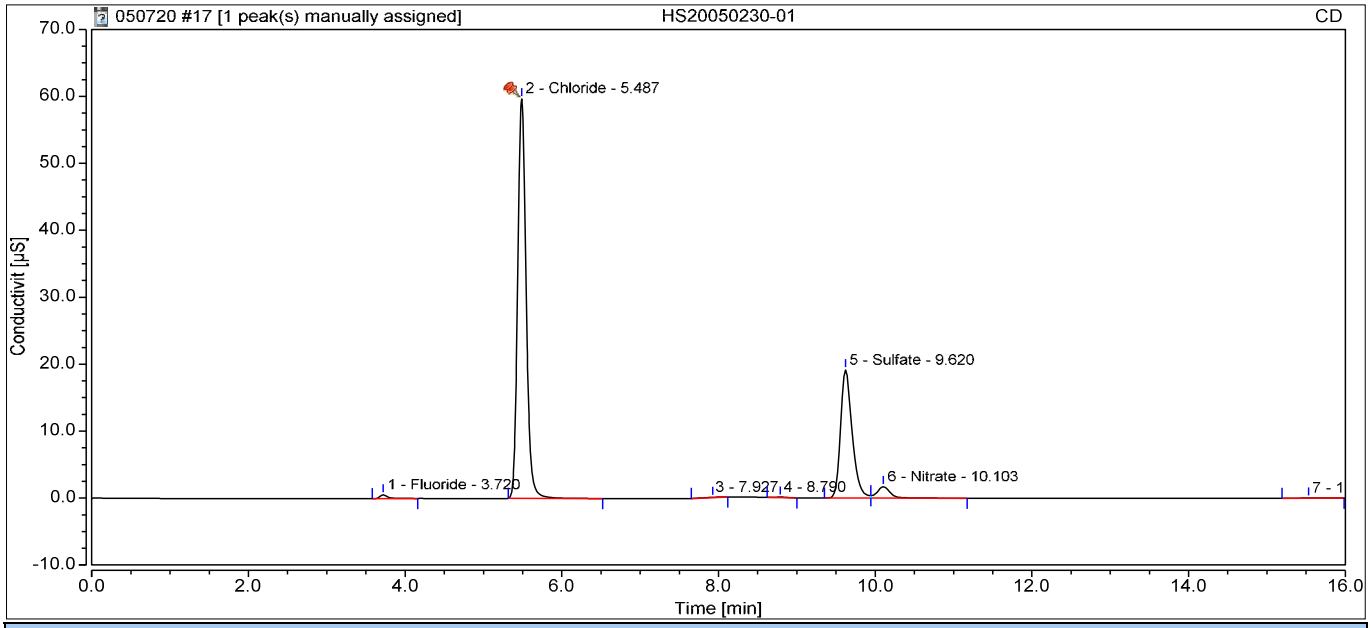
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.49	Chloride	BMB	0.008	0.0971	0.0971	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
2	9.68	Sulfate	BM	0.005	0.1327	0.1327	1.0000
3	10.14	Nitrate	MB	0.004	0.0202	0.0202	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.018**		**0.25**	

17 HS20050230-01

Sample Name:	**HS20050230-01**	*Injection Volume:*	**5.00**
Vial Number:	**RB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 21:14**	*Sample Weight:*	**1.0000**

Run Time:



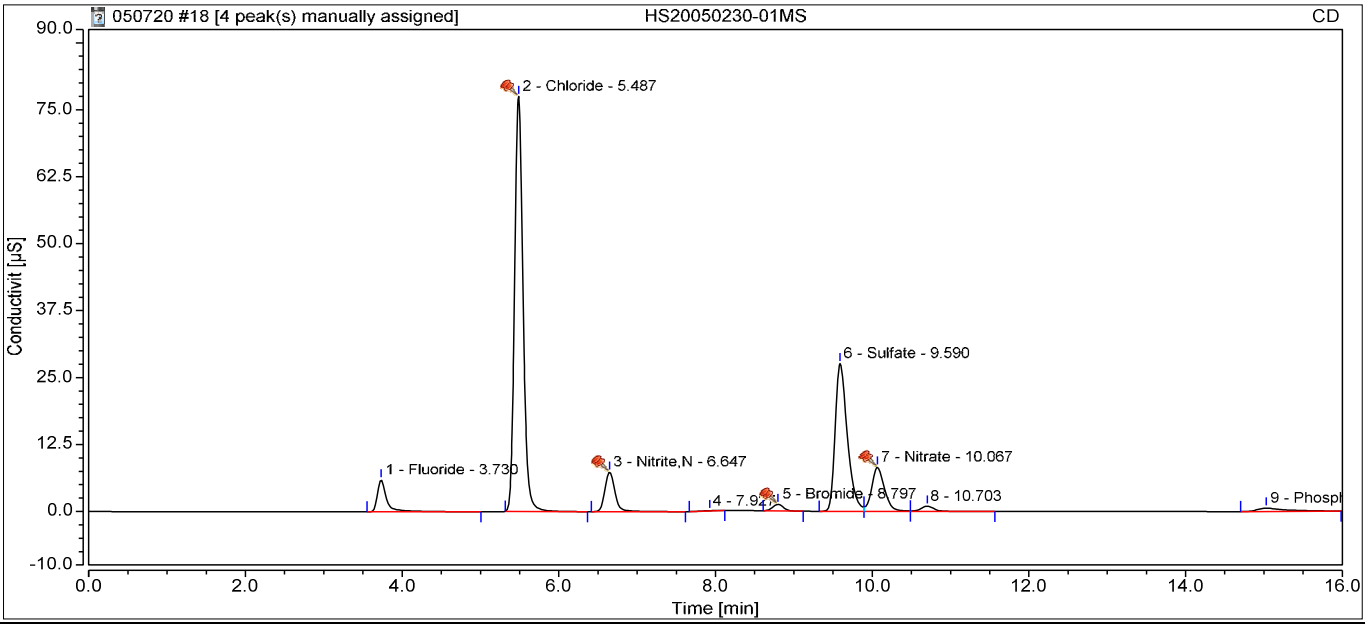
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.068	0.2224	0.2224	1.0000
2	5.49	Chloride	BMB^	7.408	31.9952	31.9952	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
5	9.62	Sulfate	BM	3.294	19.7157	19.7157	1.0000
6	10.10	Nitrate	MB	0.335	0.5868	0.5868	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**11.104**		**52.52**	

18 HS20050230-01MS

Sample Name:	**HS20050230-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**RB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 21:32**	*Sample Weight:*	**1.0000**

Run Time:



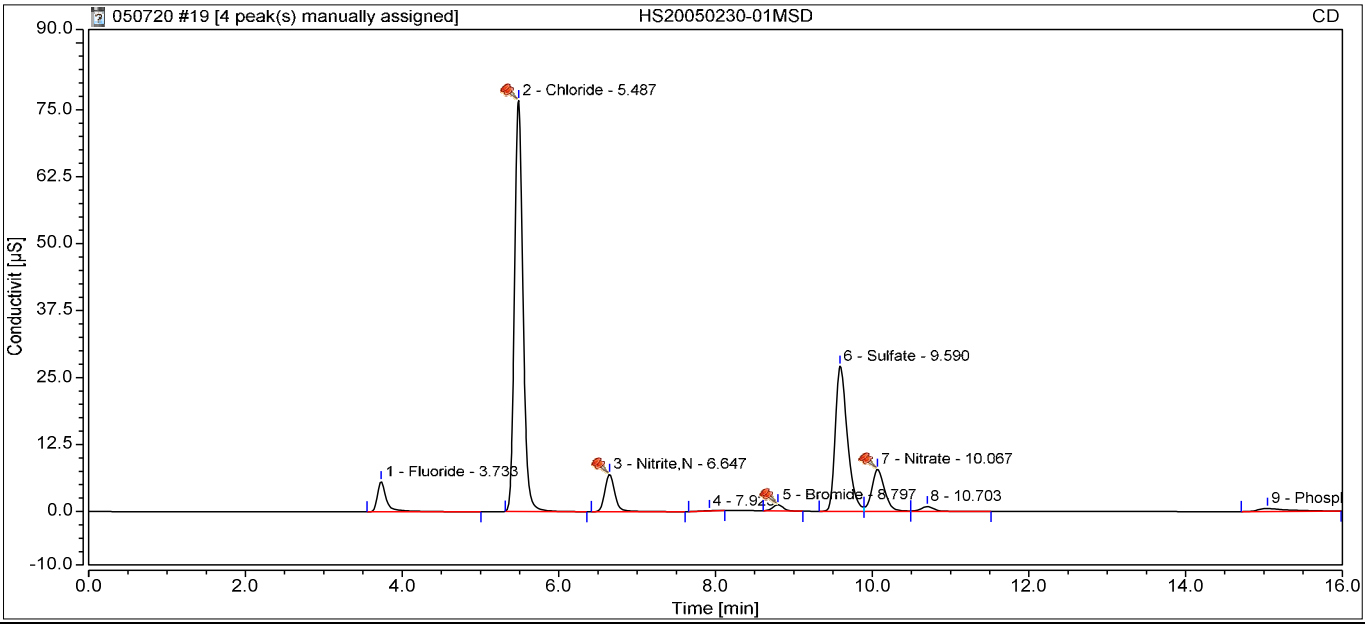
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.828	2.4502	2.4502	1.0000
2	5.49	Chloride	BMB^	9.639	41.6149	41.6149	1.0000
3	6.65	Nitrite,N	BMB^	1.097	2.2624	2.2624	1.0000
5	8.80	Bromide	BMB^	0.189	1.9436	1.9436	1.0000
6	9.59	Sulfate	BM	4.948	29.5699	29.5699	1.0000
7	10.07	Nitrate	M ^	1.568	2.6964	2.6964	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
9	15.03	Phosphate	BMB	0.268	1.3637	1.3637	1.0000
Total:			**0.000**	**18.538**		**81.90**	

19 HS20050230-01MSD

Sample Name:	**HS20050230-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 21:50**	*Sample Weight:*	**1.0000**

Run Time:



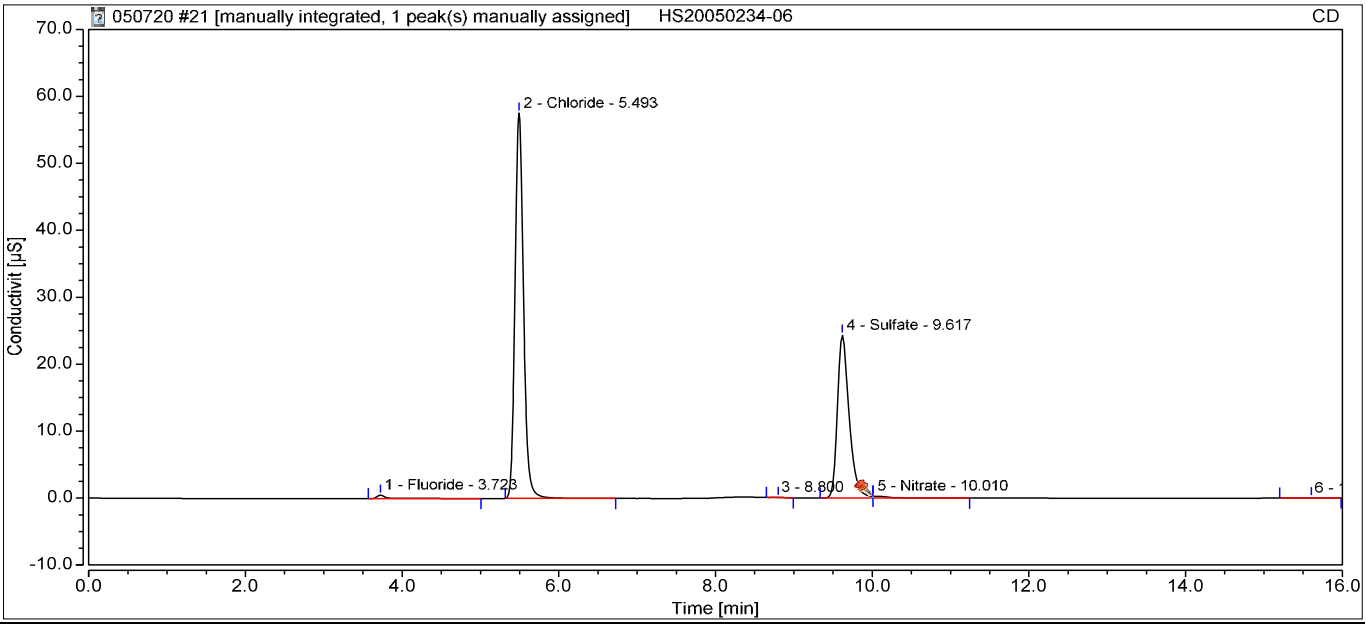
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.778	2.3022	2.3022	1.0000
2	5.49	Chloride	BMB^	9.536	41.1714	41.1714	1.0000
3	6.65	Nitrite,N	BMB^	1.030	2.1255	2.1255	1.0000
5	8.80	Bromide	BMB^	0.177	1.8193	1.8193	1.0000
6	9.59	Sulfate	BM	4.850	28.9848	28.9848	1.0000
7	10.07	Nitrate	M ^	1.493	2.5673	2.5673	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
9	15.04	Phosphate	BMB	0.250	1.2788	1.2788	1.0000
Total:			**0.000**	**18.113**		**80.25**	

21 HS20050234-06

Sample Name:	**HS20050234-06**	*Injection Volume:*	**5.00**
Vial Number:	**RB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 22:26**	*Sample Weight:*	**1.0000**

Run Time:



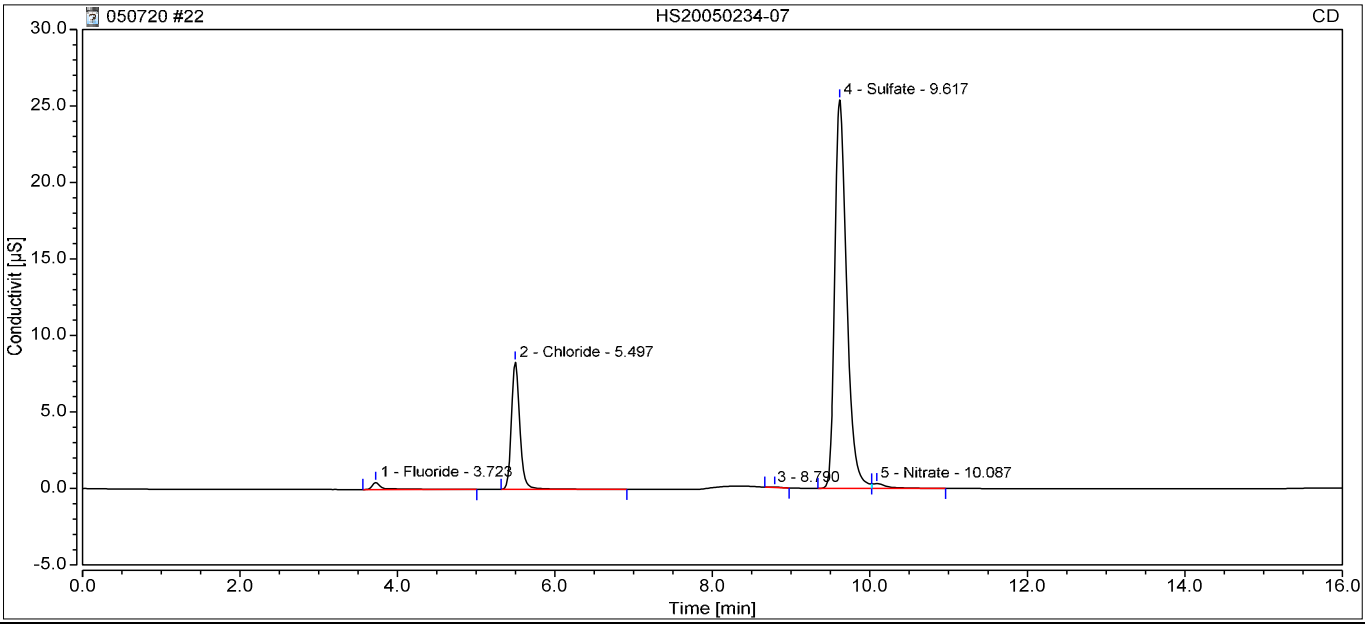
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.078	0.2529	0.2529	1.0000
2	5.49	Chloride	BMB	7.181	31.0201	31.0201	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	9.62	Sulfate	BM *	4.236	25.3298	25.3298	1.0000
5	10.01	Nitrate	MB*^	0.070	0.1329	0.1329	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**11.566**		**56.74**	

22 HS20050234-07

Sample Name:	**HS20050234-07**	*Injection Volume:*	**5.00**
Vial Number:	**RC1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 22:44**	*Sample Weight:*	**1.0000**

Run Time:



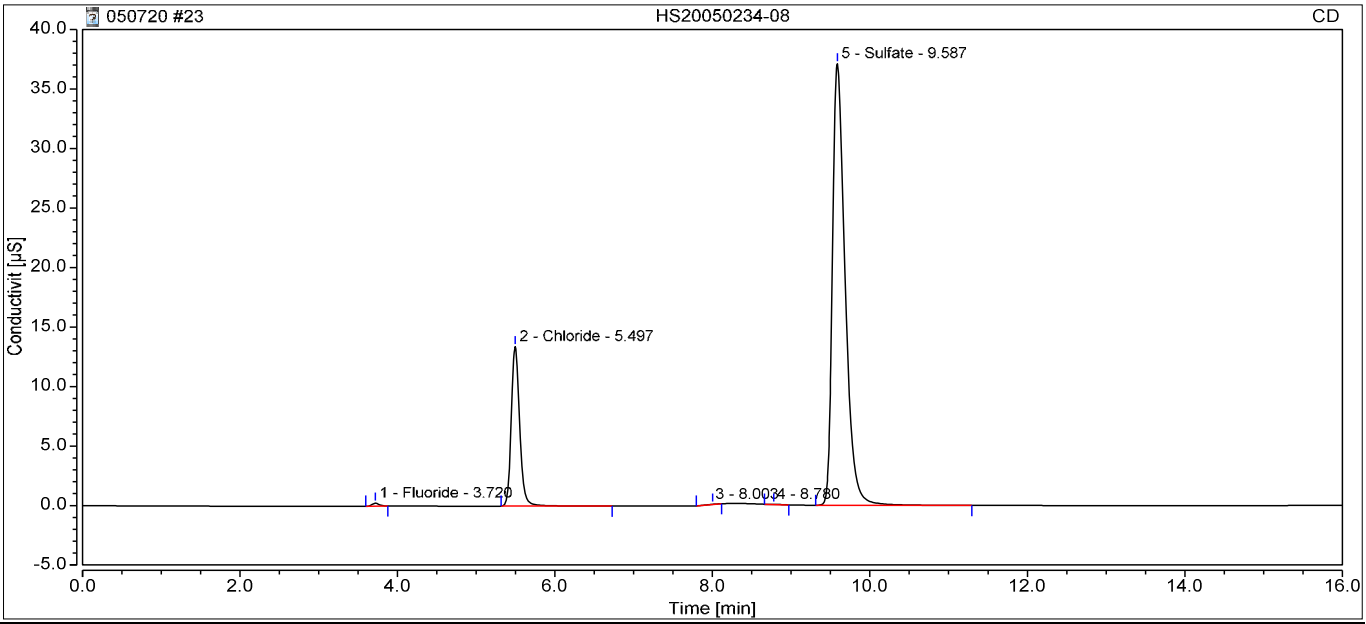
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.071	0.2322	0.2322	1.0000
2	5.50	Chloride	BMB	1.034	4.5183	4.5183	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	9.62	Sulfate	BM	4.455	26.6317	26.6317	1.0000
5	10.09	Nitrate	MB	0.070	0.1325	0.1325	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**	**5.630**		**31.51**	

23 HS20050234-08

Sample Name:	**HS20050234-08**	*Injection Volume:*	**5.00**
Vial Number:	**RC2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 23:02**	*Sample Weight:*	**1.0000**

Run Time:



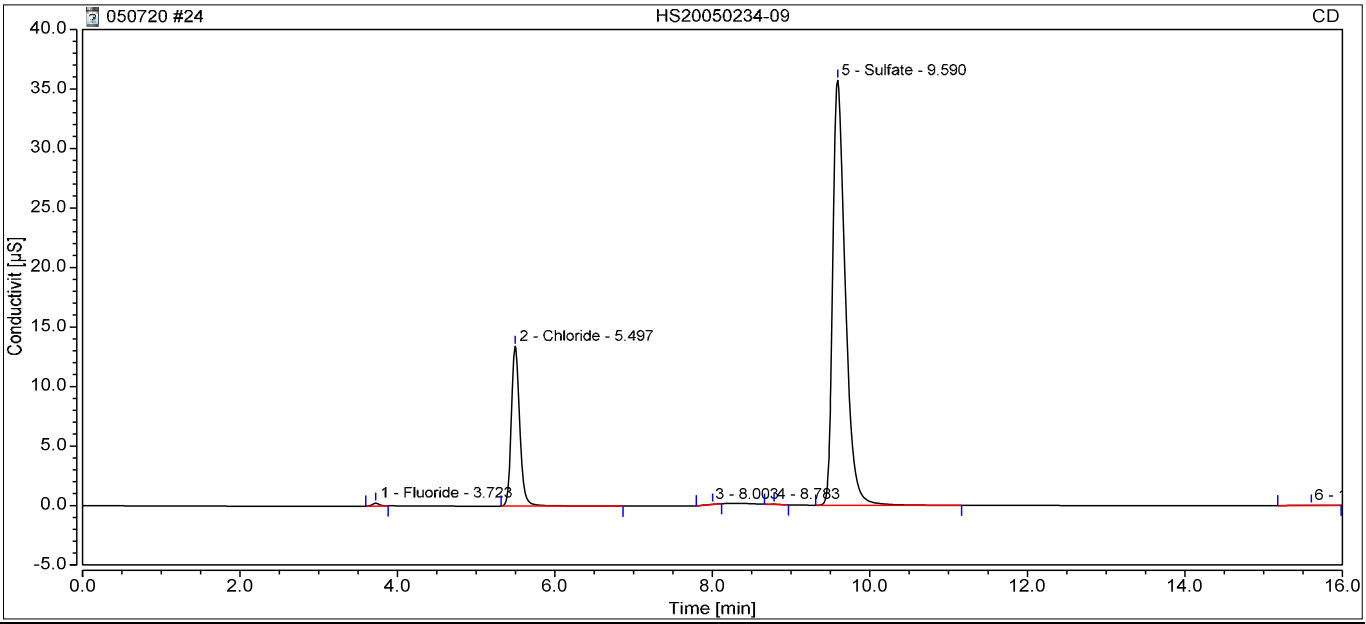
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.024	0.0933	0.0933	1.0000
2	5.50	Chloride	BMB	1.658	7.2071	7.2071	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
5	9.59	Sulfate	BMB	6.908	41.2401	41.2401	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**	**8.589**		**48.54**	

24 HS20050234-09

Sample Name:	**HS20050234-09**	*Injection Volume:*	**5.00**
Vial Number:	**RC3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 23:21**	*Sample Weight:*	**1.0000**

Run Time:



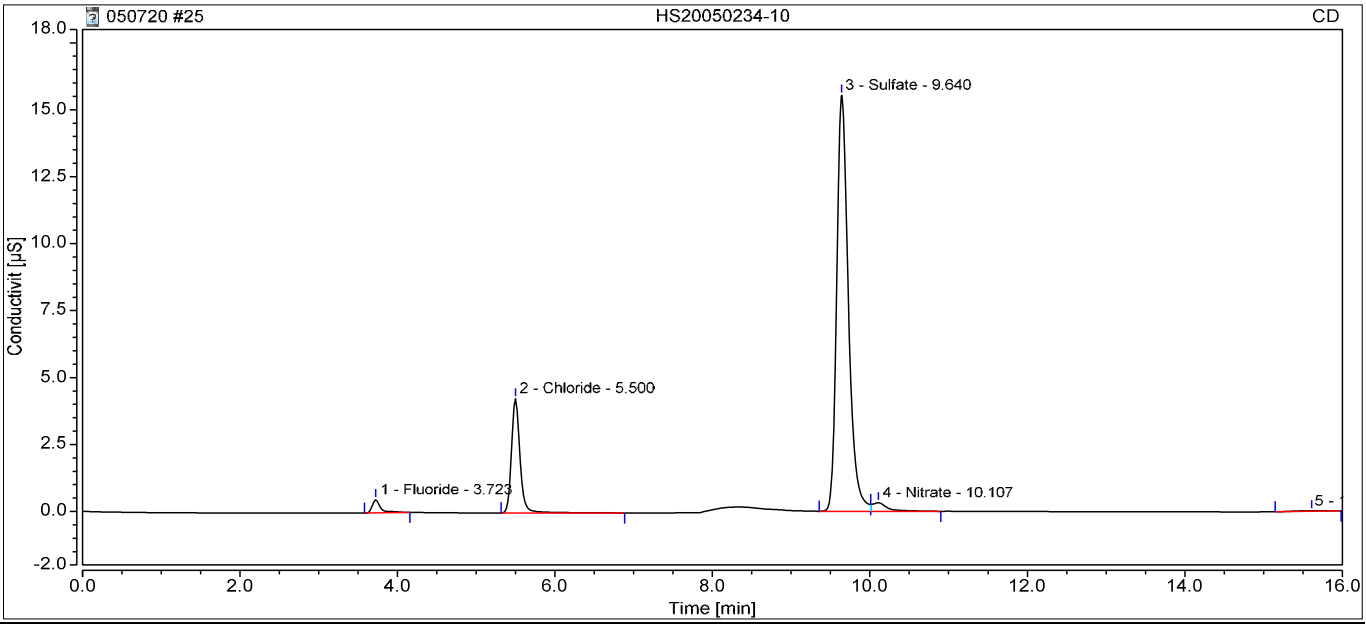
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.023	0.0930	0.0930	1.0000
2	5.50	Chloride	BMB	1.662	7.2271	7.2271	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
5	9.59	Sulfate	BMB	6.599	39.3991	39.3991	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**	**8.285**		**46.72**	

25 HS20050234-10

Sample Name:	**HS20050234-10**	*Injection Volume:*	**5.00**
Vial Number:	**RC4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 23:39**	*Sample Weight:*	**1.0000**

Run Time:



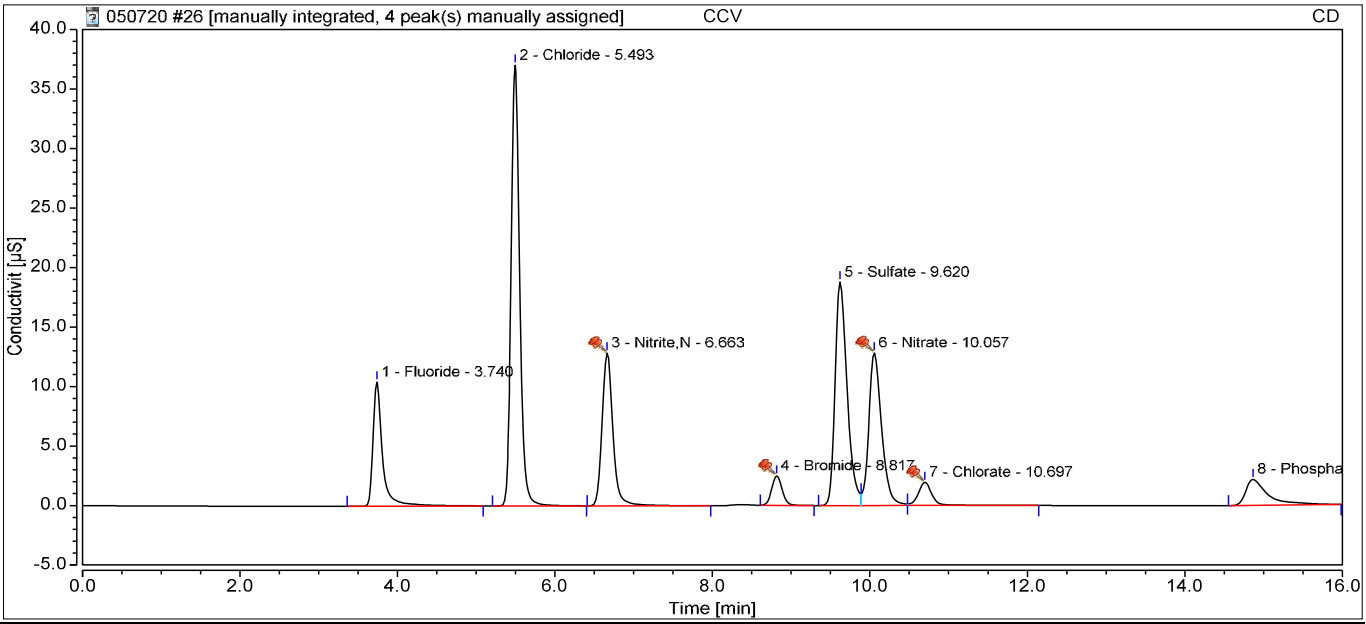
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.060	0.1995	0.1995	1.0000
2	5.50	Chloride	BMB	0.538	2.3782	2.3782	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	9.64	Sulfate	BM	2.659	15.9373	15.9373	1.0000
4	10.11	Nitrate	MB	0.073	0.1371	0.1371	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**	**3.329**		**18.65**	

26 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/07/2020 23:57**	*Sample Weight:*	**1.0000**

Run Time:



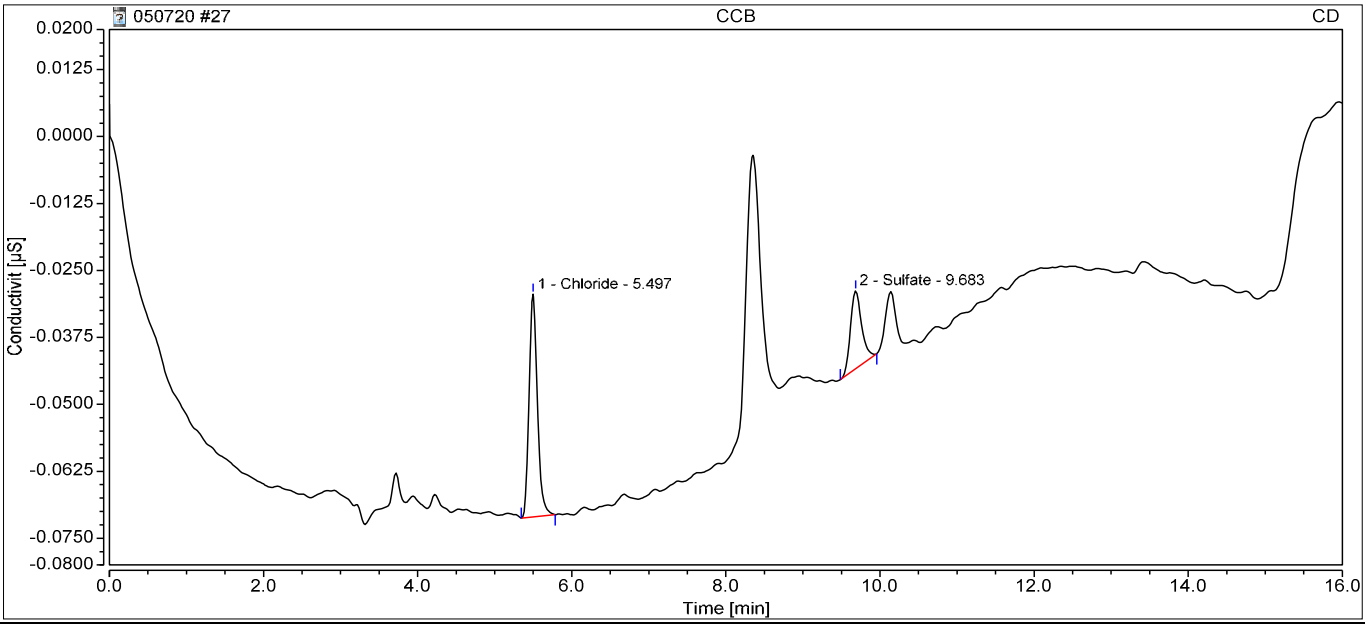
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB*	1.445	4.2557	4.2557	1.0000
2	5.49	Chloride	BMB*	4.636	20.0487	20.0487	1.0000
3	6.66	Nitrite,N	BMB^	2.068	4.2176	4.2176	1.0000
4	8.82	Bromide	BMB^	0.378	3.8442	3.8442	1.0000
5	9.62	Sulfate	BM	3.307	19.7944	19.7944	1.0000
6	10.06	Nitrate	M ^	2.415	4.1453	4.1453	1.0000
7	10.70	Chlorate	MB^	0.396	4.1580	4.1580	1.0000
8	14.87	Phosphate	BMB	0.724	3.5181	3.5181	1.0000
Total:			**0.000**	**15.368**		**63.98**	

27 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 00:15**	*Sample Weight:*	**1.0000**

Run Time:



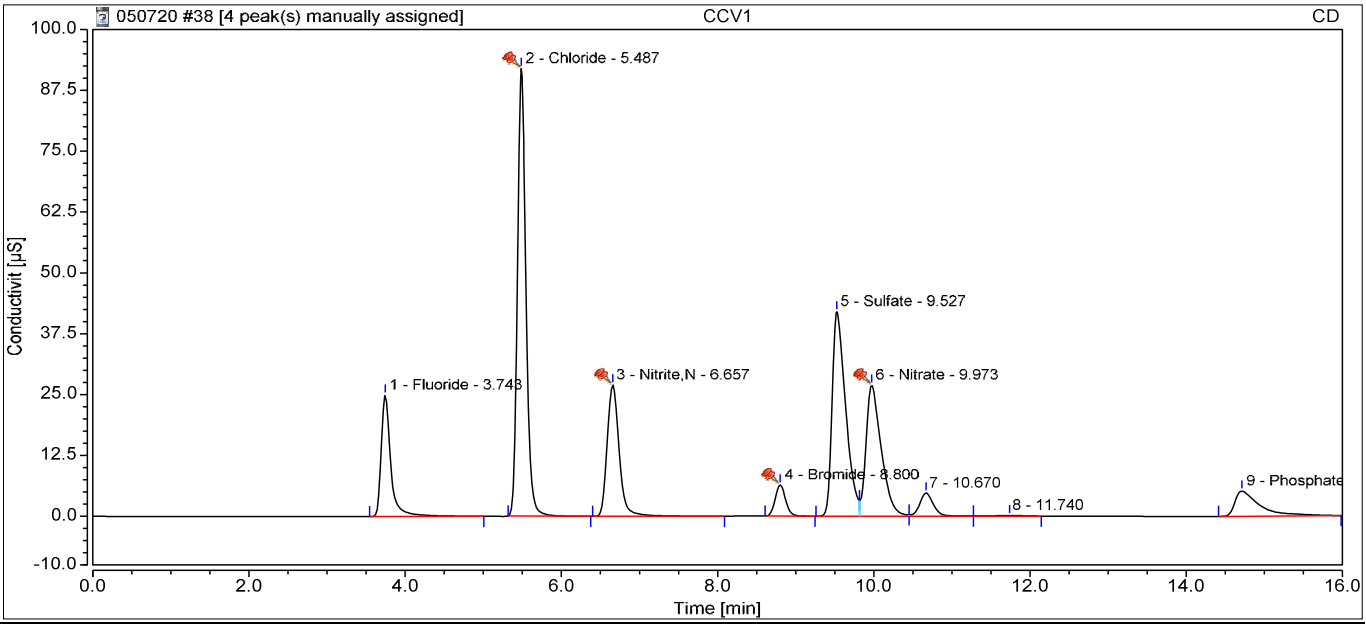
Integration Results

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	5.50	Chloride	BMB	0.005	0.0834	0.0834	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
2	9.68	Sulfate	BMB	0.002	0.1159	0.1159	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**	**0.008**		**0.20**	

38 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 03:34**	*Sample Weight:*	**1.0000**

Run Time:



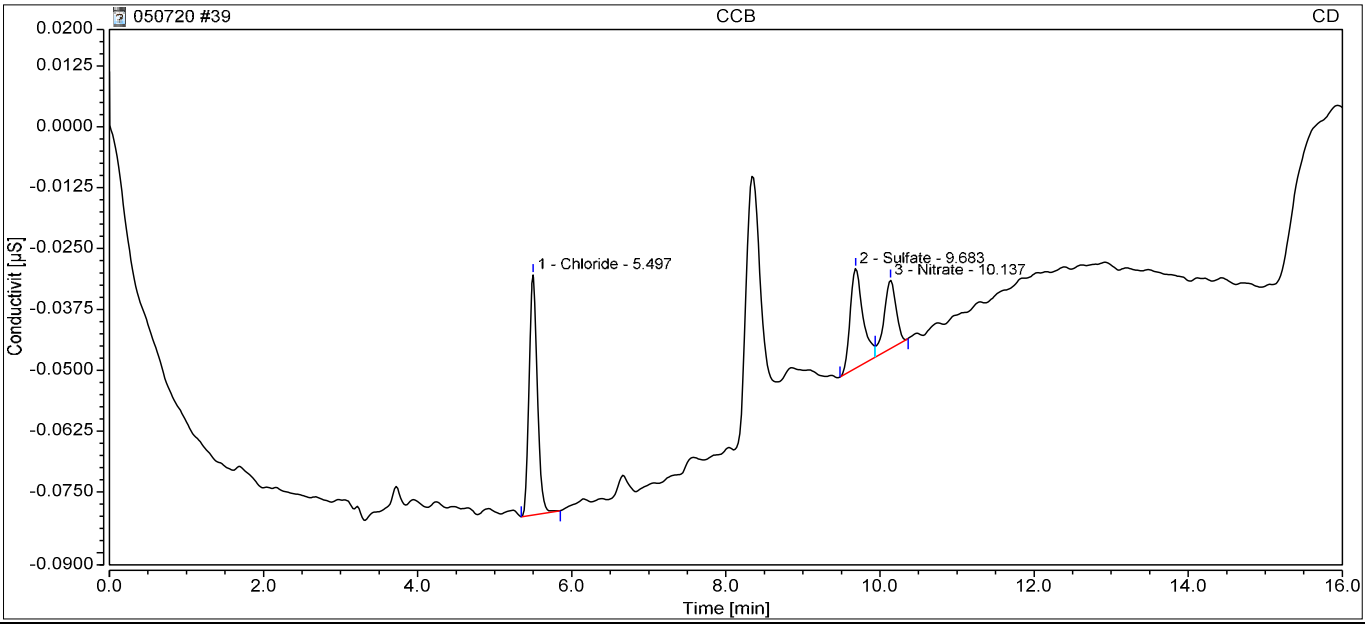
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.538	10.3856	10.3856	1.0000
2	5.49	Chloride	BMB^	11.586	50.0089	50.0089	1.0000
3	6.66	Nitrite,N	BMB^	4.838	9.8013	9.8013	1.0000
4	8.80	Bromide	BMB^	0.979	9.9085	9.9085	1.0000
5	9.53	Sulfate	BM	8.462	50.4945	50.4945	1.0000
6	9.97	Nitrate	M ^	6.070	10.4007	10.4007	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
9	14.71	Phosphate	BMB	1.913	9.1268	9.1268	1.0000
Total:			**0.000**	**37.385**		**150.13**	

39 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 03:52**	*Sample Weight:*	**1.0000**

Run Time:



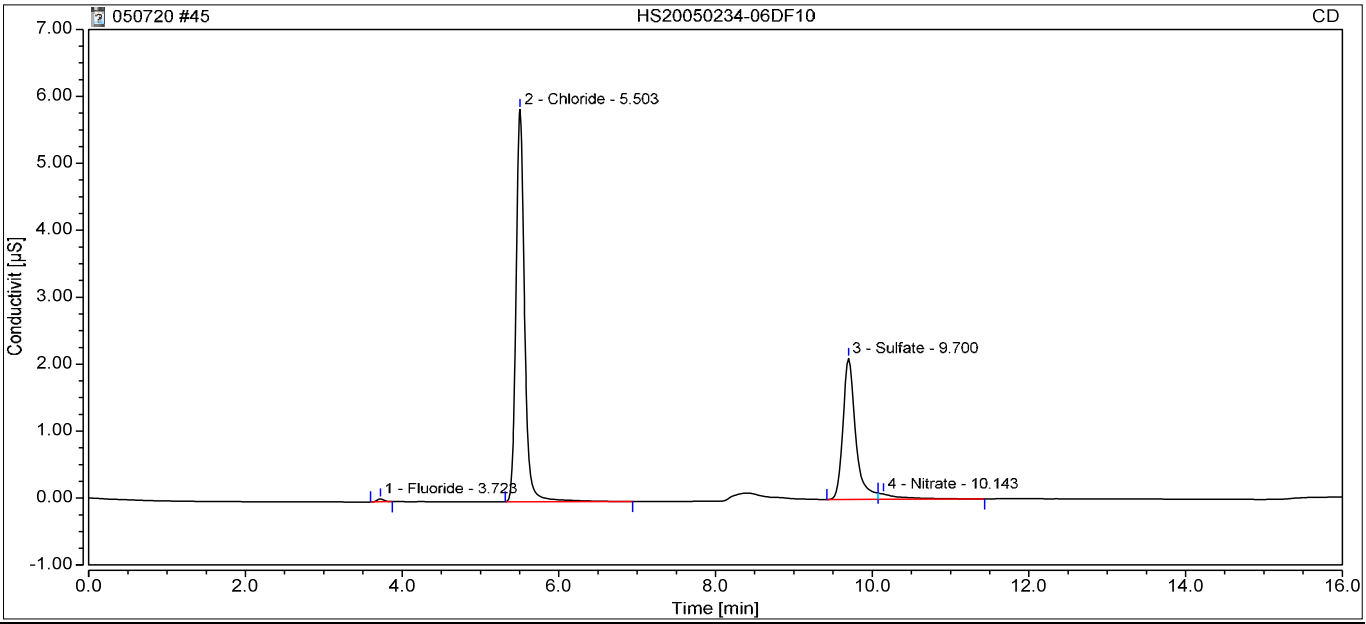
Integration Results

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	5.50	Chloride	BMB	0.006	0.0873	0.0873	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
2	9.68	Sulfate	BM	0.004	0.1247	0.1247	1.0000
3	10.14	Nitrate	MB	0.003	0.0173	0.0173	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**	**0.013**		**0.23**	

45 HS20050234-06DF10

Sample Name:	**HS20050234-06DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**05/08/2020 05:41**	*Sample Weight:*	**1.0000**

Run Time:



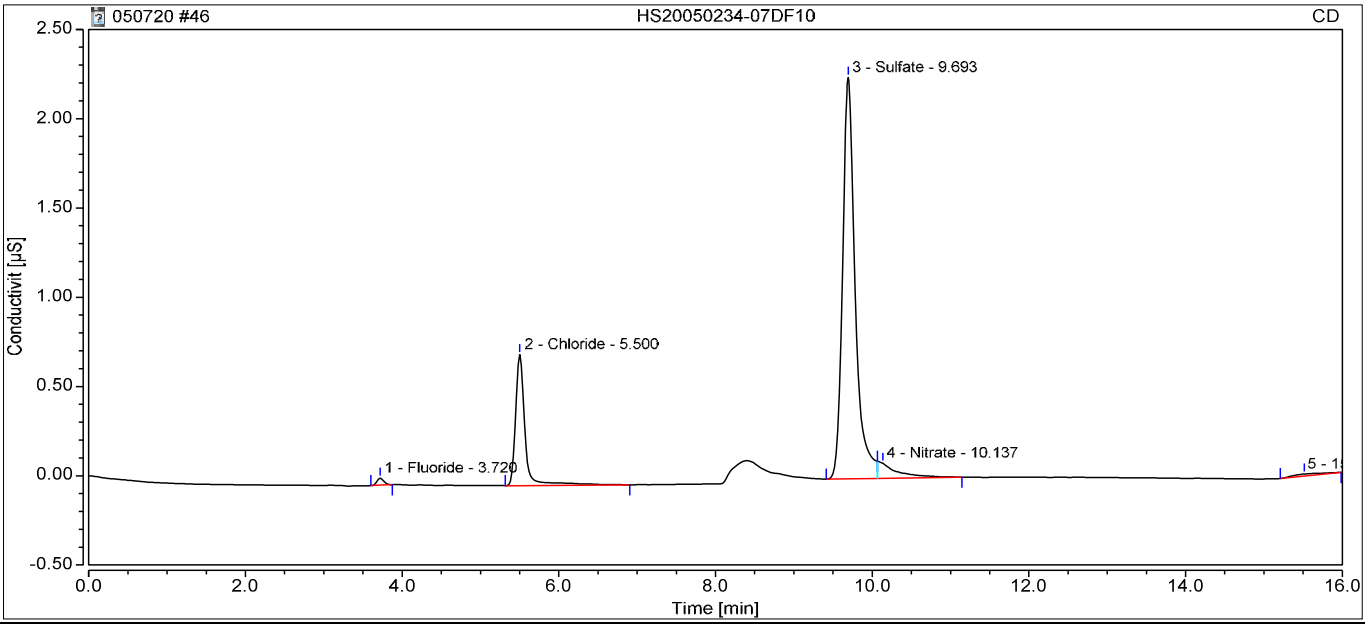
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.004	0.0369	0.3687	10.0000
2	5.50	Chloride	BMB	0.741	3.2553	32.5529	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
3	9.70	Sulfate	BM	0.395	2.4517	24.5170	10.0000
4	10.14	Nitrate	MB	0.027	0.0589	0.5890	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**	**1.167**		**58.03**	

46 HS20050234-07DF10

Sample Name:	**HS20050234-07DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**05/08/2020 05:59**	*Sample Weight:*	**1.0000**

Run Time:



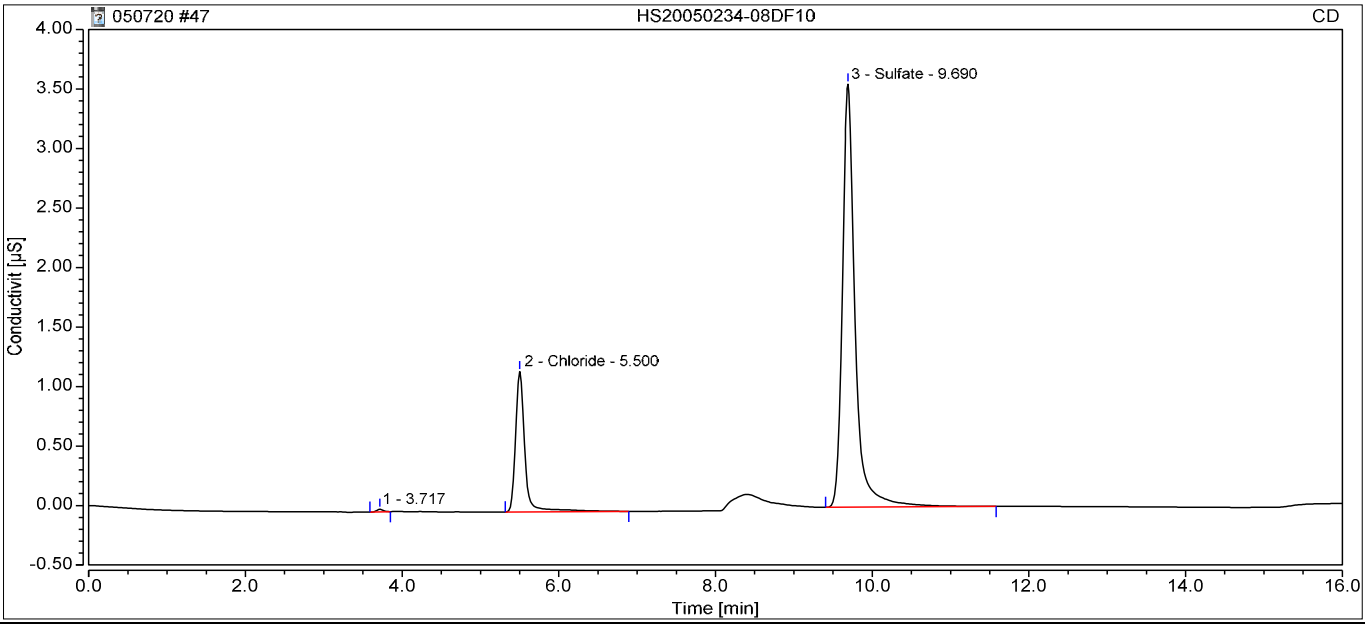
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.004	0.0358	0.3580	10.0000
2	5.50	Chloride	BMB	0.102	0.5004	5.0043	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
3	9.69	Sulfate	BM	0.418	2.5917	25.9170	10.0000
4	10.14	Nitrate	MB	0.026	0.0573	0.5733	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**	**0.550**		**31.85**	

47 HS20050234-08DF10

Sample Name:	**HS20050234-08DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**05/08/2020 06:17**	*Sample Weight:*	**1.0000**

Run Time:



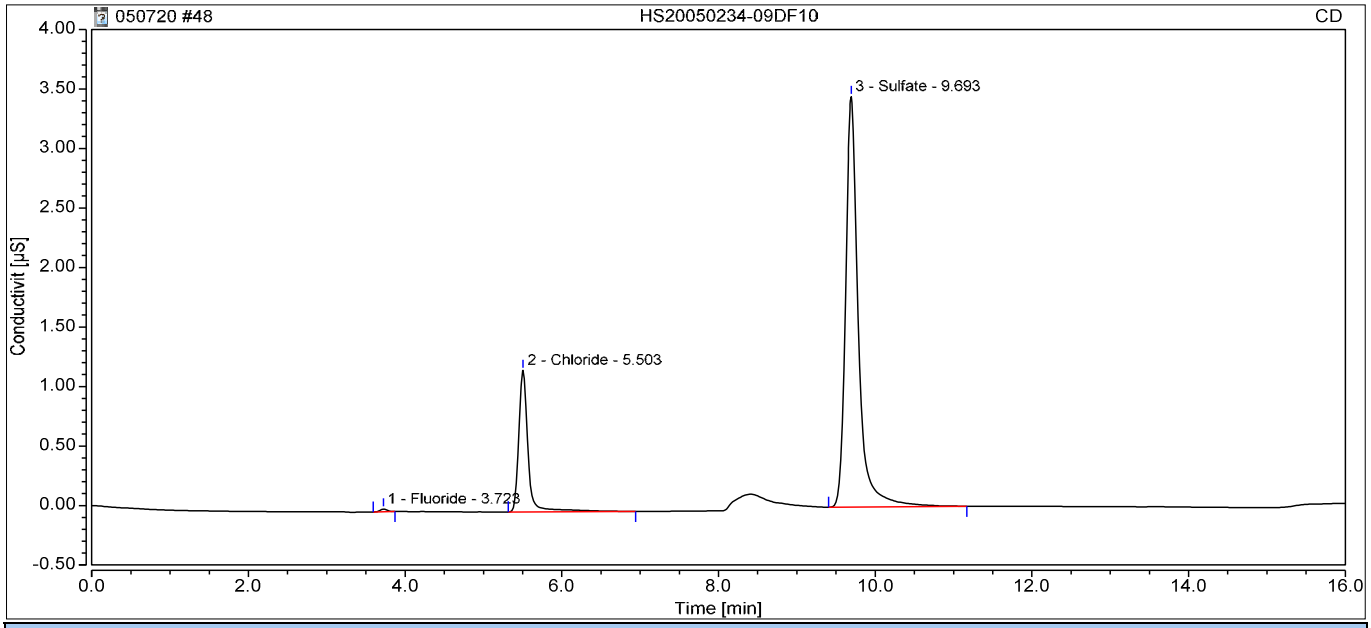
Integration Results

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.	10.0000
2	5.50	Chloride	BMB	0.162	0.7589	7.5889	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
3	9.69	Sulfate	BMB	0.668	4.0801	40.8006	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**	**0.830**		**48.39**	

48 HS20050234-09DF10

Sample Name:	**HS20050234-09DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**05/08/2020 06:35**	*Sample Weight:*	**1.0000**

Run Time:



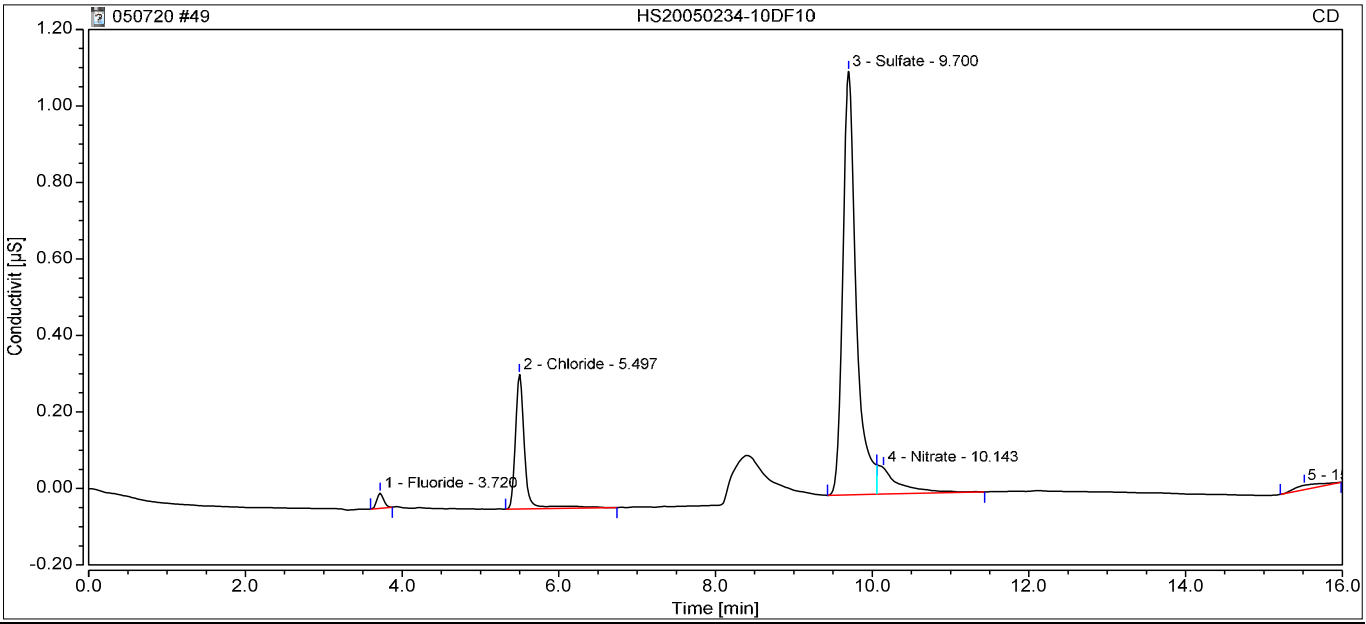
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.002	0.0309	0.3092	10.0000
2	5.50	Chloride	BMB	0.163	0.7655	7.6554	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
3	9.69	Sulfate	BMB	0.651	3.9766	39.7662	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**	**0.816**		**47.73**	

49 HS20050234-10DF10

Sample Name:	**HS20050234-10DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**05/08/2020 06:53**	*Sample Weight:*	**1.0000**

Run Time:



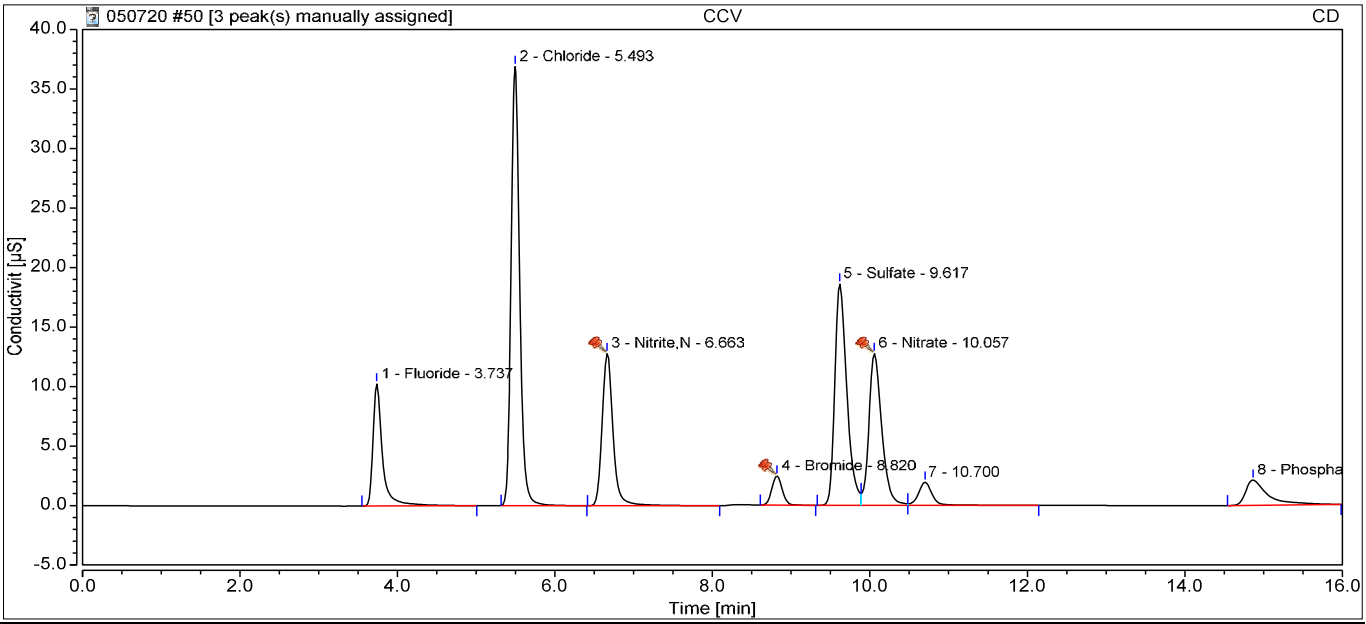
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.004	0.0357	0.3573	10.0000
2	5.50	Chloride	BMB	0.047	0.2653	2.6526	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
3	9.70	Sulfate	BM	0.220	1.4091	14.0908	10.0000
4	10.14	Nitrate	MB	0.023	0.0525	0.5247	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**	**0.294**		**17.63**	

50 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 07:11**	*Sample Weight:*	**1.0000**

Run Time:



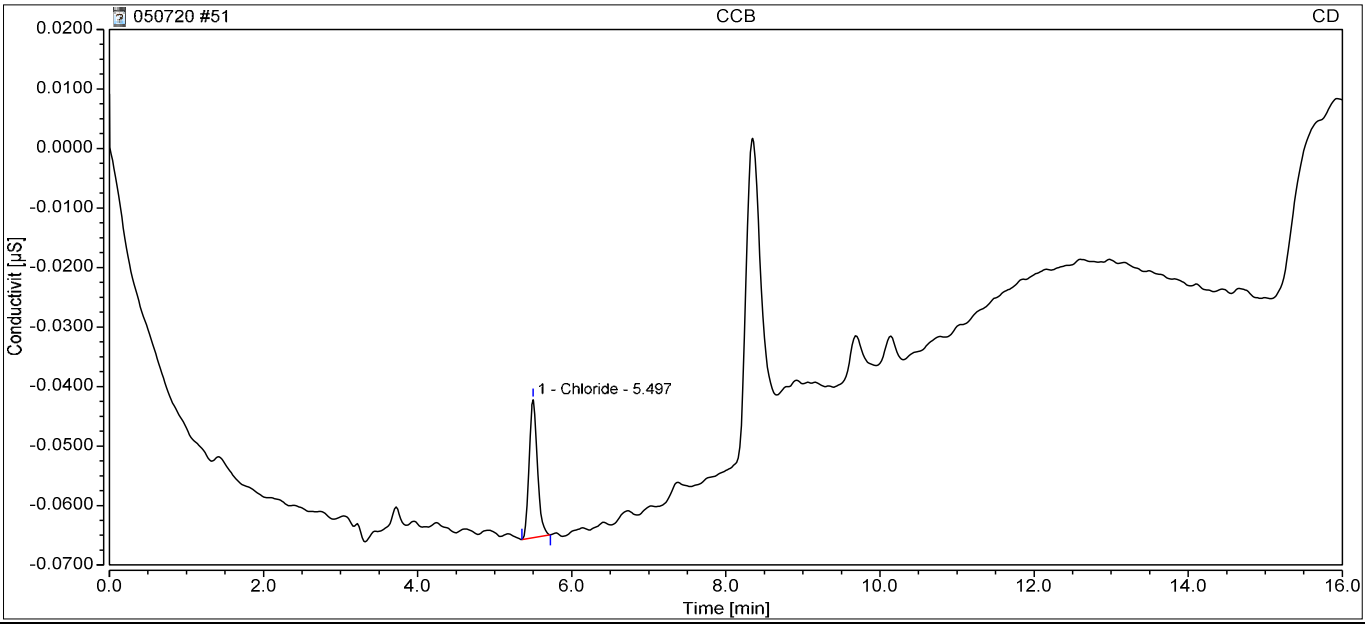
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.437	4.2339	4.2339	1.0000
2	5.49	Chloride	BMB	4.615	19.9582	19.9582	1.0000
3	6.66	Nitrite,N	BMB^	2.069	4.2198	4.2198	1.0000
4	8.82	Bromide	BMB^	0.377	3.8373	3.8373	1.0000
5	9.62	Sulfate	BM	3.286	19.6727	19.6727	1.0000
6	10.06	Nitrate	M ^	2.421	4.1556	4.1556	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	14.87	Phosphate	BMB	0.705	3.4297	3.4297	1.0000
Total:			**0.000**	**14.911**		**59.51**	

51 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 07:29**	*Sample Weight:*	**1.0000**

Run Time:



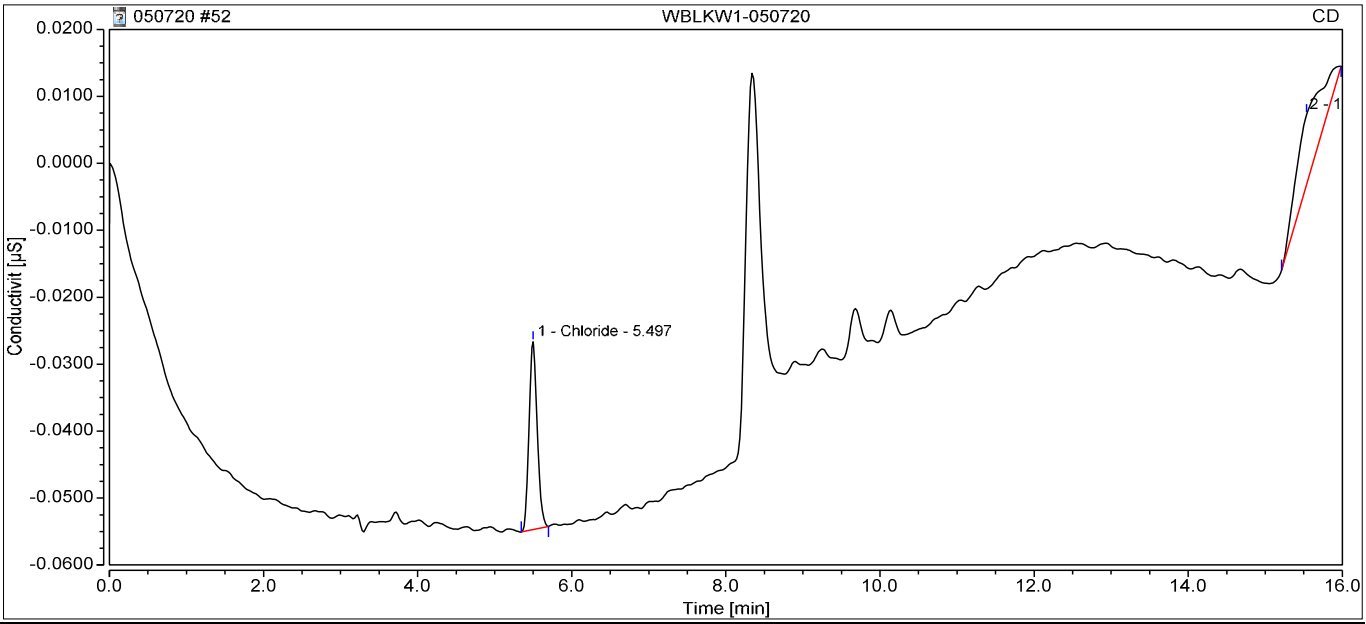
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.50	Chloride	BMB	0.003	0.0734	0.0734	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**	**0.003**		**0.07**	

52 WBLKW1-050720

Sample Name:	**WBLKW1-050720**	*Injection Volume:*	**5.00**
Vial Number:	**RB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 07:47**	*Sample Weight:*	**1.0000**

Run Time:



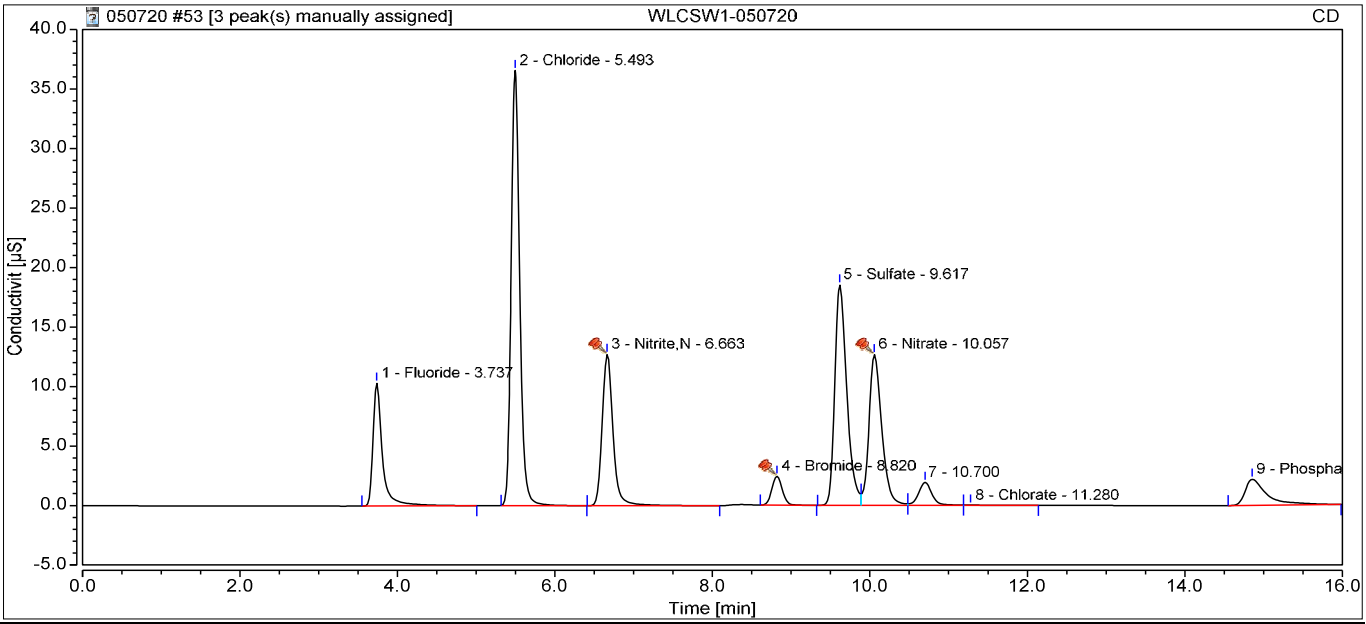
Integration Results

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	5.50	Chloride	BMB	0.003	0.0759	0.0759	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**	**0.003**		**0.08**	

53 WLCSW1-050720

Sample Name:	**WLCSW1-050720**	*Injection Volume:*	**5.00**
Vial Number:	**RB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 08:05**	*Sample Weight:*	**1.0000**

Run Time:



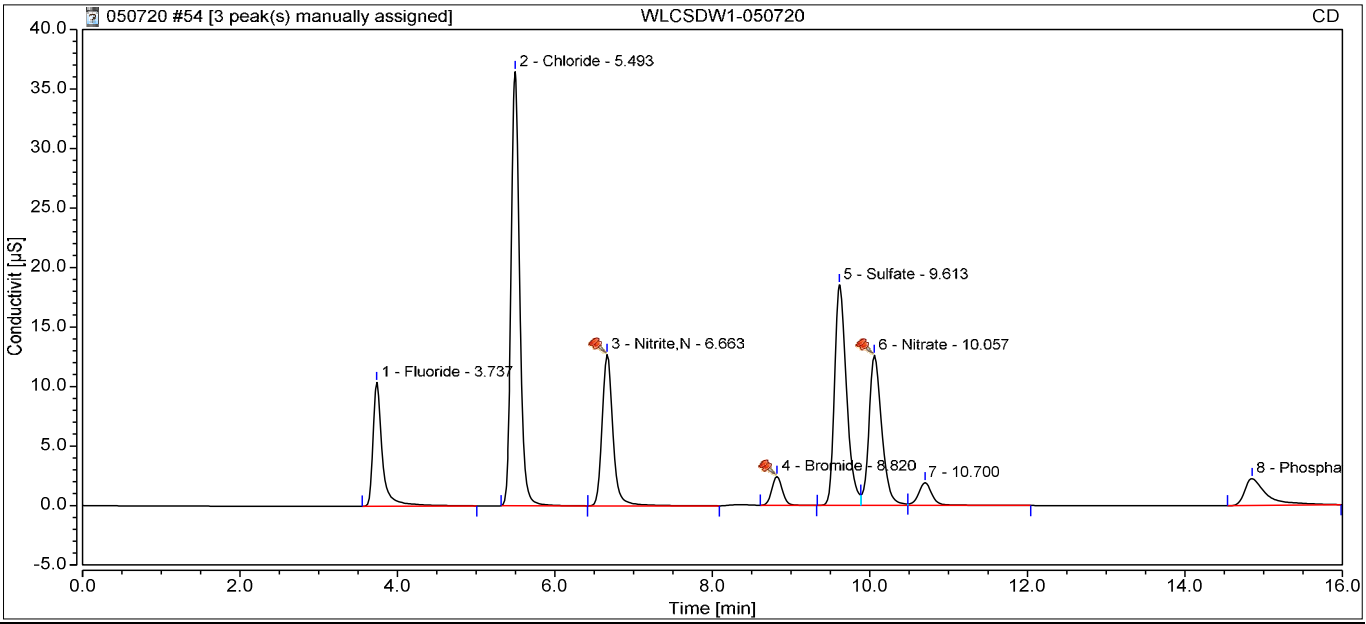
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.431	4.2146	4.2146	1.0000
2	5.49	Chloride	BMB	4.574	19.7787	19.7787	1.0000
3	6.66	Nitrite,N	BMB^	2.052	4.1868	4.1868	1.0000
4	8.82	Bromide	BMB^	0.373	3.7975	3.7975	1.0000
5	9.62	Sulfate	BM	3.263	19.5311	19.5311	1.0000
6	10.06	Nitrate	M ^	2.390	4.1040	4.1040	1.0000
8	11.28	Chlorate	MB	0.010	0.0854	0.0854	1.0000
9	14.86	Phosphate	BMB	0.715	3.4766	3.4766	1.0000
Total:			**0.000**	**14.808**		**59.17**	

54 WLCSDW1-050720

Sample Name:	**WLCSDW1-050720**	*Injection Volume:*	**5.00**
Vial Number:	**RB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 08:24**	*Sample Weight:*	**1.0000**

Run Time:

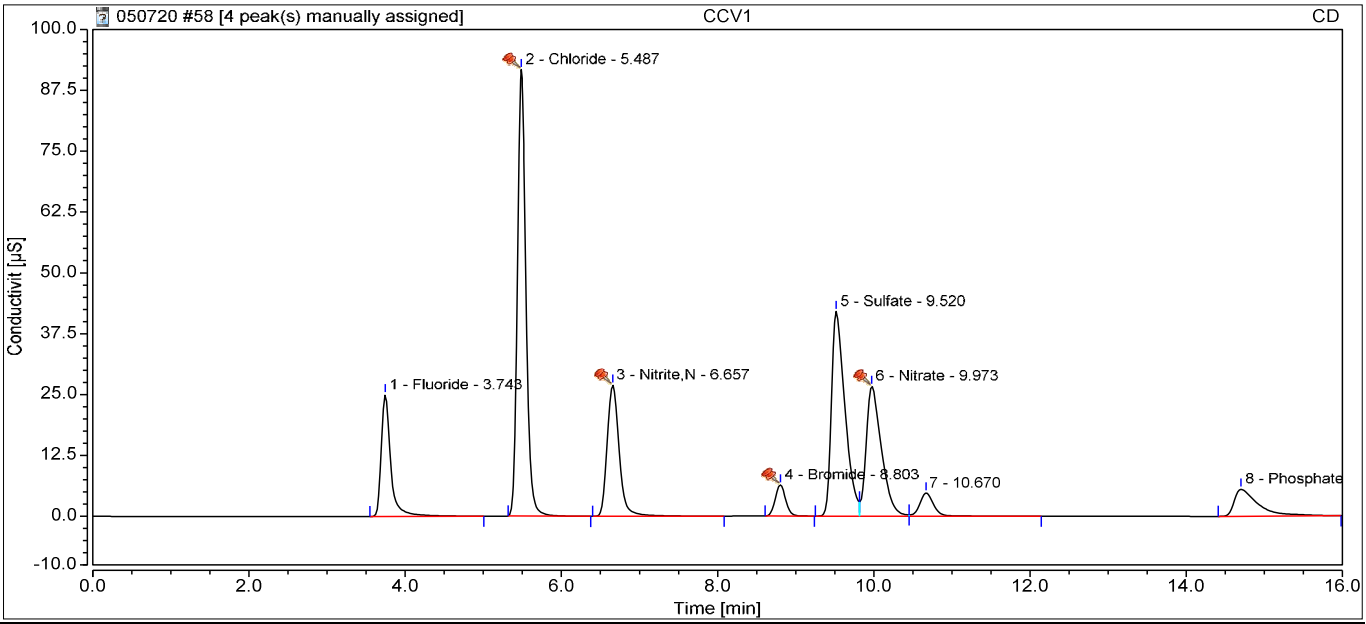


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.430	4.2117	4.2117	1.0000
2	5.49	Chloride	BMB	4.567	19.7472	19.7472	1.0000
3	6.66	Nitrite,N	BMB^	2.049	4.1811	4.1811	1.0000
4	8.82	Bromide	BMB^	0.372	3.7829	3.7829	1.0000
5	9.61	Sulfate	BM	3.264	19.5365	19.5365	1.0000
6	10.06	Nitrate	M ^	2.382	4.0895	4.0895	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	14.85	Phosphate	BMB	0.734	3.5661	3.5661	1.0000
Total:			**0.000**	**14.797**		**59.12**	

58 CCV1			
Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 09:36**	*Sample Weight:*	**1.0000**

Run Time:



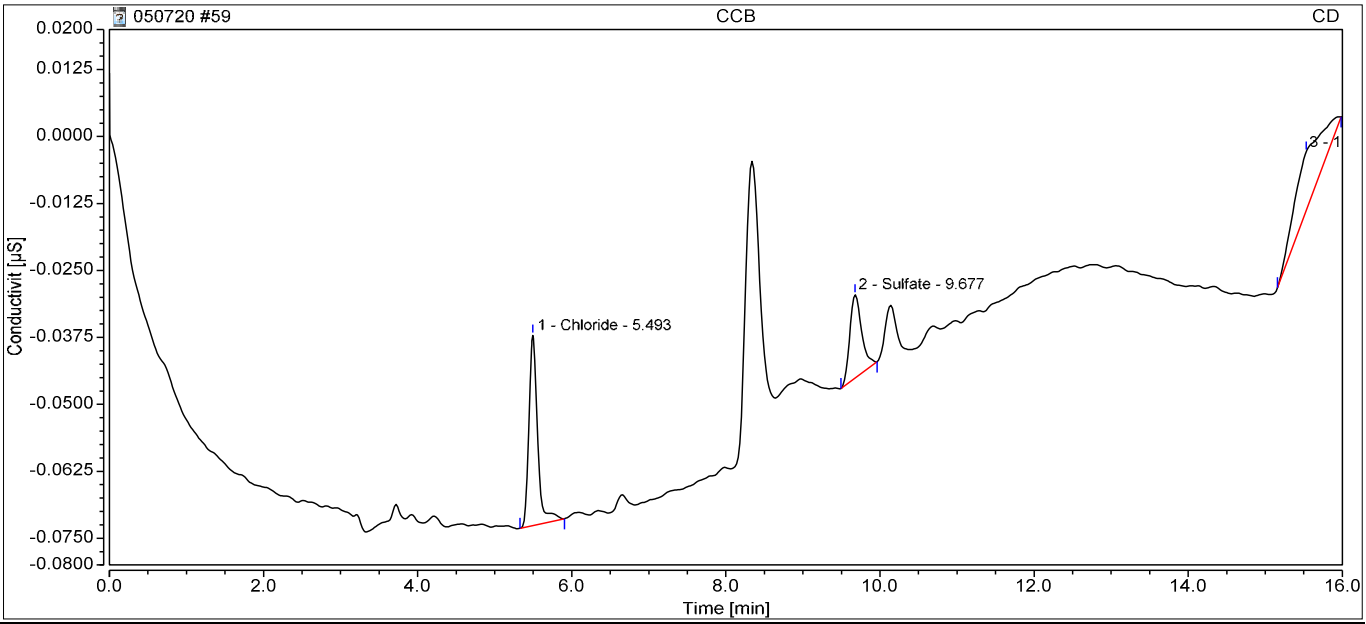
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.534	10.3748	10.3748	1.0000
2	5.49	Chloride	BMB^	11.576	49.9634	49.9634	1.0000
3	6.66	Nitrite,N	BMB^	4.842	9.8087	9.8087	1.0000
4	8.80	Bromide	BMB^	0.980	9.9220	9.9220	1.0000
5	9.52	Sulfate	BM	8.452	50.4369	50.4369	1.0000
6	9.97	Nitrate	M ^	6.047	10.3624	10.3624	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	14.70	Phosphate	BMB	1.975	9.4189	9.4189	1.0000
Total:			**0.000**	**37.406**		**150.29**	

59 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 09:54**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.49	Chloride	BMB	0.005	0.0808	0.0808	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
2	9.68	Sulfate	BMB	0.003	0.1178	0.1178	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**	**0.007**		**0.20**	

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WorkOrder: HS20050292

Longhorn Army Ammunition Plant

Aptim Environmental & Infrastucture, Inc.

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

03-Jun-2020

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HS20050292 Longhorn Army Ammunition Plant
Final

ALS WO# HS20050292

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May 27, 2020

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

Work Order: **HS20050292**

Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 9 sample(s) on May 08, 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-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050292

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20050292-01	35BWW14-200507	Groundwater		07-May-2020 07:45	08-May-2020 09:45	☐
HS20050292-02	35BWW15-200507	Groundwater		07-May-2020 08:35	08-May-2020 09:45	☐
HS20050292-03	35BWW17-200507	Groundwater		07-May-2020 09:20	08-May-2020 09:45	☐
HS20050292-04	35BWW16-200507	Groundwater		07-May-2020 10:05	08-May-2020 09:45	☐
HS20050292-05	35BWW13-200507	Groundwater		07-May-2020 10:50	08-May-2020 09:45	☐
HS20050292-06	35BWW23-200507	Groundwater		07-May-2020 11:40	08-May-2020 09:45	☐
HS20050292-07	35BWW24-200507	Groundwater		07-May-2020 12:30	08-May-2020 09:45	☐
HS20050292-08	35BWW25-200507	Groundwater		07-May-2020 13:15	08-May-2020 09:45	☐
HS20050292-09	Trip Blank-200507	Groundwater	CG-041420-03	07-May-2020 00:00	08-May-2020 09:45	☐

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant
Work Order: HS20050292

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R361452

Sample ID: HS20050234-01

- MS/MSD was performed on unrelated sample

Batch ID: R361378

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

WetChemistry by Method SW9056

Batch ID: R361551

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW14-200507
Collection Date: 07-May-2020 07:45

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-01
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	11-May-2020 22:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:00
1,1,2-Trichlor-1,2,2-trifluoroethane	**19**		**0.50**	**1.0**	**1.0**	**UG/L**	1	11-May-2020 22:00
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
1,1-Dichloroethane	**0.65**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	11-May-2020 22:00
1,1-Dichloroethene	**3.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-May-2020 22:00
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:00
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:00
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:00
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-May-2020 22:00
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	11-May-2020 22:00
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	11-May-2020 22:00
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-May-2020 22:00
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-May-2020 22:00
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:00
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW14-200507
Collection Date: 07-May-2020 07:45

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
cis-1,2-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-May-2020 22:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-May-2020 22:00
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-May-2020 22:00
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-May-2020 22:00
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-May-2020 22:00
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:00
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Tetrachloroethene	**40**		**0.30**	**1.0**	**1.0**	**UG/L**	1	11-May-2020 22:00
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Trichloroethene	**14**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-May-2020 22:00
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:00
Surr: 1,2-Dichloroethane-d4	*89.6*			**0**	*81-118*	*%REC*	*1*	*11-May-2020 22:00*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*11-May-2020 22:00*
Surr: Dibromofluoromethane	*92.5*			**0**	*80-119*	*%REC*	*1*	*11-May-2020 22:00*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-May-2020 22:00*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**18.0**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-May-2020 14:41
Nitrogen, Nitrate (As N)	**0.394**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	08-May-2020 14:41
Sulfate	**73.7**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-May-2020 14:41
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	22-May-2020 18:00

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW14-200507
Collection Date: 07-May-2020 07:45

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-May-2020 10:47

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW15-200507
Collection Date: 07-May-2020 08:35

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-02
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	11-May-2020 22:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:24
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.8**		**0.50**	**1.0**	**1.0**	**UG/L**	1	11-May-2020 22:24
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
1,1-Dichloroethene	**0.87**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	11-May-2020 22:24
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:24
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:24
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:24
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-May-2020 22:24
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	11-May-2020 22:24
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	11-May-2020 22:24
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-May-2020 22:24
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-May-2020 22:24
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:24
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW15-200507
Collection Date: 07-May-2020 08:35

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-May-2020 22:24
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-May-2020 22:24
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-May-2020 22:24
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-May-2020 22:24
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:24
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Tetrachloroethene	**13**		**0.30**	**1.0**	**1.0**	**UG/L**	1	11-May-2020 22:24
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Trichloroethene	**7.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-May-2020 22:24
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:24
Surr: 1,2-Dichloroethane-d4	*88.8*			**0**	*81-118*	*%REC*	*1*	*11-May-2020 22:24*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*11-May-2020 22:24*
Surr: Dibromofluoromethane	*90.6*			**0**	*80-119*	*%REC*	*1*	*11-May-2020 22:24*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-May-2020 22:24*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW17-200507
Collection Date: 07-May-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-03
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	11-May-2020 22:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	11-May-2020 22:48
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	11-May-2020 22:48
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	11-May-2020 22:48
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	11-May-2020 22:48
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	11-May-2020 22:48
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	11-May-2020 22:48
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW17-200507
Collection Date: 07-May-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	11-May-2020 22:48
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	11-May-2020 22:48
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	11-May-2020 22:48
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-May-2020 22:48
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	11-May-2020 22:48
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	11-May-2020 22:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-May-2020 22:48
Surr: 1,2-Dichloroethane-d4	*88.2*			**0**	*81-118*	*%REC*	*1*	*11-May-2020 22:48*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*11-May-2020 22:48*
Surr: Dibromofluoromethane	*92.6*			**0**	*80-119*	*%REC*	*1*	*11-May-2020 22:48*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*11-May-2020 22:48*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW16-200507
Collection Date: 07-May-2020 10:05

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-04
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	12-May-2020 12:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 12:49
1,1,2-Trichlor-1,2,2-trifluoroethane	**8.0**		**0.50**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 12:49
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
1,1-Dichloroethene	**0.61**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 12:49
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 12:49
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 12:49
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 12:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 12:49
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 12:49
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 12:49
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 12:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 12:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 12:49
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 12:49
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW16-200507
Collection Date: 07-May-2020 10:05

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 12:49
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 12:49
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 12:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 12:49
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 12:49
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Tetrachloroethene	**9.9**		**0.30**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 12:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 12:49
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 12:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 12:49
Surr: 1,2-Dichloroethane-d4	*87.9*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 12:49*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 12:49*
Surr: Dibromofluoromethane	*90.3*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 12:49*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 12:49*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW13-200507
Collection Date: 07-May-2020 10:50

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-05
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	12-May-2020 13:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 13:13
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 13:13
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 13:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 13:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 13:13
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:13
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW13-200507
Collection Date: 07-May-2020 10:50

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 13:13
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 13:13
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 13:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 13:13
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:13
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:13
Surr: 1,2-Dichloroethane-d4	*90.3*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 13:13*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 13:13*
Surr: Dibromofluoromethane	*93.0*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 13:13*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 13:13*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW23-200507
Collection Date: 07-May-2020 11:40

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-06
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	12-May-2020 14:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 14:25
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 14:25
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 14:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 14:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 14:25
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:25
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW23-200507
Collection Date: 07-May-2020 11:40

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 14:25
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 14:25
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 14:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 14:25
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:25
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:25
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 14:25*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 14:25*
Surr: Dibromofluoromethane	*91.2*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 14:25*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 14:25*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**21.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-May-2020 15:17
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	08-May-2020 15:17
Sulfate	**83.8**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-May-2020 15:17
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	22-May-2020 18:00
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-May-2020 10:47

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW24-200507
Collection Date: 07-May-2020 12:30

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-07
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	12-May-2020 14:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:49
1,1,2-Trichlor-1,2,2-trifluoroethane	**5.7**		**0.50**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 14:49
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
1,1-Dichloroethene	**0.54**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 14:49
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:49
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:49
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:49
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 14:49
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 14:49
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 14:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 14:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 14:49
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:49
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW24-200507
Collection Date: 07-May-2020 12:30

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 14:49
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 14:49
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 14:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 14:49
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:49
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Trichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 14:49
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:49
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 14:49*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 14:49*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 14:49*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 14:49*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW25-200507
Collection Date: 07-May-2020 13:15

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-08
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	12-May-2020 15:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 15:13
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 15:13
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 15:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 15:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 15:13
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:13
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW25-200507
Collection Date: 07-May-2020 13:15

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 15:13
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 15:13
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 15:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 15:13
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:13
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Trichloroethene	**13**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 15:13
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:13
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 15:13*
Surr: 4-Bromofluorobenzene	*97.2*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 15:13*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 15:13*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 15:13*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Trip Blank-200507
Collection Date: 07-May-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-09
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	12-May-2020 13:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 13:37
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 13:37
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 13:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 13:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 13:37
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 13:37
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Trip Blank-200507
Collection Date: 07-May-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20050292
Lab ID:HS20050292-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 13:37
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 13:37
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 13:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 13:37
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 13:37
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 13:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 13:37
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 13:37*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 13:37*
Surr: Dibromofluoromethane	*92.1*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 13:37*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 13:37*

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

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R361378 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20050292-01	35BWW14-200507	07 May 2020 07:45			11 May 2020 22:00	1
HS20050292-02	35BWW15-200507	07 May 2020 08:35			11 May 2020 22:24	1
HS20050292-03	35BWW17-200507	07 May 2020 09:20			11 May 2020 22:48	1
Batch ID: R361452 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20050292-04	35BWW16-200507	07 May 2020 10:05			12 May 2020 12:49	1
HS20050292-05	35BWW13-200507	07 May 2020 10:50			12 May 2020 13:13	1
HS20050292-06	35BWW23-200507	07 May 2020 11:40			12 May 2020 14:25	1
HS20050292-07	35BWW24-200507	07 May 2020 12:30			12 May 2020 14:49	1
HS20050292-08	35BWW25-200507	07 May 2020 13:15			12 May 2020 15:13	1
HS20050292-09	Trip Blank-200507	07 May 2020 00:00			12 May 2020 13:37	1
Batch ID: R361551 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20050292-01	35BWW14-200507	07 May 2020 07:45			08 May 2020 14:41	1
HS20050292-06	35BWW23-200507	07 May 2020 11:40			08 May 2020 15:17	1
Batch ID: R362045 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS20050292-01	35BWW14-200507	07 May 2020 07:45			22 May 2020 18:00	1
HS20050292-06	35BWW23-200507	07 May 2020 11:40			22 May 2020 18:00	1
Batch ID: R362179 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20050292-01	35BWW14-200507	07 May 2020 07:45			27 May 2020 10:47	1
HS20050292-06	35BWW23-200507	07 May 2020 11:40			27 May 2020 10:47	1

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200511** Units: **UG/L** Analysis Date: **11-May-2020 20:24**
Client ID: Run ID: **VOA6_361378** SeqNo: **5580772** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	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	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200511** Units: **UG/L** Analysis Date: **11-May-2020 20:24**
Client ID: Run ID: **VOA6_361378** SeqNo: **5580772** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.1*	*1.0*	*50*	*0*	*90.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.12*	*1.0*	*50*	*0*	*98.2*	*85 - 114*				
Surr: Dibromofluoromethane	*45.57*	*1.0*	*50*	*0*	*91.1*	*80 - 119*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200511** Units: **UG/L** Analysis Date: **11-May-2020 20:24**
Client ID: Run ID: **VOA6_361378** SeqNo: **5580772** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.62*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200511** Units: **UG/L** Analysis Date: **11-May-2020 19:11**
Client ID: Run ID: **VOA6_361378** SeqNo: **5580770** 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	19.86	1.0	20	0	99.3	78 - 124				
1,1,1-Trichloroethane	19.87	1.0	20	0	99.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.2	1.0	20	0	96.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.76	1.0	20	0	98.8	70 - 136				
1,1,2-Trichloroethane	19.68	1.0	20	0	98.4	80 - 119				
1,1-Dichloroethane	19.17	1.0	20	0	95.8	77 - 125				
1,1-Dichloroethene	19.38	1.0	20	0	96.9	71 - 131				
1,1-Dichloropropene	18.75	1.0	20	0	93.8	78 - 125				
1,2,3-Trichlorobenzene	24.42	1.0	20	0	122	69 - 129				
1,2,3-Trichloropropane	18.57	1.0	20	0	92.9	73 - 122				
1,2,4-Trichlorobenzene	21.98	1.0	20	0	110	69 - 130				
1,2,4-Trimethylbenzene	19.61	1.0	20	0	98.0	76 - 124				
1,2-Dibromo-3-chloropropane	19.66	1.0	20	0	98.3	62 - 128				
1,2-Dibromoethane	20.42	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	19.4	1.0	20	0	97.0	80 - 119				
1,2-Dichloroethane	20.44	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	19.07	1.0	20	0	95.4	78 - 122				
1,3,5-Trimethylbenzene	19.58	1.0	20	0	97.9	75 - 124				
1,3-Dichlorobenzene	19.11	1.0	20	0	95.5	80 - 119				
1,3-Dichloropropane	19.77	1.0	20	0	98.8	80 - 119				
1,4-Dichlorobenzene	18.92	1.0	20	0	94.6	79 - 118				
2,2-Dichloropropane	20.14	1.0	20	0	101	60 - 139				
2-Butanone	40.97	2.0	40	0	102	56 - 143				
2-Chlorotoluene	18.39	1.0	20	0	92.0	79 - 122				
2-Hexanone	37.98	2.0	40	0	94.9	57 - 139				
4-Chlorotoluene	18.64	1.0	20	0	93.2	78 - 122				
4-Isopropyltoluene	19.75	1.0	20	0	98.7	77 - 127				
4-Methyl-2-pentanone	37.58	2.0	40	0	94.0	67 - 130				
Acetone	36.17	2.0	40	0	90.4	39 - 160				
Benzene	19.04	1.0	20	0	95.2	79 - 120				
Bromobenzene	19.38	1.0	20	0	96.9	80 - 120				
Bromochloromethane	19.63	1.0	20	0	98.2	78 - 123				
Bromodichloromethane	19.7	1.0	20	0	98.5	79 - 125				
Bromoform	20.08	1.0	20	0	100	66 - 130				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200511** Units: **UG/L** Analysis Date: **11-May-2020 19:11**
Client ID: Run ID: **VOA6_361378** SeqNo: **5580770** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	22.58	1.0	20	0	113	53 - 141				
Carbon disulfide	39.41	2.0	40	0	98.5	64 - 133				
Carbon tetrachloride	18.71	1.0	20	0	93.6	72 - 136				
Chlorobenzene	19.78	1.0	20	0	98.9	82 - 118				
Chloroethane	19.44	1.0	20	0	97.2	60 - 138				
Chloroform	20.1	1.0	20	0	101	79 - 124				
Chloromethane	18.59	1.0	20	0	93.0	50 - 139				
cis-1,2-Dichloroethene	20.1	1.0	20	0	100	78 - 123				
cis-1,3-Dichloropropene	19.81	1.0	20	0	99.0	75 - 124				
Dibromochloromethane	20.49	1.0	20	0	102	74 - 126				
Dibromomethane	19.97	1.0	20	0	99.9	79 - 123				
Dichlorodifluoromethane	19.81	1.0	20	0	99.0	32 - 152				
Ethylbenzene	19.54	1.0	20	0	97.7	79 - 121				
Hexachlorobutadiene	24.38	1.0	20	0	122	66 - 134				
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131				
m,p-Xylene	38.97	2.0	40	0	97.4	80 - 121				
Methylene chloride	20.4	2.0	20	0	102	74 - 124				
Naphthalene	20.82	1.0	20	0	104	61 - 128				
n-Butylbenzene	19.96	1.0	20	0	99.8	75 - 128				
n-Propylbenzene	19.1	1.0	20	0	95.5	76 - 126				
o-Xylene	19.44	1.0	20	0	97.2	78 - 122				
sec-Butylbenzene	19.19	1.0	20	0	96.0	77 - 126				
Styrene	19.77	1.0	20	0	98.9	78 - 123				
tert-Butylbenzene	19.31	1.0	20	0	96.5	78 - 124				
Tetrachloroethene	19.89	1.0	20	0	99.5	74 - 129				
Toluene	19.66	1.0	20	0	98.3	80 - 121				
trans-1,2-Dichloroethene	20.22	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	19.84	1.0	20	0	99.2	73 - 127				
Trichloroethene	19.86	1.0	20	0	99.3	79 - 123				
Trichlorofluoromethane	19.55	1.0	20	0	97.8	65 - 141				
Vinyl chloride	19.09	1.0	20	0	95.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.78*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.12*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*51.63*	*1.0*	*50*	*0*	*103*	*80 - 119*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200511** Units: **UG/L** Analysis Date: **11-May-2020 19:11**
Client ID: Run ID: **VOA6_361378** SeqNo: **5580770** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.03*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050292-03MS** Units: **UG/L** Analysis Date: **11-May-2020 23:12**
Client ID: **35BWW17-200507** Run ID: **VOA6_361378** SeqNo: **5580779** 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	20.97	1.0	20	0	105	78 - 124				
1,1,1-Trichloroethane	19.03	1.0	20	0	95.1	74 - 131				
1,1,2,2-Tetrachloroethane	18.33	1.0	20	0	91.6	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.44	1.0	20	0	97.2	70 - 136				
1,1,2-Trichloroethane	19.74	1.0	20	0	98.7	80 - 119				
1,1-Dichloroethane	17.4	1.0	20	0	87.0	77 - 125				
1,1-Dichloroethene	18.24	1.0	20	0	91.2	71 - 131				
1,1-Dichloropropene	19.56	1.0	20	0	97.8	78 - 125				
1,2,3-Trichlorobenzene	15.11	1.0	20	0	75.6	69 - 129				
1,2,3-Trichloropropane	19.01	1.0	20	0	95.1	73 - 122				
1,2,4-Trichlorobenzene	16.3	1.0	20	0	81.5	69 - 130				
1,2,4-Trimethylbenzene	20.98	1.0	20	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	17.69	1.0	20	0	88.4	62 - 128				
1,2-Dibromoethane	20.57	1.0	20	0	103	77 - 121				
1,2-Dichlorobenzene	19.34	1.0	20	0	96.7	80 - 119				
1,2-Dichloroethane	19.72	1.0	20	0	98.6	73 - 128				
1,2-Dichloropropane	18.3	1.0	20	0	91.5	78 - 122				
1,3,5-Trimethylbenzene	21.49	1.0	20	0	107	75 - 124				
1,3-Dichlorobenzene	20.46	1.0	20	0	102	80 - 119				
1,3-Dichloropropane	19.81	1.0	20	0	99.1	80 - 119				
1,4-Dichlorobenzene	19.49	1.0	20	0	97.5	79 - 118				
2,2-Dichloropropane	17.54	1.0	20	0	87.7	60 - 139				
2-Butanone	30.77	2.0	40	0	76.9	56 - 143				
2-Chlorotoluene	19.99	1.0	20	0	100.0	79 - 122				
2-Hexanone	34.17	2.0	40	0	85.4	57 - 139				
4-Chlorotoluene	20.22	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	21.31	1.0	20	0	107	77 - 127				
4-Methyl-2-pentanone	35.48	2.0	40	0	88.7	67 - 130				
Acetone	24.11	2.0	40	0	60.3	39 - 160				
Benzene	19.22	1.0	20	0	96.1	79 - 120				
Bromobenzene	21.24	1.0	20	0	106	80 - 120				
Bromochloromethane	17.39	1.0	20	0	87.0	78 - 123				
Bromodichloromethane	19.27	1.0	20	0	96.4	79 - 125				
Bromoform	19.69	1.0	20	0	98.5	66 - 130				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050292-03MS** Units: **UG/L** Analysis Date: **11-May-2020 23:12**
Client ID: **35BWW17-200507** Run ID: **VOA6_361378** SeqNo: **5580779** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	18.39	1.0	20	0	91.9	53 - 141				
Carbon disulfide	33.75	2.0	40	0	84.4	64 - 133				
Carbon tetrachloride	20.08	1.0	20	0	100	72 - 136				
Chlorobenzene	20.87	1.0	20	0	104	82 - 118				
Chloroethane	16.9	1.0	20	0	84.5	60 - 138				
Chloroform	18.91	1.0	20	0	94.5	79 - 124				
Chloromethane	13.92	1.0	20	0	69.6	50 - 139				
cis-1,2-Dichloroethene	19.13	1.0	20	0	95.7	78 - 123				
cis-1,3-Dichloropropene	18.71	1.0	20	0	93.5	75 - 124				
Dibromochloromethane	20.05	1.0	20	0	100	74 - 126				
Dibromomethane	19.14	1.0	20	0	95.7	79 - 123				
Dichlorodifluoromethane	12.62	1.0	20	0	63.1	32 - 152				
Ethylbenzene	21.12	1.0	20	0	106	79 - 121				
Hexachlorobutadiene	19.18	1.0	20	0	95.9	66 - 134				
Isopropylbenzene	21.05	1.0	20	0	105	72 - 131				
m,p-Xylene	41.15	2.0	40	0	103	80 - 121				
Methylene chloride	17.6	2.0	20	0	88.0	74 - 124				
Naphthalene	14.16	1.0	20	0	70.8	61 - 128				
n-Butylbenzene	20.87	1.0	20	0	104	75 - 128				
n-Propylbenzene	20.92	1.0	20	0	105	76 - 126				
o-Xylene	20.37	1.0	20	0	102	78 - 122				
sec-Butylbenzene	21.16	1.0	20	0	106	77 - 126				
Styrene	20.3	1.0	20	0	101	78 - 123				
tert-Butylbenzene	21.91	1.0	20	0	110	78 - 124				
Tetrachloroethene	21.27	1.0	20	0	106	74 - 129				
Toluene	20.75	1.0	20	0	104	80 - 121				
trans-1,2-Dichloroethene	19.06	1.0	20	0	95.3	75 - 124				
trans-1,3-Dichloropropene	18.81	1.0	20	0	94.0	73 - 127				
Trichloroethene	19.99	1.0	20	0	100.0	79 - 123				
Trichlorofluoromethane	18.93	1.0	20	0	94.7	65 - 141				
Vinyl chloride	15.25	1.0	20	0	76.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.51*	*1.0*	*50*	*0*	*89.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.54*	*1.0*	*50*	*0*	*99.1*	*85 - 114*				
Surr: Dibromofluoromethane	*45.89*	*1.0*	*50*	*0*	*91.8*	*80 - 119*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050292-03MS** Units: **UG/L** Analysis Date: **11-May-2020 23:12**
Client ID: **35BWW17-200507** Run ID: **VOA6_361378** SeqNo: **5580779** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.64*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050292-03MSD** Units: **UG/L** Analysis Date: **11-May-2020 23:36**
Client ID: **35BWW17-200507** Run ID: **VOA6_361378** SeqNo: **5580780** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.89	1.0	20	0	99.5	78 - 124	20.97	5.28	20	
1,1,1-Trichloroethane	18.46	1.0	20	0	92.3	74 - 131	19.03	3.05	20	
1,1,2,2-Tetrachloroethane	18.72	1.0	20	0	93.6	71 - 121	18.33	2.13	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	18.8	1.0	20	0	94.0	70 - 136	19.44	3.36	20	
1,1,2-Trichloroethane	19.17	1.0	20	0	95.9	80 - 119	19.74	2.91	20	
1,1-Dichloroethane	16.71	1.0	20	0	83.6	77 - 125	17.4	4.01	20	
1,1-Dichloroethene	17.1	1.0	20	0	85.5	71 - 131	18.24	6.47	20	
1,1-Dichloropropene	18.04	1.0	20	0	90.2	78 - 125	19.56	8.11	20	
1,2,3-Trichlorobenzene	15.46	1.0	20	0	77.3	69 - 129	15.11	2.28	20	
1,2,3-Trichloropropane	19.02	1.0	20	0	95.1	73 - 122	19.01	0.0253	20	
1,2,4-Trichlorobenzene	16.92	1.0	20	0	84.6	69 - 130	16.3	3.74	20	
1,2,4-Trimethylbenzene	21.2	1.0	20	0	106	76 - 124	20.98	1.02	20	
1,2-Dibromo-3-chloropropane	18.43	1.0	20	0	92.1	62 - 128	17.69	4.11	20	
1,2-Dibromoethane	20.18	1.0	20	0	101	77 - 121	20.57	1.91	20	
1,2-Dichlorobenzene	19.64	1.0	20	0	98.2	80 - 119	19.34	1.56	20	
1,2-Dichloroethane	19.41	1.0	20	0	97.1	73 - 128	19.72	1.57	20	
1,2-Dichloropropane	18.24	1.0	20	0	91.2	78 - 122	18.3	0.314	20	
1,3,5-Trimethylbenzene	21.11	1.0	20	0	106	75 - 124	21.49	1.79	20	
1,3-Dichlorobenzene	20.03	1.0	20	0	100	80 - 119	20.46	2.12	20	
1,3-Dichloropropane	18.97	1.0	20	0	94.9	80 - 119	19.81	4.33	20	
1,4-Dichlorobenzene	19.78	1.0	20	0	98.9	79 - 118	19.49	1.46	20	
2,2-Dichloropropane	16.51	1.0	20	0	82.5	60 - 139	17.54	6.05	20	
2-Butanone	31.54	2.0	40	0	78.8	56 - 143	30.77	2.45	20	
2-Chlorotoluene	20.03	1.0	20	0	100	79 - 122	19.99	0.179	20	
2-Hexanone	33.71	2.0	40	0	84.3	57 - 139	34.17	1.35	20	
4-Chlorotoluene	20.02	1.0	20	0	100	78 - 122	20.22	1.02	20	
4-Isopropyltoluene	21.35	1.0	20	0	107	77 - 127	21.31	0.216	20	
4-Methyl-2-pentanone	34.73	2.0	40	0	86.8	67 - 130	35.48	2.12	20	
Acetone	24.8	2.0	40	0	62.0	39 - 160	24.11	2.82	20	
Benzene	18.4	1.0	20	0	92.0	79 - 120	19.22	4.33	20	
Bromobenzene	20.75	1.0	20	0	104	80 - 120	21.24	2.35	20	
Bromochloromethane	17.82	1.0	20	0	89.1	78 - 123	17.39	2.46	20	
Bromodichloromethane	18.98	1.0	20	0	94.9	79 - 125	19.27	1.53	20	
Bromoform	18.95	1.0	20	0	94.8	66 - 130	19.69	3.82	20	

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050292-03MSD** Units: **UG/L** Analysis Date: **11-May-2020 23:36**
Client ID: **35BWW17-200507** Run ID: **VOA6_361378** SeqNo: **5580780** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	16.94	1.0	20	0	84.7	53 - 141	18.39	8.2	20	
Carbon disulfide	31.81	2.0	40	0	79.5	64 - 133	33.75	5.9	20	
Carbon tetrachloride	19.53	1.0	20	0	97.6	72 - 136	20.08	2.8	20	
Chlorobenzene	19.58	1.0	20	0	97.9	82 - 118	20.87	6.4	20	
Chloroethane	15.57	1.0	20	0	77.8	60 - 138	16.9	8.23	20	
Chloroform	18.08	1.0	20	0	90.4	79 - 124	18.91	4.5	20	
Chloromethane	13.39	1.0	20	0	66.9	50 - 139	13.92	3.85	20	
cis-1,2-Dichloroethene	17.77	1.0	20	0	88.8	78 - 123	19.13	7.38	20	
cis-1,3-Dichloropropene	18.27	1.0	20	0	91.3	75 - 124	18.71	2.37	20	
Dibromochloromethane	20.15	1.0	20	0	101	74 - 126	20.05	0.514	20	
Dibromomethane	18.62	1.0	20	0	93.1	79 - 123	19.14	2.75	20	
Dichlorodifluoromethane	11.81	1.0	20	0	59.0	32 - 152	12.62	6.61	20	
Ethylbenzene	20.42	1.0	20	0	102	79 - 121	21.12	3.41	20	
Hexachlorobutadiene	18.5	1.0	20	0	92.5	66 - 134	19.18	3.6	20	
Isopropylbenzene	20.48	1.0	20	0	102	72 - 131	21.05	2.75	20	
m,p-Xylene	39.64	2.0	40	0	99.1	80 - 121	41.15	3.73	20	
Methylene chloride	16.52	2.0	20	0	82.6	74 - 124	17.6	6.33	20	
Naphthalene	15.5	1.0	20	0	77.5	61 - 128	14.16	9.04	20	
n-Butylbenzene	20.6	1.0	20	0	103	75 - 128	20.87	1.31	20	
n-Propylbenzene	20.36	1.0	20	0	102	76 - 126	20.92	2.7	20	
o-Xylene	19.9	1.0	20	0	99.5	78 - 122	20.37	2.37	20	
sec-Butylbenzene	20.67	1.0	20	0	103	77 - 126	21.16	2.34	20	
Styrene	19.15	1.0	20	0	95.7	78 - 123	20.3	5.84	20	
tert-Butylbenzene	21.4	1.0	20	0	107	78 - 124	21.91	2.36	20	
Tetrachloroethene	19.84	1.0	20	0	99.2	74 - 129	21.27	6.98	20	
Toluene	19.57	1.0	20	0	97.8	80 - 121	20.75	5.85	20	
trans-1,2-Dichloroethene	17.46	1.0	20	0	87.3	75 - 124	19.06	8.77	20	
trans-1,3-Dichloropropene	18.52	1.0	20	0	92.6	73 - 127	18.81	1.54	20	
Trichloroethene	19.21	1.0	20	0	96.0	79 - 123	19.99	4.01	20	
Trichlorofluoromethane	17.51	1.0	20	0	87.6	65 - 141	18.93	7.79	20	
Vinyl chloride	14.78	1.0	20	0	73.9	58 - 137	15.25	3.1	20	
Surr: 1,2-Dichloroethane-d4	*43.68*	*1.0*	*50*	*0*	*87.4*	*81 - 118*	*44.51*	*1.9*	*20*	
Surr: 4-Bromofluorobenzene	*49.21*	*1.0*	*50*	*0*	*98.4*	*85 - 114*	*49.54*	*0.676*	*20*	
Surr: Dibromofluoromethane	*46.6*	*1.0*	*50*	*0*	*93.2*	*80 - 119*	*45.89*	*1.55*	*20*	

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050292-03MSD** Units: **UG/L** Analysis Date: **11-May-2020 23:36**
Client ID: **35BWW17-200507** Run ID: **VOA6_361378** SeqNo: **5580780** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.65*	*1.0*	*50*	*0*	*107*	*89 - 112*	*53.64*	*0.00585*	*20*	

The following samples were analyzed in this batch: HS20050292-01 HS20050292-02 HS20050292-03

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200512** Units: **UG/L** Analysis Date: **12-May-2020 12:25**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582521** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	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	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200512** Units: **UG/L** Analysis Date: **12-May-2020 12:25**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582521** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	1.0	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	*44.7*	*1.0*	*50*	*0*	*89.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.57*	*1.0*	*50*	*0*	*99.1*	*85 - 114*				
Surr: Dibromofluoromethane	*46.11*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200512** Units: **UG/L** Analysis Date: **12-May-2020 12:25**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582521** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*54.07*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200512** Units: **UG/L** Analysis Date: **12-May-2020 11:37**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582520** 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	19.61	1.0	20	0	98.1	78 - 124				
1,1,1-Trichloroethane	19.19	1.0	20	0	96.0	74 - 131				
1,1,2,2-Tetrachloroethane	18.01	1.0	20	0	90.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.88	1.0	20	0	94.4	70 - 136				
1,1,2-Trichloroethane	18.89	1.0	20	0	94.4	80 - 119				
1,1-Dichloroethane	17.97	1.0	20	0	89.8	77 - 125				
1,1-Dichloroethene	17.66	1.0	20	0	88.3	71 - 131				
1,1-Dichloropropene	18.43	1.0	20	0	92.2	78 - 125				
1,2,3-Trichlorobenzene	22.76	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	18.46	1.0	20	0	92.3	73 - 122				
1,2,4-Trichlorobenzene	20.84	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	19.25	1.0	20	0	96.3	76 - 124				
1,2-Dibromo-3-chloropropane	20.07	1.0	20	0	100	62 - 128				
1,2-Dibromoethane	19.75	1.0	20	0	98.7	77 - 121				
1,2-Dichlorobenzene	18.46	1.0	20	0	92.3	80 - 119				
1,2-Dichloroethane	19.71	1.0	20	0	98.6	73 - 128				
1,2-Dichloropropane	18.42	1.0	20	0	92.1	78 - 122				
1,3,5-Trimethylbenzene	19.22	1.0	20	0	96.1	75 - 124				
1,3-Dichlorobenzene	18.9	1.0	20	0	94.5	80 - 119				
1,3-Dichloropropane	18.95	1.0	20	0	94.7	80 - 119				
1,4-Dichlorobenzene	18.38	1.0	20	0	91.9	79 - 118				
2,2-Dichloropropane	19.49	1.0	20	0	97.4	60 - 139				
2-Butanone	37.8	2.0	40	0	94.5	56 - 143				
2-Chlorotoluene	18.22	1.0	20	0	91.1	79 - 122				
2-Hexanone	34.79	2.0	40	0	87.0	57 - 139				
4-Chlorotoluene	18.31	1.0	20	0	91.5	78 - 122				
4-Isopropyltoluene	19.46	1.0	20	0	97.3	77 - 127				
4-Methyl-2-pentanone	35.31	2.0	40	0	88.3	67 - 130				
Acetone	34.55	2.0	40	0	86.4	39 - 160				
Benzene	18.44	1.0	20	0	92.2	79 - 120				
Bromobenzene	18.93	1.0	20	0	94.6	80 - 120				
Bromochloromethane	19.61	1.0	20	0	98.0	78 - 123				
Bromodichloromethane	19.55	1.0	20	0	97.7	79 - 125				
Bromoform	19.43	1.0	20	0	97.2	66 - 130				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200512** Units: **UG/L** Analysis Date: **12-May-2020 11:37**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582520** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	20.86	1.0	20	0	104	53 - 141				
Carbon disulfide	36.31	2.0	40	0	90.8	64 - 133				
Carbon tetrachloride	18.79	1.0	20	0	93.9	72 - 136				
Chlorobenzene	19.02	1.0	20	0	95.1	82 - 118				
Chloroethane	17.79	1.0	20	0	89.0	60 - 138				
Chloroform	19.41	1.0	20	0	97.0	79 - 124				
Chloromethane	16.8	1.0	20	0	84.0	50 - 139				
cis-1,2-Dichloroethene	19.12	1.0	20	0	95.6	78 - 123				
cis-1,3-Dichloropropene	19.06	1.0	20	0	95.3	75 - 124				
Dibromochloromethane	19.81	1.0	20	0	99.0	74 - 126				
Dibromomethane	19.61	1.0	20	0	98.1	79 - 123				
Dichlorodifluoromethane	18.52	1.0	20	0	92.6	32 - 152				
Ethylbenzene	19.18	1.0	20	0	95.9	79 - 121				
Hexachlorobutadiene	23.77	1.0	20	0	119	66 - 134				
Isopropylbenzene	19	1.0	20	0	95.0	72 - 131				
m,p-Xylene	38.39	2.0	40	0	96.0	80 - 121				
Methylene chloride	19.05	2.0	20	0	95.3	74 - 124				
Naphthalene	19.06	1.0	20	0	95.3	61 - 128				
n-Butylbenzene	19.91	1.0	20	0	99.5	75 - 128				
n-Propylbenzene	18.17	1.0	20	0	90.8	76 - 126				
o-Xylene	19.41	1.0	20	0	97.0	78 - 122				
sec-Butylbenzene	18.64	1.0	20	0	93.2	77 - 126				
Styrene	19.33	1.0	20	0	96.7	78 - 123				
tert-Butylbenzene	19.14	1.0	20	0	95.7	78 - 124				
Tetrachloroethene	19.03	1.0	20	0	95.2	74 - 129				
Toluene	19.1	1.0	20	0	95.5	80 - 121				
trans-1,2-Dichloroethene	19.3	1.0	20	0	96.5	75 - 124				
trans-1,3-Dichloropropene	19.62	1.0	20	0	98.1	73 - 127				
Trichloroethene	19.67	1.0	20	0	98.4	79 - 123				
Trichlorofluoromethane	18.51	1.0	20	0	92.5	65 - 141				
Vinyl chloride	16.9	1.0	20	0	84.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.11*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.36*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*49.47*	*1.0*	*50*	*0*	*98.9*	*80 - 119*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200512** Units: **UG/L** Analysis Date: **12-May-2020 11:37**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582520** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.79*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050234-01MS** Units: **UG/L** Analysis Date: **12-May-2020 19:38**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582539** 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	20.75	1.0	20	0	104	78 - 124				
1,1,1-Trichloroethane	19.25	1.0	20	0	96.2	74 - 131				
1,1,2,2-Tetrachloroethane	19.41	1.0	20	0	97.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.36	1.0	20	0	102	70 - 136				
1,1,2-Trichloroethane	20.08	1.0	20	0	100	80 - 119				
1,1-Dichloroethane	17.62	1.0	20	0	88.1	77 - 125				
1,1-Dichloroethene	17.98	1.0	20	0	89.9	71 - 131				
1,1-Dichloropropene	19.69	1.0	20	0	98.5	78 - 125				
1,2,3-Trichlorobenzene	15.14	1.0	20	0	75.7	69 - 129				
1,2,3-Trichloropropane	19.47	1.0	20	0	97.3	73 - 122				
1,2,4-Trichlorobenzene	15.61	1.0	20	0	78.1	69 - 130				
1,2,4-Trimethylbenzene	21.76	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	19.29	1.0	20	0	96.5	62 - 128				
1,2-Dibromoethane	20.53	1.0	20	0	103	77 - 121				
1,2-Dichlorobenzene	20.23	1.0	20	0	101	80 - 119				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	18.83	1.0	20	0	94.2	78 - 122				
1,3,5-Trimethylbenzene	21.71	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	21.2	1.0	20	0	106	80 - 119				
1,3-Dichloropropane	20.25	1.0	20	0	101	80 - 119				
1,4-Dichlorobenzene	20.3	1.0	20	0	102	79 - 118				
2,2-Dichloropropane	18.05	1.0	20	0	90.2	60 - 139				
2-Butanone	33.59	2.0	40	0	84.0	56 - 143				
2-Chlorotoluene	20.74	1.0	20	0	104	79 - 122				
2-Hexanone	35.9	2.0	40	0	89.7	57 - 139				
4-Chlorotoluene	20.73	1.0	20	0	104	78 - 122				
4-Isopropyltoluene	21.92	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	36.78	2.0	40	0	91.9	67 - 130				
Acetone	25.1	2.0	40	0	62.8	39 - 160				
Benzene	19.33	1.0	20	0	96.7	79 - 120				
Bromobenzene	20.87	1.0	20	0	104	80 - 120				
Bromochloromethane	18.36	1.0	20	0	91.8	78 - 123				
Bromodichloromethane	19.5	1.0	20	0	97.5	79 - 125				
Bromoform	20.74	1.0	20	0	104	66 - 130				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050234-01MS** Units: **UG/L** Analysis Date: **12-May-2020 19:38**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582539** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	16.87	1.0	20	0	84.3	53 - 141				
Carbon disulfide	33.4	2.0	40	0	83.5	64 - 133				
Carbon tetrachloride	20.6	1.0	20	0	103	72 - 136				
Chlorobenzene	20.72	1.0	20	0	104	82 - 118				
Chloroethane	16.86	1.0	20	0	84.3	60 - 138				
Chloroform	18.61	1.0	20	0	93.1	79 - 124				
Chloromethane	13.71	1.0	20	0	68.6	50 - 139				
cis-1,2-Dichloroethene	18.56	1.0	20	0	92.8	78 - 123				
cis-1,3-Dichloropropene	19.01	1.0	20	0	95.1	75 - 124				
Dibromochloromethane	20.82	1.0	20	0	104	74 - 126				
Dibromomethane	19.08	1.0	20	0	95.4	79 - 123				
Dichlorodifluoromethane	11.71	1.0	20	0	58.5	32 - 152				
Ethylbenzene	21.47	1.0	20	0	107	79 - 121				
Hexachlorobutadiene	16.66	1.0	20	0	83.3	66 - 134				
Isopropylbenzene	21.89	1.0	20	0	109	72 - 131				
m,p-Xylene	41.88	2.0	40	0	105	80 - 121				
Methylene chloride	16.89	2.0	20	0	84.4	74 - 124				
Naphthalene	14.22	1.0	20	0	71.1	61 - 128				
n-Butylbenzene	21.73	1.0	20	0	109	75 - 128				
n-Propylbenzene	21.37	1.0	20	0	107	76 - 126				
o-Xylene	20.78	1.0	20	0	104	78 - 122				
sec-Butylbenzene	21.6	1.0	20	0	108	77 - 126				
Styrene	20.86	1.0	20	0	104	78 - 123				
tert-Butylbenzene	22.27	1.0	20	0	111	78 - 124				
Tetrachloroethene	22.57	1.0	20	0	113	74 - 129				
Toluene	20.94	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	19.22	1.0	20	0	96.1	75 - 124				
trans-1,3-Dichloropropene	19.56	1.0	20	0	97.8	73 - 127				
Trichloroethene	20.54	1.0	20	0.6405	99.5	79 - 123				
Trichlorofluoromethane	18.99	1.0	20	0	94.9	65 - 141				
Vinyl chloride	15	1.0	20	0	75.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.98*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.6*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*45.64*	*1.0*	*50*	*0*	*91.3*	*80 - 119*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050234-01MS** Units: **UG/L** Analysis Date: **12-May-2020 19:38**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582539** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050234-01MSD** Units: **UG/L** Analysis Date: **12-May-2020 20:02**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582540** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.21	1.0	20	0	106	78 - 124	20.75	2.18	20	
1,1,1-Trichloroethane	18.87	1.0	20	0	94.4	74 - 131	19.25	1.97	20	
1,1,2,2-Tetrachloroethane	19.61	1.0	20	0	98.1	71 - 121	19.41	1.05	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	19.03	1.0	20	0	95.2	70 - 136	20.36	6.75	20	
1,1,2-Trichloroethane	20.62	1.0	20	0	103	80 - 119	20.08	2.64	20	
1,1-Dichloroethane	16.79	1.0	20	0	84.0	77 - 125	17.62	4.79	20	
1,1-Dichloroethene	17.66	1.0	20	0	88.3	71 - 131	17.98	1.75	20	
1,1-Dichloropropene	19.14	1.0	20	0	95.7	78 - 125	19.69	2.82	20	
1,2,3-Trichlorobenzene	18.48	1.0	20	0	92.4	69 - 129	15.14	19.9	20	
1,2,3-Trichloropropane	20.35	1.0	20	0	102	73 - 122	19.47	4.42	20	
1,2,4-Trichlorobenzene	17.87	1.0	20	0	89.3	69 - 130	15.61	13.5	20	
1,2,4-Trimethylbenzene	21.4	1.0	20	0	107	76 - 124	21.76	1.65	20	
1,2-Dibromo-3-chloropropane	19.54	1.0	20	0	97.7	62 - 128	19.29	1.28	20	
1,2-Dibromoethane	21.17	1.0	20	0	106	77 - 121	20.53	3.06	20	
1,2-Dichlorobenzene	20.86	1.0	20	0	104	80 - 119	20.23	3.1	20	
1,2-Dichloroethane	20.25	1.0	20	0	101	73 - 128	20.36	0.556	20	
1,2-Dichloropropane	18.51	1.0	20	0	92.5	78 - 122	18.83	1.76	20	
1,3,5-Trimethylbenzene	21.76	1.0	20	0	109	75 - 124	21.71	0.191	20	
1,3-Dichlorobenzene	21.12	1.0	20	0	106	80 - 119	21.2	0.342	20	
1,3-Dichloropropane	20.37	1.0	20	0	102	80 - 119	20.25	0.583	20	
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118	20.3	0.0672	20	
2,2-Dichloropropane	17.4	1.0	20	0	87.0	60 - 139	18.05	3.62	20	
2-Butanone	36.93	2.0	40	0	92.3	56 - 143	33.59	9.47	20	
2-Chlorotoluene	20.42	1.0	20	0	102	79 - 122	20.74	1.56	20	
2-Hexanone	35.98	2.0	40	0	89.9	57 - 139	35.9	0.21	20	
4-Chlorotoluene	20.5	1.0	20	0	102	78 - 122	20.73	1.12	20	
4-Isopropyltoluene	22.16	1.0	20	0	111	77 - 127	21.92	1.09	20	
4-Methyl-2-pentanone	37.73	2.0	40	0	94.3	67 - 130	36.78	2.56	20	
Acetone	26.47	2.0	40	0	66.2	39 - 160	25.1	5.29	20	
Benzene	18.72	1.0	20	0	93.6	79 - 120	19.33	3.25	20	
Bromobenzene	20.86	1.0	20	0	104	80 - 120	20.87	0.0491	20	
Bromochloromethane	18.29	1.0	20	0	91.5	78 - 123	18.36	0.376	20	
Bromodichloromethane	19.37	1.0	20	0	96.8	79 - 125	19.5	0.682	20	
Bromoform	20.45	1.0	20	0	102	66 - 130	20.74	1.41	20	

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050234-01MSD** Units: **UG/L** Analysis Date: **12-May-2020 20:02**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582540** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	16.43	1.0	20	0	82.2	53 - 141	16.87	2.6	20	
Carbon disulfide	32.26	2.0	40	0	80.6	64 - 133	33.4	3.46	20	
Carbon tetrachloride	19.78	1.0	20	0	98.9	72 - 136	20.6	4.07	20	
Chlorobenzene	20.5	1.0	20	0	102	82 - 118	20.72	1.06	20	
Chloroethane	15.62	1.0	20	0	78.1	60 - 138	16.86	7.59	20	
Chloroform	18.13	1.0	20	0	90.6	79 - 124	18.61	2.63	20	
Chloromethane	13.23	1.0	20	0	66.2	50 - 139	13.71	3.56	20	
cis-1,2-Dichloroethene	18.23	1.0	20	0	91.2	78 - 123	18.56	1.76	20	
cis-1,3-Dichloropropene	19.07	1.0	20	0	95.3	75 - 124	19.01	0.27	20	
Dibromochloromethane	20.58	1.0	20	0	103	74 - 126	20.82	1.13	20	
Dibromomethane	19.14	1.0	20	0	95.7	79 - 123	19.08	0.299	20	
Dichlorodifluoromethane	11.37	1.0	20	0	56.9	32 - 152	11.71	2.89	20	
Ethylbenzene	21.13	1.0	20	0	106	79 - 121	21.47	1.62	20	
Hexachlorobutadiene	20.13	1.0	20	0	101	66 - 134	16.66	18.8	20	
Isopropylbenzene	21.2	1.0	20	0	106	72 - 131	21.89	3.18	20	
m,p-Xylene	41.44	2.0	40	0	104	80 - 121	41.88	1.07	20	
Methylene chloride	16.79	2.0	20	0	83.9	74 - 124	16.89	0.578	20	
Naphthalene	17.68	1.0	20	0	88.4	61 - 128	14.22	21.7	20	R
n-Butylbenzene	21.86	1.0	20	0	109	75 - 128	21.73	0.602	20	
n-Propylbenzene	21.02	1.0	20	0	105	76 - 126	21.37	1.64	20	
o-Xylene	20.78	1.0	20	0	104	78 - 122	20.78	0.0284	20	
sec-Butylbenzene	21.63	1.0	20	0	108	77 - 126	21.6	0.146	20	
Styrene	20.76	1.0	20	0	104	78 - 123	20.86	0.473	20	
tert-Butylbenzene	21.88	1.0	20	0	109	78 - 124	22.27	1.75	20	
Tetrachloroethene	21.78	1.0	20	0	109	74 - 129	22.57	3.58	20	
Toluene	20.64	1.0	20	0	103	80 - 121	20.94	1.45	20	
trans-1,2-Dichloroethene	18.44	1.0	20	0	92.2	75 - 124	19.22	4.15	20	
trans-1,3-Dichloropropene	19.18	1.0	20	0	95.9	73 - 127	19.56	1.96	20	
Trichloroethene	20.13	1.0	20	0.6405	97.4	79 - 123	20.54	2.04	20	
Trichlorofluoromethane	18.14	1.0	20	0	90.7	65 - 141	18.99	4.57	20	
Vinyl chloride	14.43	1.0	20	0	72.1	58 - 137	15	3.91	20	
Surr: 1,2-Dichloroethane-d4	*45.01*	*1.0*	*50*	*0*	*90.0*	*81 - 118*	*43.98*	*2.31*	*20*	
Surr: 4-Bromofluorobenzene	*50.18*	*1.0*	*50*	*0*	*100*	*85 - 114*	*49.6*	*1.16*	*20*	
Surr: Dibromofluoromethane	*46.04*	*1.0*	*50*	*0*	*92.1*	*80 - 119*	*45.64*	*0.86*	*20*	

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050234-01MSD** Units: **UG/L** Analysis Date: **12-May-2020 20:02**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582540** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.86*	*1.0*	*50*	*0*	*108*	*89 - 112*	*53.19*	*1.24*	*20*	

The following samples were analyzed in this batch: HS20050292-04 HS20050292-05 HS20050292-06 HS20050292-07 HS20050292-08 HS20050292-09

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361551 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-050820** Units: **mg/L** Analysis Date: **08-May-2020 13:46**
Client ID: Run ID: **ICS-Integrion_361551** SeqNo: **5584522** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-05020** Units: **mg/L** Analysis Date: **08-May-2020 14:04**
Client ID: Run ID: **ICS-Integrion_361551** SeqNo: **5584523** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.83	0.500	20	0	99.2	80 - 120				
Nitrogen, Nitrate (As N)	4.105	0.100	4	0	103	80 - 120				
Sulfate	19.62	0.500	20	0	98.1	80 - 120				

LCSD Sample ID: **WLCSDW1-050820** Units: **mg/L** Analysis Date: **08-May-2020 14:23**
Client ID: Run ID: **ICS-Integrion_361551** SeqNo: **5584524** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.8	0.500	20	0	99.0	80 - 120	19.83	0.161	20	
Nitrogen, Nitrate (As N)	4.083	0.100	4	0	102	80 - 120	4.105	0.533	20	
Sulfate	19.58	0.500	20	0	97.9	80 - 120	19.62	0.223	20	

MS Sample ID: **HS20050292-06MS** Units: **mg/L** Analysis Date: **08-May-2020 15:53**
Client ID: **35BWW23-200507** Run ID: **ICS-Integrion_361551** SeqNo: **5584529** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	72.56	2.50	50	21.16	103	80 - 120				
Nitrogen, Nitrate (As N)	10.99	0.500	10	0	110	80 - 120				
Sulfate	132.8	2.50	50	83.57	98.5	80 - 120				

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050292

QC BATCH REPORT

Batch ID: R361551 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS20050292-06MSD** Units: **mg/L** Analysis Date: **08-May-2020 16:11**
Client ID: **35BWW23-200507** Run ID: **ICS-Integrion_361551** SeqNo: **5584530** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	72.72	2.50	50	21.16	103	80 - 120	72.56	0.206	20	
Nitrogen, Nitrate (As N)	11.02	0.500	10	0	110	80 - 120	10.99	0.314	20	
Sulfate	133.1	2.50	50	83.57	99.1	80 - 120	132.8	0.218	20	

The following samples were analyzed in this batch: HS20050292-01 HS20050292-06

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20050292**

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	20-030-0	26-Mar-2021
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 27-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050292

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20050292-01	35BWW14-200507	Login	5/8/2020 11:09:16 AM	PMG	WET389
HS20050292-01	35BWW14-200507	Login	5/8/2020 11:09:16 AM	PMG	VOA090
HS20050292-01	35BWW14-200507	Login	5/8/2020 11:09:16 AM	PMG	Sub
HS20050292-01	35BWW14-200507	Login	5/8/2020 11:09:16 AM	PMG	Sub
HS20050292-02	35BWW15-200507	Login	5/8/2020 11:09:16 AM	PMG	VOA090

ALS Houston, US Date: 27-May-20

Sample Receipt Checklist

Work Order ID: HS20050292 **Date/Time Received:** 08-May-2020 09:45

Client Name: CBI-Houston **Received by:** Asad Chaudhry

Completed By: /S/ Paresh M. Giga (eSignature) 08-May-2020 11:14 (Date/Time) **Reviewed by:** /S/ Andy C. Neir (eSignature) 08-May-2020 15:04 (Date/Time)

Matrices: GW Carrier name: FedEx

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	IR25
Cooler(s)/Kit(s):	42890	
Date/Time sample(s) sent to storage:	5/8/2020 11:30	

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: Sample 35BWW15-200507
checked off for all analysis.
Received 3 vials only per chain.
Logged for VOC only

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

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

Project No. 501032

Job: **37MAY 2020_ALS**

Prepared By: Scott Beesinger

P.O. Number

HS20050292

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Remarks (Preservatives, etc.)	Lab I.D.#
35BWW14-200507	WG	5/7/20/0745		12	X	X	X	X	X		
35BWW15-200507	WG	5/7/20/0835		3	X	X	X	X	X		
35BWW17-200507	WG	5/7/20/0920		3	X						
35BWW17-200507-MS	WG	5/7/20/0920		3	X						
35BWW17-200507-MSD	WG	5/7/20/0920		3	X						
35BWW16-200507	WG	5/7/20/1005		3	X						
35BWW13-200507	WG	5/7/20/1050		3	X						
35BWW23-200507	WG	5/7/20/1140		12	X	X	X	X	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	5/7/20	1430							AC	5/8/20	09:45

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

o/c 1.2 IR#25 cf# 42590

CHAIN OF CUSTODY

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

HS20050292

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

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

Project No.: 501032

Job: **37MAY 2020_ALS**

Prepared By: Scott Beesinger

P.O. Number:

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175					Remarks (Preservatives, etc.)	Lab I.D.#
35BWW24-200507	WG	5/7/20/1230		3	X										
35BWW25-200507	WG	5/7/20/1315		3	X										
TRIP BLANK	W	5/7/20		2	X										

Additional Remarks: **Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com**

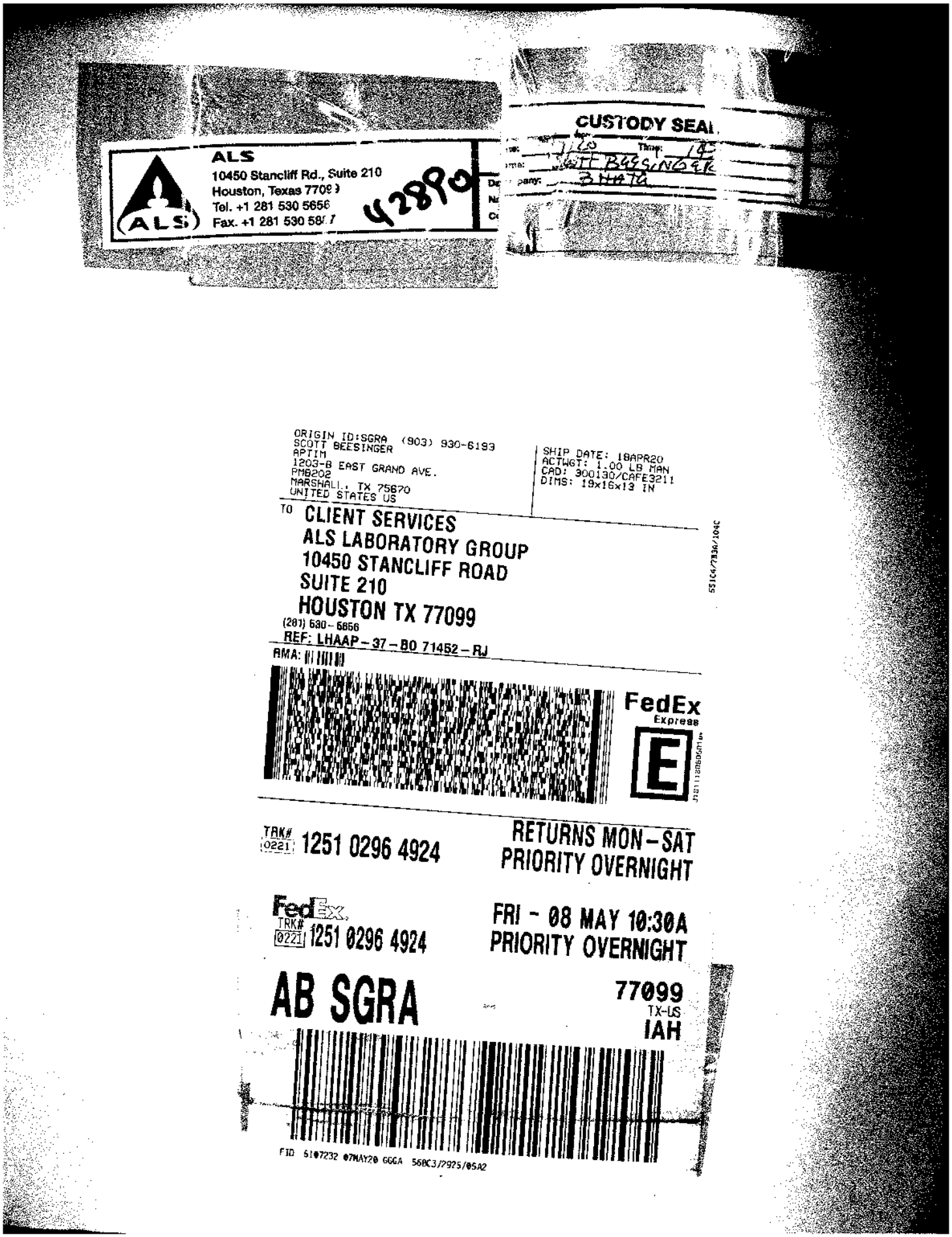
Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	5/7/20	1430							AC	5/8/2020	09:45

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

o/c 1.2 18025 cfo.c 42890



ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 7709
Tel. +1 281 530 5656
Fax. +1 281 530 58

CUSTODY SEAL

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

SHIP DATE: 18APR20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-37-B0 71452-RJ
RMA:

FedEx Express

TRK# 0221 1251 0296 4924

RETURNS MON-SAT
PRIORITY OVERNIGHT

FedEx
TRK# 0221 1251 0296 4924

FRI - 08 MAY 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 5107232 07MAY20 GGGA 56BC3/7925/05A2

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May 26, 2020

Analytical Report for Service Request No: K2003887

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

RE: HS20050292

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 13, 2020
For your reference, these analyses have been assigned our service request number **K2003887.**

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

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
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www.alsglobal.com

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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: HS20050292
Sample Matrix: Ground Water

Service Request: K2003887
Date Received: 05/13/2020

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 05/13/2020. 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:

Method SM 5310 C, 05/21/2020: The matrix spike recovery of Total Organic Carbon for sample 35BWW14-200507 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 05/26/2020

Chain of Custody

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F: +1 281 530 5887
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K 2003887

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13875**

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:	HS20050292
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050292-01**	**35BWW14-200507**	**Groundwater**	**07 May 2020 07:45**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			22 May 2020
2.	**HS20050292-06**	**35BWW23-200507**	**Groundwater**	**07 May 2020 11:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			22 May 2020

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: 5/11/2020 1800

Received By: _____ Date/Time: 5/13/2020 1000

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

PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request K20 03887

Received: 5/13/2020 Opened: 5/13/2020 By: CG Unloaded: 5/13/2020 By: CG

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

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID NA	Tracking Number NA	Filed
2.4	—	—	—	—	48900483	13875	1251 0297 0426	

4. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2003887
Project:	HS20050292	**Date Collected:**	05/7/20
Sample Matrix:	Ground Water	**Date Received:**	05/13/20
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
35BWW14-200507	K2003887-001	**0.83**	0.50	0.20	0.07	1	05/21/20 22:28	
35BWW23-200507	K2003887-002	**0.52**	0.50	0.20	0.07	1	05/21/20 23:25	
Method Blank	K2003887-MB	ND U	0.50	0.20	0.07	1	05/21/20 21:43	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2003887
Project	HS20050292	**Date Collected:**	05/07/20
Sample Matrix:	Ground Water	**Date Received:**	05/13/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
35BWW14-200507	K2003887-001DUP	0.50	0.20	0.07	0.83	0.73	0.778	14 #	10	05/21/20
35BWW23-200507	K2003887-002DUP	0.50	0.20	0.07	0.52	0.48 J	0.498	9	10	05/21/20

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:**	K2003887
Project:	HS20050292	**Date Collected:**	05/07/20
Sample Matrix:	Ground Water	**Date Received:**	05/13/20
		Date Analyzed:	05/21/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35BWW14-200507	**Units:**	mg/L
Lab Code:	K2003887-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2003887-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	0.83	40.2	50.0	79 *	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:**	K2003887
Project:	HS20050292	**Date Analyzed:**	05/21/20
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:	680710

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2003887-LCS	24.2	25.0	97	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2003887
Project: HS20050292

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	680710	KQ2006709-01	05/21/20 21:14	25.0	24.2	97	90-110
CCV2	680710	KQ2006709-02	05/22/20 01:17	25.0	23.0	92	90-110
CCV3	680710	KQ2006709-03	05/22/20 06:27	25.0	22.8	91	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2003887
Project: HS20050292

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	680710	KQ2006709-05	05/21/20 21:43	0.50	0.20	0.07	ND	U
CCB2	680710	KQ2006709-06	05/22/20 01:32	0.50	0.20	0.07	ND	U
CCB3	680710	KQ2006709-07	05/22/20 06:42	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # Original ( ) K2003876, 3887, 4022, 4023

Tier: II IV II II

Date Analyzed: 5/21/20

Analyst: BCP

Run # 680710

Analysis: TOC

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: K2003887-MS reports a low % Rec. due to suspected matrix interference.
K2003887-MD reports a high % RSD. However, these samples are less than 5x the MRL.

Final Approved by: _____ Date: 5/26/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 680710 **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
K2003876-001	Carbon, Total Organic	N/A		Water	3.74 mg/L	10 mL	3.74 mg/L	1	0.07	0.50			5/21/20 23:53:00	N	II
K2003876-003	Carbon, Total Organic	N/A		Water	2.83 mg/L	10 mL	2.83 mg/L	1	0.07	0.50			5/22/20 00:21:00	N	II
K2003887-001	Carbon, Total Organic	N/A		Ground Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50			5/21/20 22:28:00	N	IV
K2003887-002	Carbon, Total Organic	N/A		Ground Water	0.52 mg/L	10 mL	0.52 mg/L	1	0.07	0.50			5/21/20 23:25:00	N	IV
K2004022-001	Carbon, Total Organic	N/A		Water	3.06 mg/L	10 mL	3.06 mg/L	1	0.07	0.50			5/22/20 00:49:00	N	II
K2004022-002	Carbon, Total Organic	N/A		Water	2.09 mg/L	10 mL	2.09 mg/L	1	0.07	0.50			5/22/20 01:46:00	N	II
K2004022-003	Carbon, Total Organic	N/A		Water	3.77 mg/L	10 mL	3.77 mg/L	1	0.07	0.50			5/22/20 02:14:00	N	II
K2004022-004	Carbon, Total Organic	N/A		Water	2.22 mg/L	10 mL	440 mg/L	200	20	100			5/22/20 02:43:00	N	II
K2004022-005	Carbon, Total Organic	N/A		Water	17.59 mg/L	10 mL	70.3 mg/L	4	0.3	2.0			5/22/20 03:11:00	N	II
K2004022-006	Carbon, Total Organic	N/A		Water	32.90 mg/L	10 mL	32.9 mg/L	1	0.07	0.50			5/22/20 03:39:00	N	II
K2004022-007	Carbon, Total Organic	N/A		Water	2.12 mg/L	10 mL	420 mg/L	200	20	100			5/22/20 04:07:00	N	II
K2004022-008	Carbon, Total Organic	N/A		Water	17.07 mg/L	10 mL	17.1 mg/L	1	0.07	0.50			5/22/20 04:35:00	N	II
K2004022-009	Carbon, Total Organic	N/A		Water	1.49 mg/L	10 mL	300 mg/L	200	20	100			5/22/20 05:03:00	N	II
K2004023-001	Carbon, Total Organic	N/A		Water	8.72 mg/L	10 mL	8.72 mg/L	1	0.07	0.50			5/22/20 05:31:00	N	II
K2004023-002	Carbon, Total Organic	N/A		Water	23.46 mg/L	10 mL	23.5 mg/L	1	0.07	0.50			5/22/20 05:59:00	N	II
KQ2006709-01	Carbon, Total Organic	CCV		Ground Water	24.17 mg/L	10 mL	24.2 mg/L	1					5/21/20 21:14:00	N	IV
KQ2006709-02	Carbon, Total Organic	CCV		Ground Water	23.00 mg/L	10 mL	23.0 mg/L	1					5/22/20 01:17:00	N	IV
KQ2006709-03	Carbon, Total Organic	CCV		Ground Water	22.78 mg/L	10 mL	22.8 mg/L	1					5/22/20 06:27:00	N	IV
KQ2006709-05	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/21/20 21:43:00	N	IV
KQ2006709-06	Carbon, Total Organic	CCB		Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/22/20 01:32:00	N	IV
KQ2006709-07	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/22/20 06:42:00	N	IV
KQ2006709-09	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/21/20 21:43:00	N	IV
KQ2006709-10	Carbon, Total Organic	LCS		Ground Water	24.17 mg/L	10 mL	24.2 mg/L	1	0.07	0.50	97		5/21/20 21:58:00	N	IV
KQ2006709-11	Carbon, Total Organic	MS	K2003887-001	Ground Water	20.11 mg/L	10 mL	40.2 mg/L	2	0.2	1.0	79*		5/21/20 22:56:00	N	IV
KQ2006709-12	Carbon, Total Organic	DUP	K2003876-001	Water	3.79 mg/L	10 mL	3.79 mg/L	1	0.07	0.50		1	5/21/20 23:53:00	N	II
KQ2006709-13	Carbon, Total Organic	DUP	K2003876-003	Water	2.75 mg/L	10 mL	2.75 mg/L	1	0.07	0.50		3	5/22/20 00:21:00	N	II
KQ2006709-14	Carbon, Total Organic	DUP	K2003887-001	Ground Water	0.73 mg/L	10 mL	0.73 mg/L	1	0.07	0.50		14*	5/21/20 22:28:00	N	IV
KQ2006709-15	Carbon, Total Organic	DUP	K2003887-002	Ground Water	0.48 mg/L	10 mL	0.48 mg/L J	1	0.07	0.50		9	5/21/20 23:25:00	N	IV
KQ2006709-16	Carbon, Total Organic	DUP	K2004022-002	Water	2.11 mg/L	10 mL	2.11 mg/L	1	0.07	0.50		<1	5/22/20 01:46:00	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-03 **Analyst:** BDITZLER **Analysis Lot:** 680710 **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
KQ2006709-17	Carbon, Total Organic	DUP	K2004022-003	Water	3.68 mg/L	10 mL	3.68 mg/L	1	0.07	0.50		2	5/22/20 02:14:00	N	II
KQ2006709-18	Carbon, Total Organic	DUP	K2004022-001	Water	3.04 mg/L	10 mL	3.04 mg/L	1	0.07	0.50		<1	5/22/20 00:49:00	N	II
KQ2006709-19	Carbon, Total Organic	DUP	K2004022-004	Water	2.18 mg/L	10 mL	440 mg/L	200	20	100		2	5/22/20 02:43:00	N	II
KQ2006709-20	Carbon, Total Organic	DUP	K2004022-005	Water	17.57 mg/L	10 mL	70.3 mg/L	4	0.3	2.0		<1	5/22/20 03:11:00	N	II
KQ2006709-21	Carbon, Total Organic	DUP	K2004022-006	Water	32.11 mg/L	10 mL	32.1 mg/L	1	0.07	0.50		2	5/22/20 03:39:00	N	II
KQ2006709-22	Carbon, Total Organic	DUP	K2004022-007	Water	1.98 mg/L	10 mL	400 mg/L	200	20	100		7	5/22/20 04:07:00	N	II
KQ2006709-23	Carbon, Total Organic	DUP	K2004022-008	Water	17.33 mg/L	10 mL	17.3 mg/L	1	0.07	0.50		2	5/22/20 04:35:00	N	II
KQ2006709-24	Carbon, Total Organic	DUP	K2004022-009	Water	1.37 mg/L	10 mL	270 mg/L	200	20	100		8	5/22/20 05:03:00	N	II
KQ2006709-25	Carbon, Total Organic	DUP	K2004023-002	Water	23.48 mg/L	10 mL	23.5 mg/L	1	0.07	0.50		<1	5/22/20 05:59:00	N	II
KQ2006709-28	Carbon, Total Organic	DUP	K2004023-001	Water	8.63 mg/L	10 mL	8.63 mg/L	1	0.07	0.50		<1	5/22/20 05:31:00	N	II

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

0.016	OBSERVATIONS	4	ABOVE
0.000	STD Deviation	0.00780	0
0.000	AVERAGE	0.00390	0
0.000	UCL	0.01170	0
	LCL	-0.00390	0
			0
			0
	OBSERVATIONS	0	0
	STD Deviation	0.00000	0
	AVERAGE	#DIV/0!	0
	UCL	#DIV/0!	0
	LCL	#DIV/0!	0
			0
			0
	OBSERVATIONS	0	0
	STD Deviation	0.00000	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

BCP 5/23/20

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	24.171	0.0039	24.1669	24.1669	24.2	5/21/2020
3	ccb	1	0.000	0.0039	-0.0039	-0.0039	<0.5	5/21/2020
4	mb	1	0.000	0.0039	-0.0039	-0.0039	<0.5	5/21/2020
5	lcs	1	24.174	0.0039	24.1705	24.1705	24.2	5/21/2020
6	K2003887-001	1	0.835	0.0039	0.8312	0.8312	0.83	5/21/2020
7	K2003887-001	1	0.730	0.0039	0.7257	0.7257	0.7	5/21/2020
8	KQ2006709-11	2	20.115	0.0039	20.1107	40.2214	40	5/21/2020
9	K2003887-002	1	0.523	0.0039	0.5193	0.5193	0.52	5/21/2020
10	K2003887-002	1	0.480	0.0039	0.4759	0.4759	<0.5	5/21/2020
11	K2003876-001	1	3.746	0.0039	3.7422	3.7422	3.7	5/21/2020
12	K2003876-001	1	3.792	0.0039	3.7885	3.7885	3.79	5/21/2020
13	K2003876-003	1	2.834	0.0039	2.8304	2.8304	2.83	5/22/2020
14	K2003876-003	1	2.756	0.0039	2.7522	2.7522	2.75	5/22/2020
15	K2004022-001	1	3.069	0.0039	3.0647	3.0647	3.1	5/22/2020
16	K2004022-001	1	3.041	0.0039	3.0374	3.0374	3.0	5/22/2020
17	ccv	1	23.004	0.0039	23.0000	23	23.00	5/22/2020
18	ccb	1	0.016	0.0039	0.0117	0.0117	<0.5	5/22/2020
19	K2004022-002	1	2.098	0.0039	2.0936	2.0936	2.1	5/22/2020
20	K2004022-002	1	2.113	0.0039	2.1086	2.1086	2.11	5/22/2020
21	K2004022-003	1	3.774	0.0039	3.7698	3.7698	3.77	5/22/2020
22	K2004022-003	1	3.684	0.0039	3.6797	3.6797	3.7	5/22/2020
23	K2004022-004	200	2.225	0.0039	2.2211	444.22	444.2	5/22/2020
24	K2004022-004	200	2.182	0.0039	2.1776	435.52	435.52	5/22/2020
25	K2004022-005	4	17.590	0.0039	17.5857	70.3428	70.34	5/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:	KD	Date Analyzed	5/23/20
Reviewed By:	JC	Date Reviewed	5/26/20

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	K2004022-005	4	17.579	0.0039	17.5746	70.2984	70.30	5/22/2020
27	K2004022-006	1	32.905	0.0039	32.9014	32.9014	32.90	5/22/2020
28	K2004022-006	1	32.118	0.0039	32.1144	32.1144	32.1	5/22/2020
29	K2004022-007	200	2.120	0.0039	2.1164	423.28	423.3	5/22/2020
30	K2004022-007	200	1.986	0.0039	1.9820	396.4	396.4	5/22/2020
31	K2004022-008	1	17.072	0.0039	17.0678	17.0678	17.1	5/22/2020
32	K2004022-008	1	17.335	0.0039	17.3314	17.3314	17.3	5/22/2020
33	K2004022-009	200	1.489	0.0039	1.4853	297.06	297.1	5/22/2020
34	K2004022-009	200	1.372	0.0039	1.3681	273.62	273.6	5/22/2020
35	K2004023-001	1	8.721	0.0039	8.7171	8.7171	8.7	5/22/2020
36	K2004023-001	1	8.638	0.0039	8.6337	8.6337	8.6	5/22/2020
37	K2004023-002	1	23.459	0.0039	23.4555	23.4555	23.5	5/22/2020
38	K2004023-002	1	23.484	0.0039	23.4799	23.4799	23.5	5/22/2020
39	ccv	1	22.780	0.0039	22.7759	22.7759	22.8	5/22/2020
40	ccb	1	0.000	0.0039	-0.0039	-0.0039	<0.5	5/22/2020
41		1			0.0000	0	<0.5	
42		1			0.0000	0	<0.5	
43		1			0.0000	0	<0.5	
44		1			0.0000	0	<0.5	
45		1			0.0000	0	<0.5	
46		1			0.0000	0	<0.5	
47		1			0.0000	0	<0.5	
48		1			0.0000	0	<0.5	
49		1			0.0000	0	<0.5	
50		1			0.0000	0	<0.5	

Analyzed By:		Date Analyzed	5/23/20
Reviewed By:		Date Reviewed	5/26/20

Schedule: 05212020b

L80710

Version: 2
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/05/21 15:11 - Thursday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	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
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K2003887-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K2003887-001.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K2003887-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K2003876-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2003876-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2004022-001.01	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
10	Sample	K2004022-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2004022-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2004022-004.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2004022-005.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2004022-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K2004022-007.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2004022-008.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K2004022-009.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2004023-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2004023-002.01	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
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K2004023-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K2004023-004.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2004023-005.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2004023-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K2004023-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K2004023-008.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K2004023-009.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K2004023-010.01 200x	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
29	Sample	K2004023-011.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K2003957-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K2004021-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K2003982-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K2003982-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K2003982-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K2003982-003.01 ms 4x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
36	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
37	Sample	K2003982-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K2003982-005.01	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

Fusion Report - 05212020b
Thursday, May 21, 2020 06:36 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/05/23 09:18 - Saturday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	05212020b	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) (v2)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/21 18:36

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.10	16.72	3.63	49.93	08:00
2	TC Clean	3.33	6.85	3.52	49.69	07:16
3	TC Clean	1.23	4.88	3.65	49.71	07:00
4	TC Clean	1.04	4.61	3.57	49.73	06:59

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/21 19:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.56	4.18	3.62	49.93	07:57
2	TC Clean	2.82	6.41	3.59	49.74	07:17
3	TC Clean	1.49	4.91	3.42	49.76	07:02
4	TC Clean	1.32	4.76	3.44	49.80	07:01

Sample Type: Clean

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/21 19:44

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.51	4.02	3.51	49.66	05:26
2	TC Clean	2.97	6.59	3.62	49.78	07:19
3	TC Clean	1.63	5.12	3.49	49.86	06:59
4	TC Clean	1.58	5.18	3.60	49.83	07:03

Sample Type: Blank (Creating v1386)

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2020/05/21 20:16

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.56	4.03	3.46	49.60	05:24
2	TC Clean	3.09	6.69	3.60	49.85	07:18
3	TC Clean	1.72	5.11	3.38	49.82	07:01
4	TC Clean	1.38	4.95	3.57	49.86	07:00
5	Reagent Blank	3.16	6.55	3.39	49.96	05:08
6	Acid Blank	0.80	4.32	3.53	49.67	05:27

Sample Type: Sample

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.1450 ppm	0.0000 ppm	0.0000%	2020/05/21 20:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1450	1.4502	7.51	11.09	3.58	49.90	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	24.1708 ppm (PASS)	0.0000 ppm	0%	2020/05/21 21:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1708	241.7076	178.71	182.15	3.44	49.97	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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%	2020/05/21 21:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.24	9.83	3.60	49.99	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/21 21:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.62	9.23	3.61	50.01	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	24.1744 ppm (PASS)	0.0000 ppm	0%	2020/05/21 21:58

Pos	Base Analysis	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

	Type									
C	TOC	25.0 ppm	1	24.1744	241.7442	178.74	182.28	3.55	50.03	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.3197 ppm	0.0000 ppm	0.0000%	2020/05/21 22:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3197	3.1967	8.75	12.22	3.46	50.02	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K2003887-001.01	0.7824 ppm	0.0745 ppm	9.5300%	2020/05/21 22:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8351	8.3506	12.42	15.80	3.38	50.05	10:31
2	TOC	0.7296	7.2965	11.67	15.15	3.48	50.06	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2003887-001.01 ms 2x	20.1146 ppm	0.0000 ppm	0.0000%	2020/05/21 22:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.1146	201.1464	149.40	152.85	3.45	50.06	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/21 23:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.58	9.03	3.46	50.09	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	K2003887-002.01	0.5015 ppm	0.0307 ppm	6.1100%	2020/05/21 23:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5232	5.2318	10.20	13.62	3.42	50.10	10:28
2	TOC	0.4798	4.7983	9.89	13.40	3.51	50.11	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	7	TOC	K2003876-001.01	3.7693 ppm	0.0327 ppm	0.8700%	2020/05/21 23:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7461	37.4611	33.10	36.67	3.57	50.12	10:27
2	TOC	3.7924	37.9241	33.43	36.87	3.44	50.12	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K2003876-003.01	2.7952 ppm	0.0552 ppm	1.9800%	2020/05/22 00:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8343	28.3426	26.62	30.15	3.53	50.12	10:29
2	TOC	2.7561	27.5615	26.07	29.66	3.59	50.13	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K2004022-001.01	3.0549 ppm	0.0193 ppm	0.6300%	2020/05/22 00:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0686	30.6859	28.29	31.91	3.62	50.16	10:27
2	TOC	3.0413	30.4129	28.09	31.57	3.48	50.16	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	23.0039 ppm	0.0000 ppm	0%	2020/05/22 01:17

							(PASS)				

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.0039	230.0390	170.42	173.89	3.47	50.17	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB

From Schedule Version 2

	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)	0.0156 ppm (PASS)	0.0000 ppm	0%	2020/05/22 01:32

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0156	0.1556	7.08	10.46	3.38	50.18	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K2004022-002.01	2.1050 ppm	0.0106 ppm	0.5100%	2020/05/22 01:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0975	20.9749	21.39	24.87	3.48	50.19	10:29
2	TOC	2.1125	21.1255	21.49	24.99	3.50	50.20	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2004022-003.01	3.7287 ppm	0.0637 ppm	1.7100%	2020/05/22 02:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7737	37.7369	33.30	36.80	3.51	50.20	10:32
2	TOC	3.6836	36.8362	32.66	36.29	3.64	50.19	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis	Sample ID	Result (ppmC)	Std. Dev.	RSD	Start Time

		Type			(ppmC)		
◆	12	TOC	K2004022-004.01 200x	2.2033 ppm	0.0308 ppm	1.4000%	2020/05/22 02:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2250	22.2500	22.29	25.82	3.53	50.21	10:28
2	TOC	2.1815	21.8151	21.98	25.33	3.34	50.21	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2004022-005.01 4x	17.5841 ppm	0.0079 ppm	0.0400%	2020/05/22 03:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	17.5896	175.8964	131.46	134.93	3.47	50.23	10:28
2	TOC	17.5785	175.7852	131.38	134.80	3.42	50.23	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2004022-006.01	32.5118 ppm	0.5565 ppm	1.7100%	2020/05/22 03:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	32.9053	329.0530	240.29	243.81	3.52	50.21	10:27
2	TOC	32.1183	321.1828	234.69	238.22	3.53	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K2004022-007.01 200x	2.0531 ppm	0.0950 ppm	4.6300%	2020/05/22 04:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1203	21.2029	21.55	25.13	3.59	50.25	10:28
2	TOC	1.9859	19.8588	20.59	24.11	3.52	50.25	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K2004022-008.01	17.2035 ppm	0.1864 ppm	1.0800%	2020/05/22 04:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	17.0717	170.7172	127.78	131.32	3.54	50.26	10:30
2	TOC	17.3353	173.3532	129.66	133.04	3.38	50.26	10:29

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2004022-009.01 200x	1.4306 ppm	0.0829 ppm	5.7900%	2020/05/22 05:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4892	14.8922	17.06	20.44	3.38	50.26	10:31
2	TOC	1.3720	13.7198	16.23	19.64	3.41	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2004023-001.01	8.6793 ppm	0.0589 ppm	0.6800%	2020/05/22 05:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.7210	87.2096	68.45	71.92	3.47	50.26	10:27
2	TOC	8.6376	86.3764	67.86	71.40	3.55	50.28	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2004023-002.01	23.4716 ppm	0.0172 ppm	0.0700%	2020/05/22 05:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	23.4594	234.5945	173.17	176.67	3.50	50.27	10:26
2	TOC	23.4838	234.8379	173.34	176.77	3.43	50.27	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	22.7798 ppm (PASS)	0.0000 ppm	0%	2020/05/22 06:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	22.7798	227.7984	168.83	172.36	3.54	50.30	10:36

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v35)

Sample Type: Check Standard --> CCB From Schedule Version 2

	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%	2020/05/22 06:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.98	9.58	3.60	50.30	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/22 06:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.86	9.33	3.47	50.28	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	22.5351 ppm (PASS)	0.0000 ppm	0%	2020/05/22 07:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	22.5351	225.3509	167.09	170.46	3.37	50.28	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K2003982-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/22 13:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	-56.96	0.00	56.96	0.00	00:42

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.4826 (IC) (v1386)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1385	1.3080	1.0450	0.0000	0.0000	0.0000	2020/05/21 17:32	Fusion1 (Fusion1)
v1386	1.0550	0.7970	0.0000	0.0000	0.0000	2020/05/21 20:59	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v35	Calibration curve formula:	TOC: y = 7.105x + 6.969
Ver Creation:	2020/05/09 16:50	r^2 value:	TOC: r^2 = 0.99936
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	6.6220	0.0000		2020/05/09 15:23
0.500 ppm	9.3820	0.5000		2020/05/09 15:38
1.0 ppm	12.1910	1.0000		2020/05/09 15:52
5.0 ppm	39.9300	5.0000		2020/05/09 16:06
10 ppm	81.4900	10.0000		2020/05/09 16:20
25 ppm	190.3090	25.0000		2020/05/09 16:35
50 ppm	358.9940	50.0000		2020/05/09 16:49

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

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	2020/05/22 13:23

ALS Environmental

StarLIMS Run: 680710

Analysis: DOC/TOC

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

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 5/9/20

ICAL ID: 19-GEN-17-E->J

ICS ID: 19-GEN-8-4-G

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-08-17-K

21 % H3PO4: 19-GEN-08-17-L

Equipment ID: K-TOC-03

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

FILTER ID: 16967789

Analyzed By:	Date Analyzed: 5/23/20
Reviewed By:	Date Reviewed: 5/26/20

LABORATORY REPORT

May 22, 2020

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

RE: HS20050292

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on May 13, 2020. For your reference, these analyses have been assigned our service request number P2002598.

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 Hayden Akers at 2:41 pm, May 22, 2020

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2002598
Project: HS20050292

CASE NARRATIVE

The samples were received intact under chain of custody on May 13, 2020 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.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. 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 laboratory's NELAP or DoD-ELAP accreditation.

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.

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	4068-007
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: ALS Laboratory Group
Service Request: P2002598
Project ID: HS20050292

Date Received: 5/13/2020
Time Received: 09:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW14-200507	P2002598-001	Water	5/7/2020	07:45	X	X
35BWW23-200507	P2002598-002	Water	5/7/2020	11:40	X	X

RJ0025978

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:** **13876**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

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: HS20050292
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050292-01**	**35BWW14-200507**	**Groundwater**	**07 May 2020 07:45**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			22 May 2020
2.	**HS20050292-06**	**35BWW23-200507**	**Groundwater**	**07 May 2020 11:40**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			22 May 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
VOA Neat & HCL Vials

QC Level: DOD IV (DoD Data Package)

Short hold time - Expires 05/14/20

Relinquished By: _____ Date/Time: 5/12/2020 1800.

Received By: _____ Date/Time: 5-13-20 0915

Cooler ID(s): _____ Temperature(s): _____ 3° wet

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2002598

Project: HS20050292

Sample(s) received on: 05/13/20 Date opened: 05/13/20 by: ADAVID

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?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 3° C Thermometer ID T-111 Wet Ice			
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
P2002598-001.01	40mL VOA NP		6		A	LD 05/13/2020
P2002598-001.02	40mL VOA NP				A	
P2002598-001.03	40mL VOA NP				A	
P2002598-001.04	40ml VOA HCL		1		A	LD 05/13/2020
P2002598-001.05	40ml VOA HCL				A	
P2002598-001.06	40ml VOA HCL				A	
P2002598-002.01	40mL VOA NP		6		A	LD 05/13/2020
P2002598-002.02	40mL VOA NP				A	
P2002598-002.03	40mL VOA NP				A	
P2002598-002.04	40ml VOA HCL		1		A	LD 05/13/2020
P2002598-002.05	40ml VOA HCL				A	
P2002598-002.06	40ml VOA HCL				A	

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: **ALS Laboratory Group**
Client Project ID: **HS20050292** ALS Project ID: P2002598

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Liquid
Test Notes:

Date(s) Collected: 5/7/20
Date Received: 5/13/20
Date Analyzed: 5/14/20

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35BWW14-200507	P2002598-001	0.10	**29,000**	1,000	860	370	
35BWW23-200507	P2002598-002	0.10	**42,000**	1,000	860	370	
Method Control Sample	P200514-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20050292**

ALS Project ID: P2002598
ALS Sample ID: P200514-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Liquid
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/14/20
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	24,100	21,800	**105**	**95**	80-122	10	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW14-200507**
Client Project ID: **HS20050292**

ALS Project ID: P2002598
ALS Sample ID: P2002598-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/07/20
Date Received: 05/13/20
Date Analyzed: 05/13/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = 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: **ALS Laboratory Group**
Client Sample ID: **35BWW23-200507**
Client Project ID: **HS20050292**

ALS Project ID: P2002598
ALS Sample ID: P2002598-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/07/20
Date Received: 05/13/20
Date Analyzed: 05/13/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = 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: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS20050292**

ALS Project ID: P2002598
ALS Sample ID: P200513-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/13/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20050292**

ALS Project ID: P2002598
ALS Sample ID: P200513-LCS
P200513-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/13/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.63	2.67	**104**	**106**	73-125	2	26	
74-85-1	Ethene	4.40	4.45	4.42	**101**	**100**	72-133	1	11	
74-84-0	Ethane	4.72	4.65	4.62	**99**	**98**	74-131	1	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:22:25
Operator : LD
Sample : P2002598-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:38:18 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

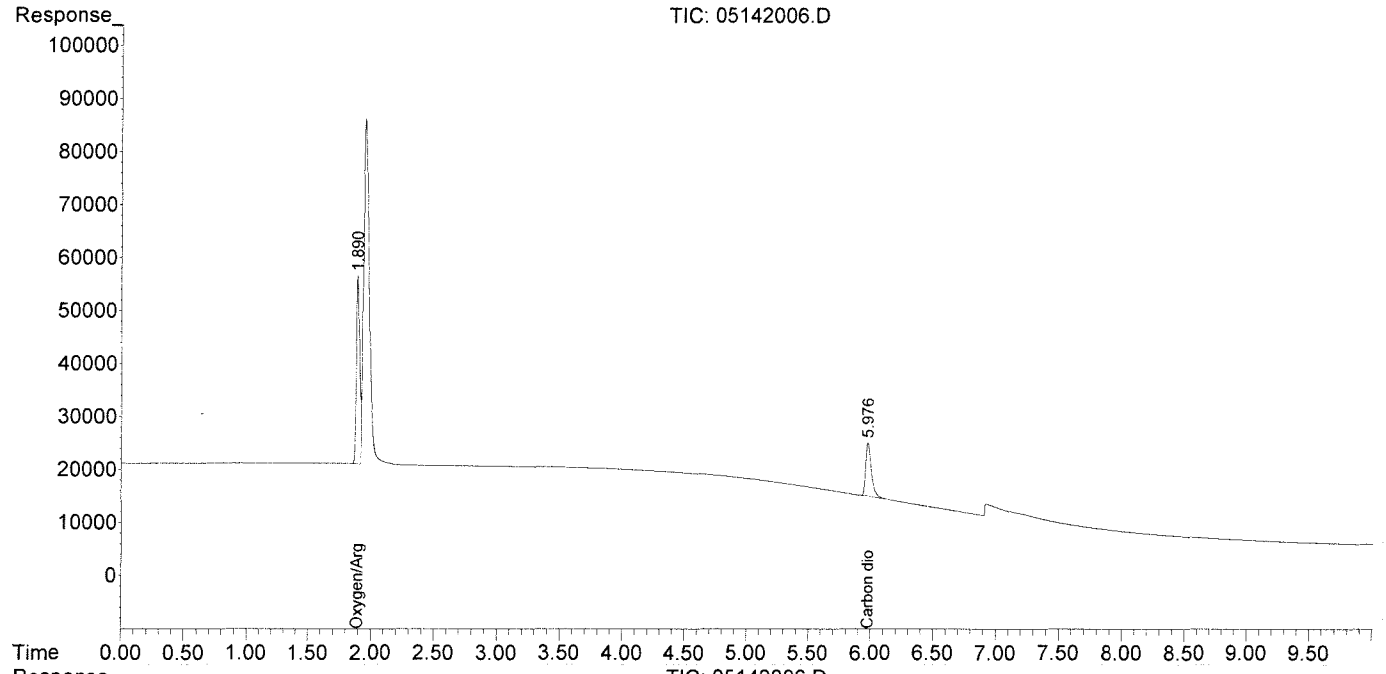
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.890	627003	0.132	ppm
2)	Carbon monoxide	1.890	627003	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.977	311003	1324.942	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

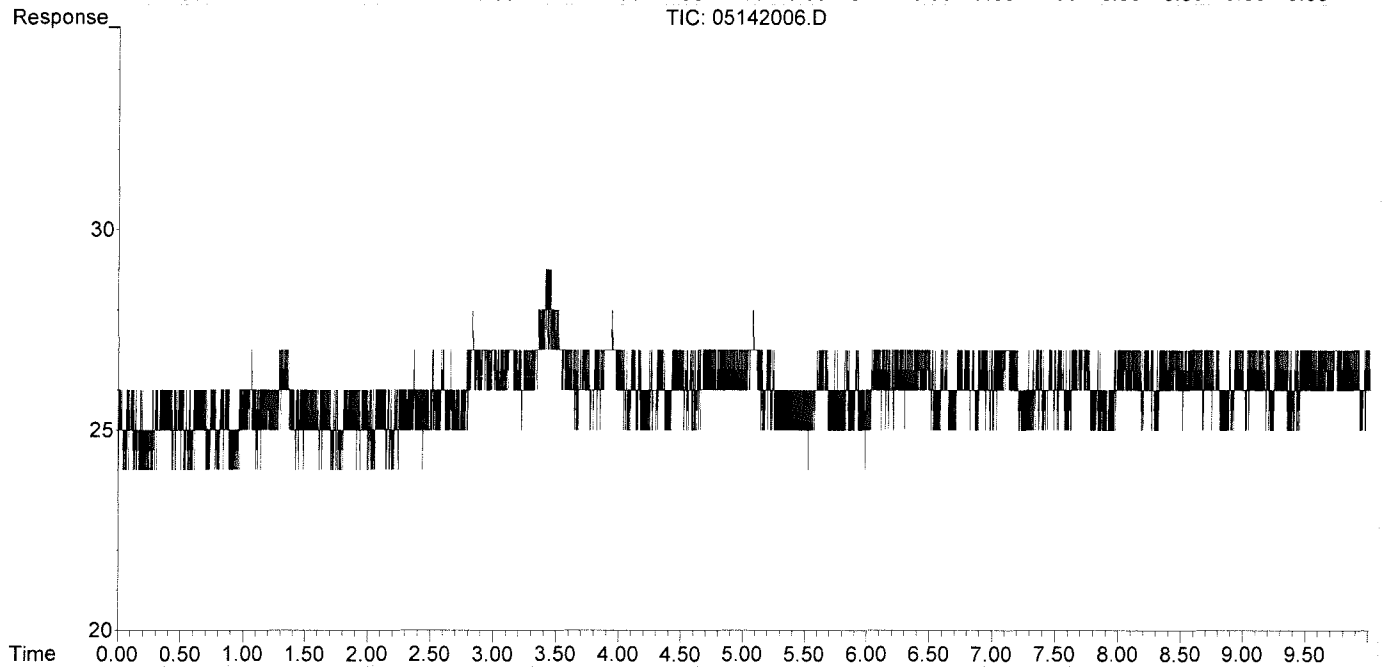
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:22:25
Operator : LD
Sample : P2002598-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:38:18 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:35:38
Operator : LD
Sample : P2002598-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 17:04:47 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

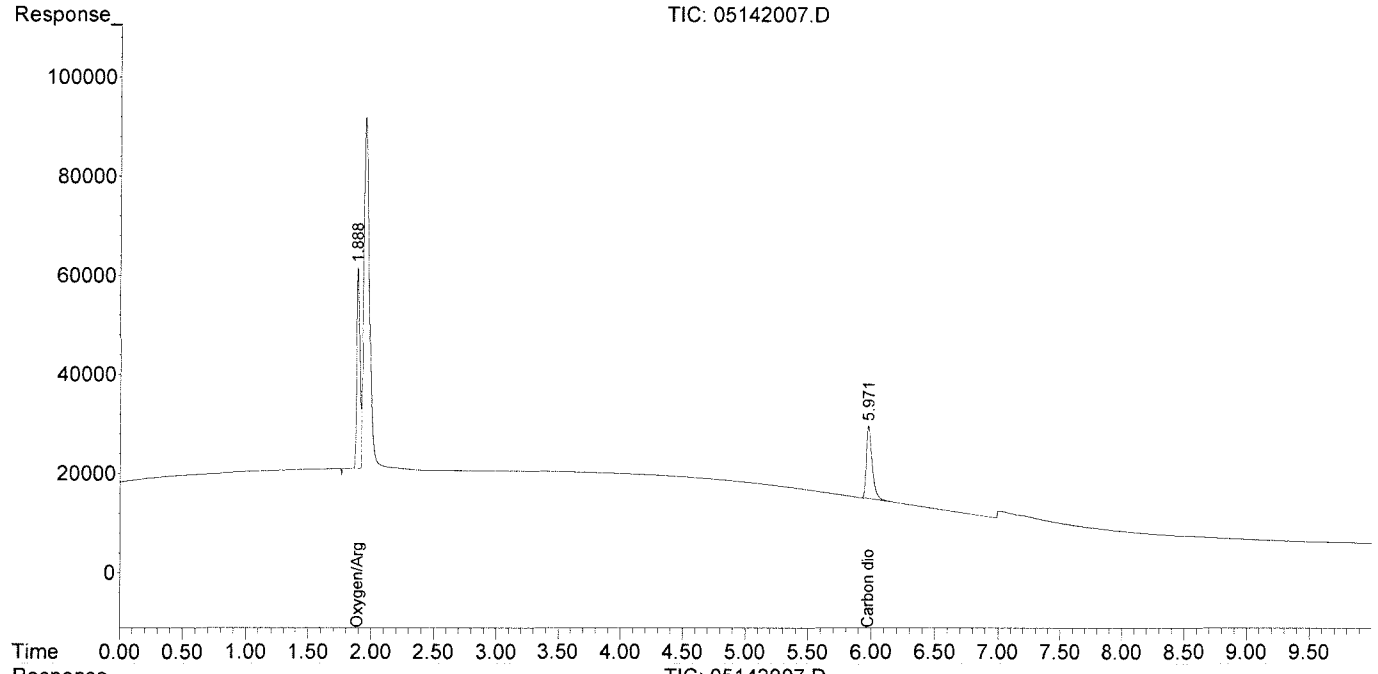
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.889	695263	0.146	ppm
2)	Carbon monoxide	1.889	695263	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.972	451880	1925.111	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

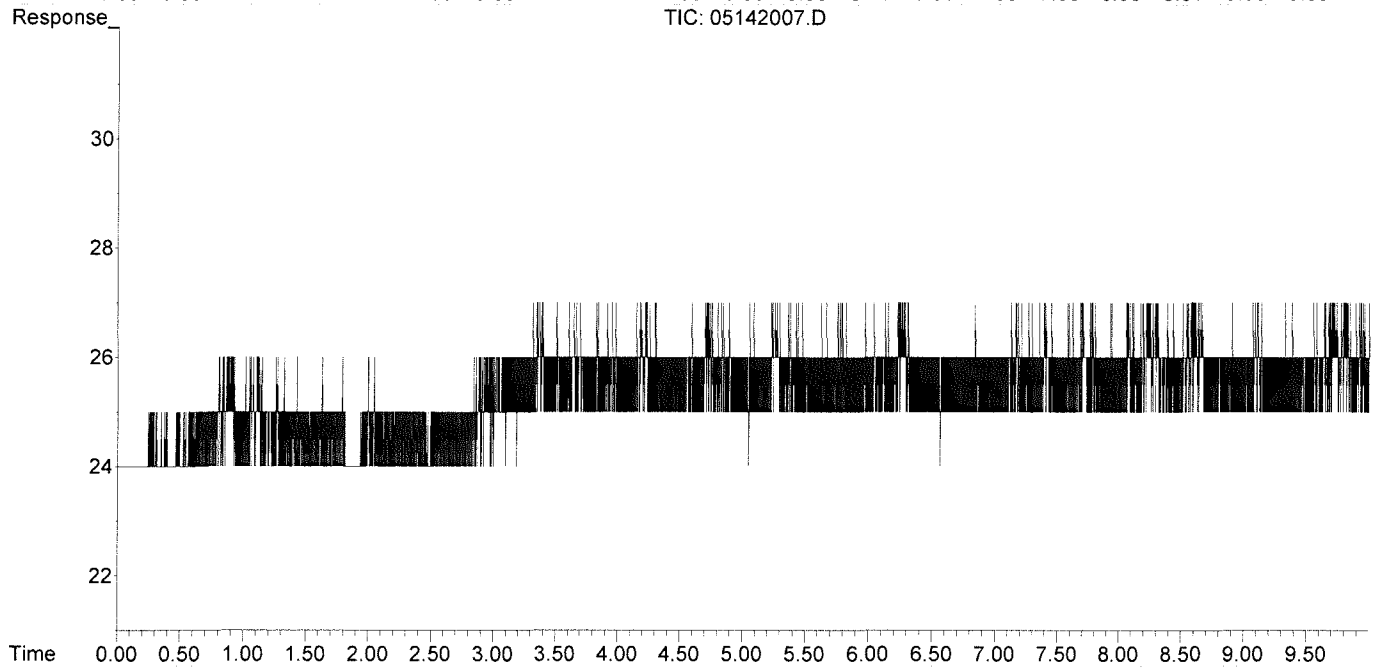
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:35:38
Operator : LD
Sample : P2002598-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 17:04:47 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 15:35:05
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:15:20 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

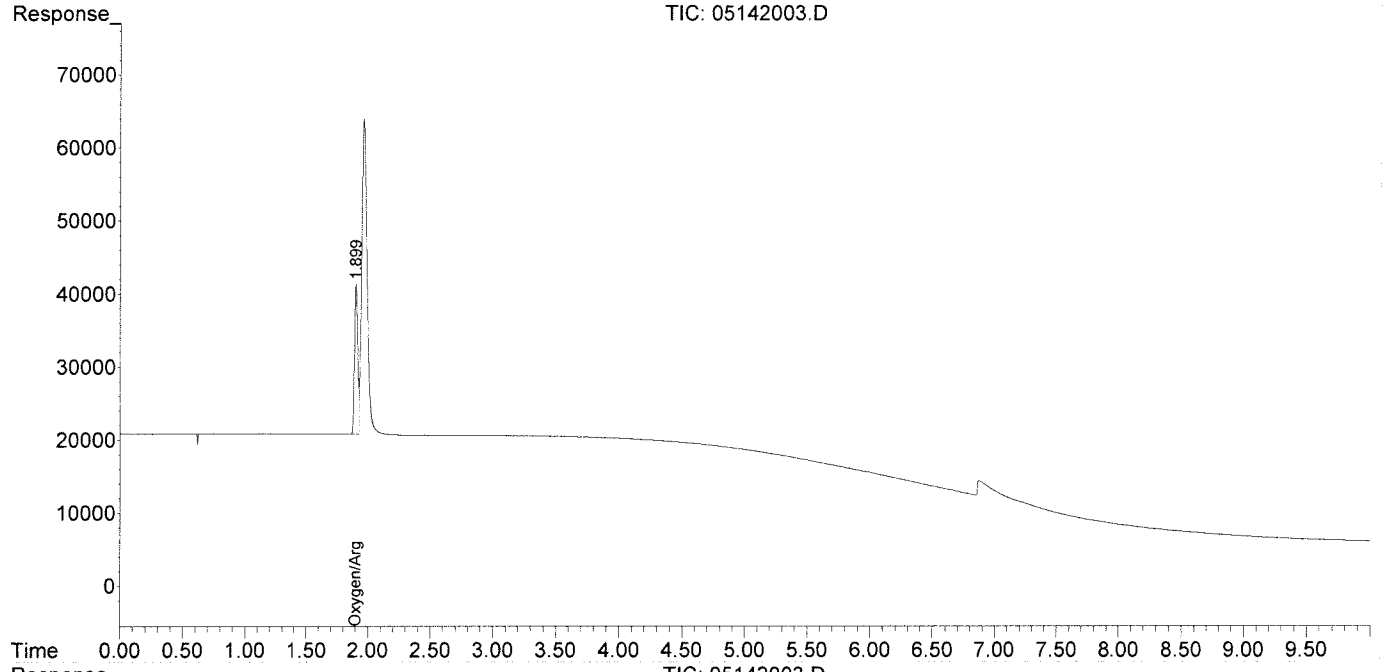
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.900	362727	0.076	ppm
2)	Carbon monoxide	1.900	362727	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

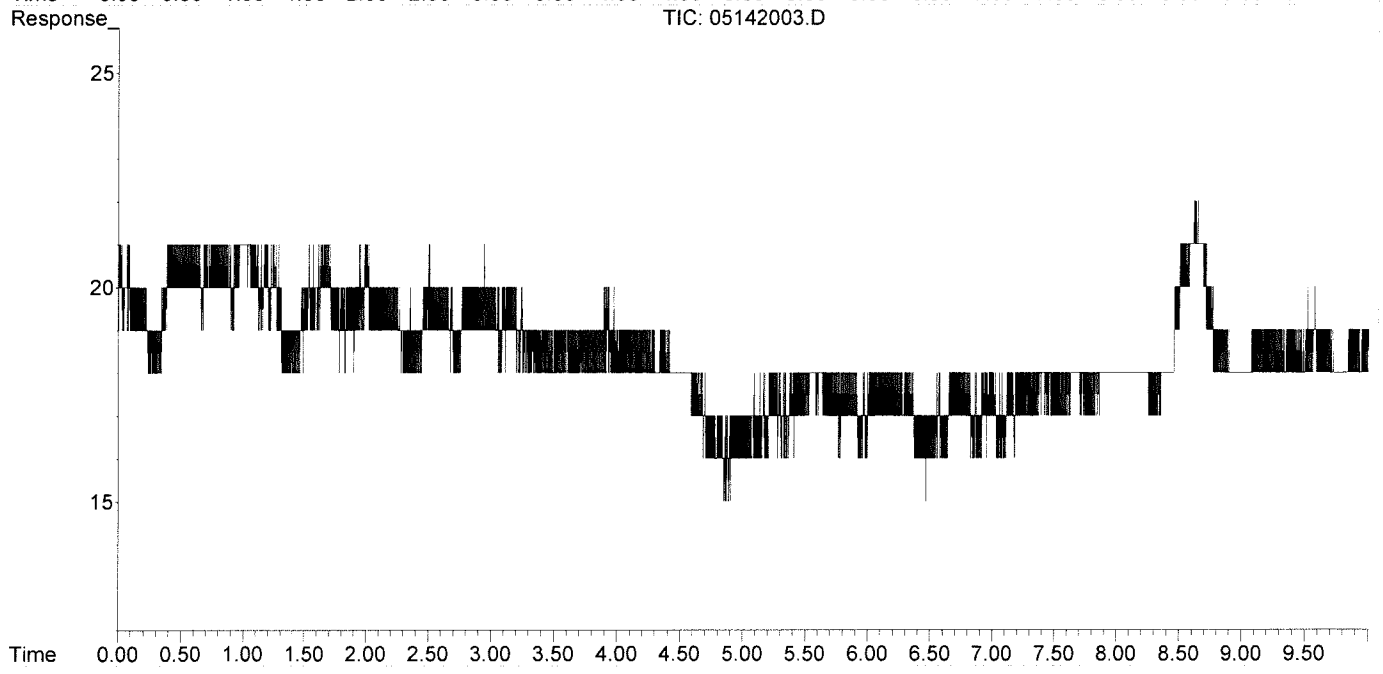
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 15:35:05
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:15:20 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 15:50:49
Operator : LD
Sample : LCS S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:15:31 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

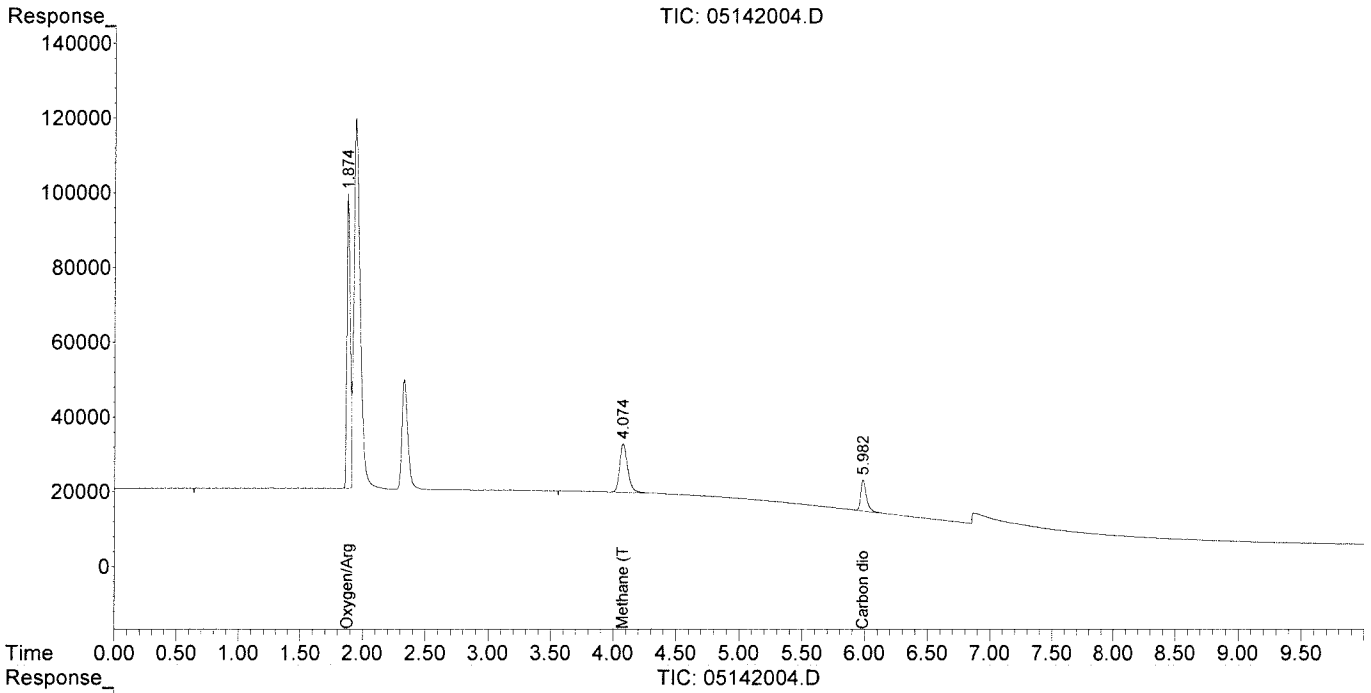
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.875	1428417	0.300	ppm
2)	Carbon monoxide	1.875	1428417	N.D.	ppm
3)	Methane (TCD)	4.075f	597264	63153.423	ppm
4)	Carbon dioxide	5.983	259310	1104.718	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

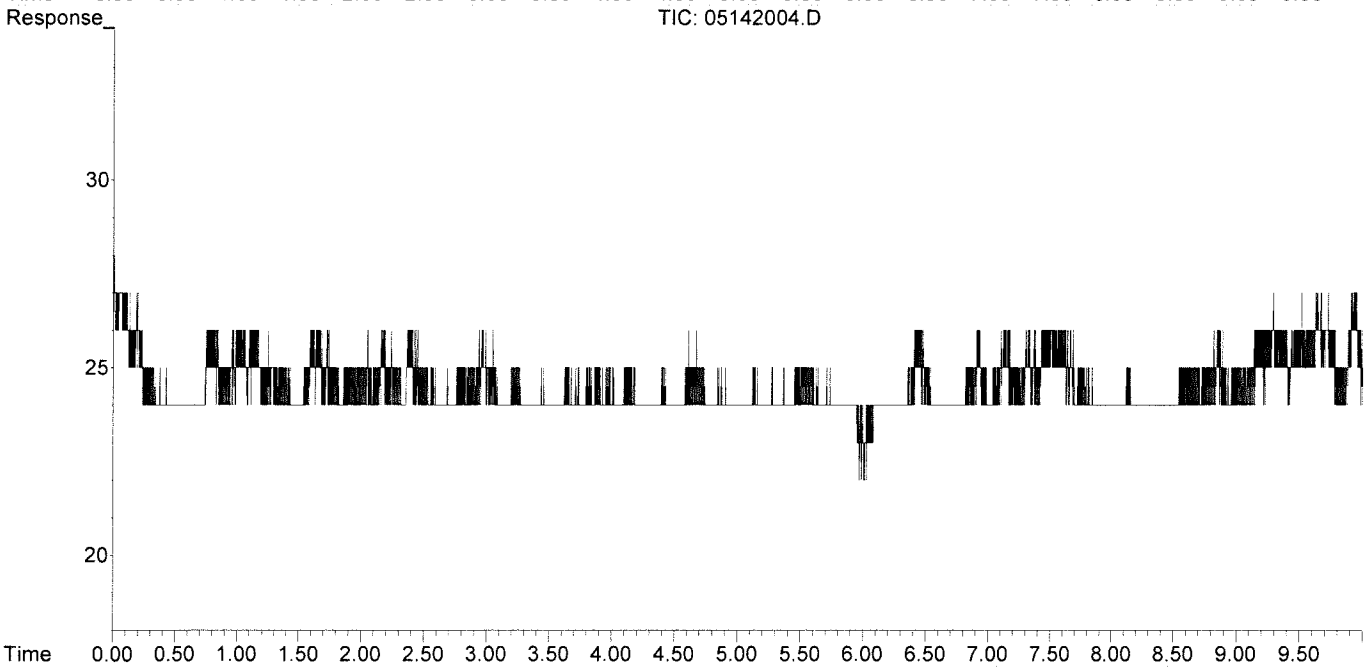
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 15:50:49
Operator : LD
Sample : LCS S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:15:31 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142005.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:06:17
Operator : LD
Sample : LCSD S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:17:43 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

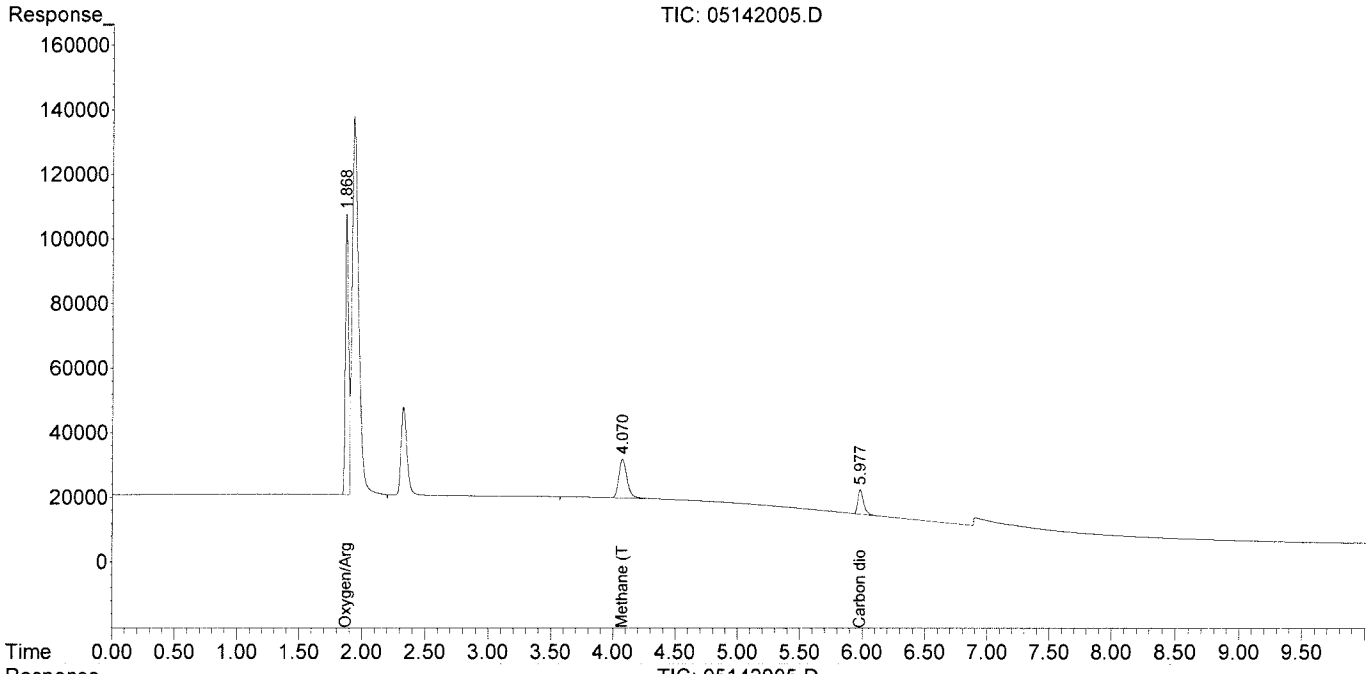
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.869	1555063	0.327	ppm
2)	Carbon monoxide	1.869	1555063	N.D.	ppm
3)	Methane (TCD)	4.071f	553341	58509.104	ppm
4)	Carbon dioxide	5.978	234583	999.376	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

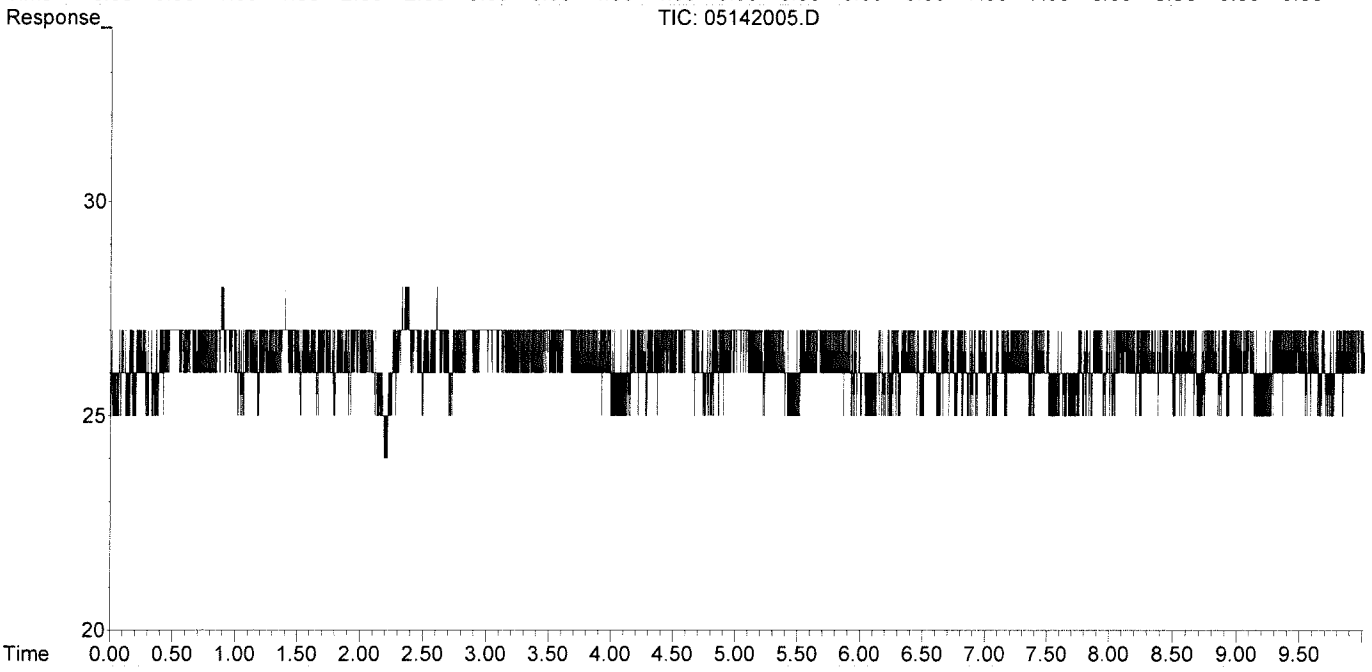
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142005.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:06:17
Operator : LD
Sample : LCSD S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 16:17:43 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

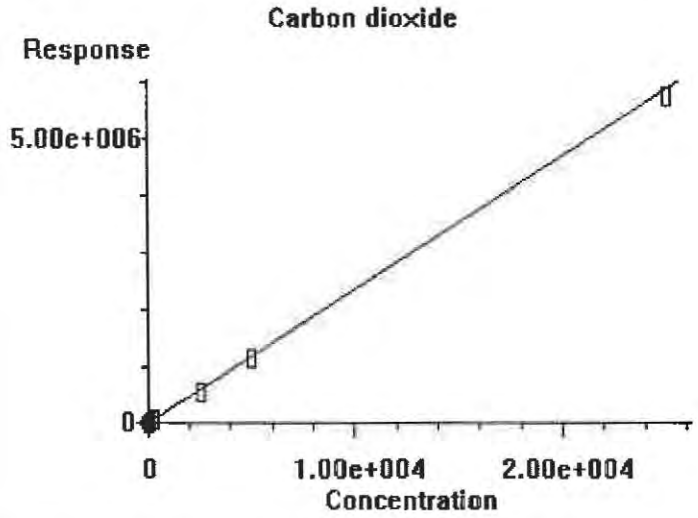
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

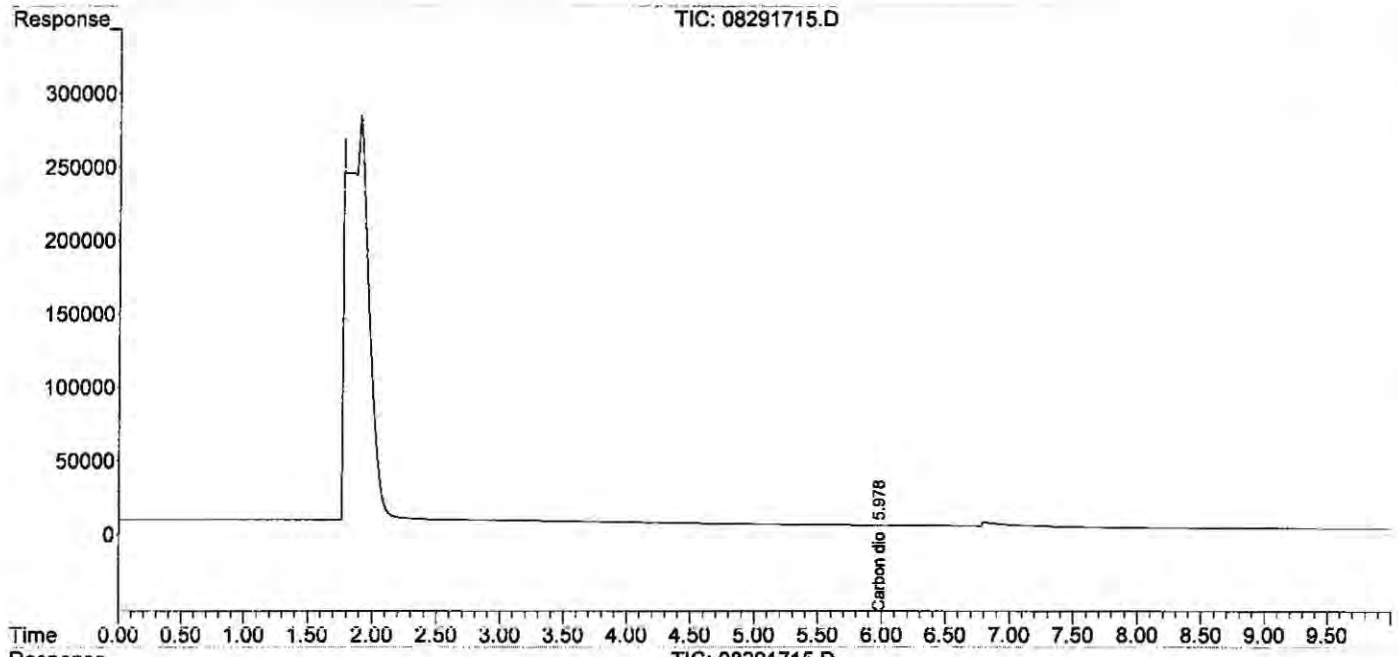
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

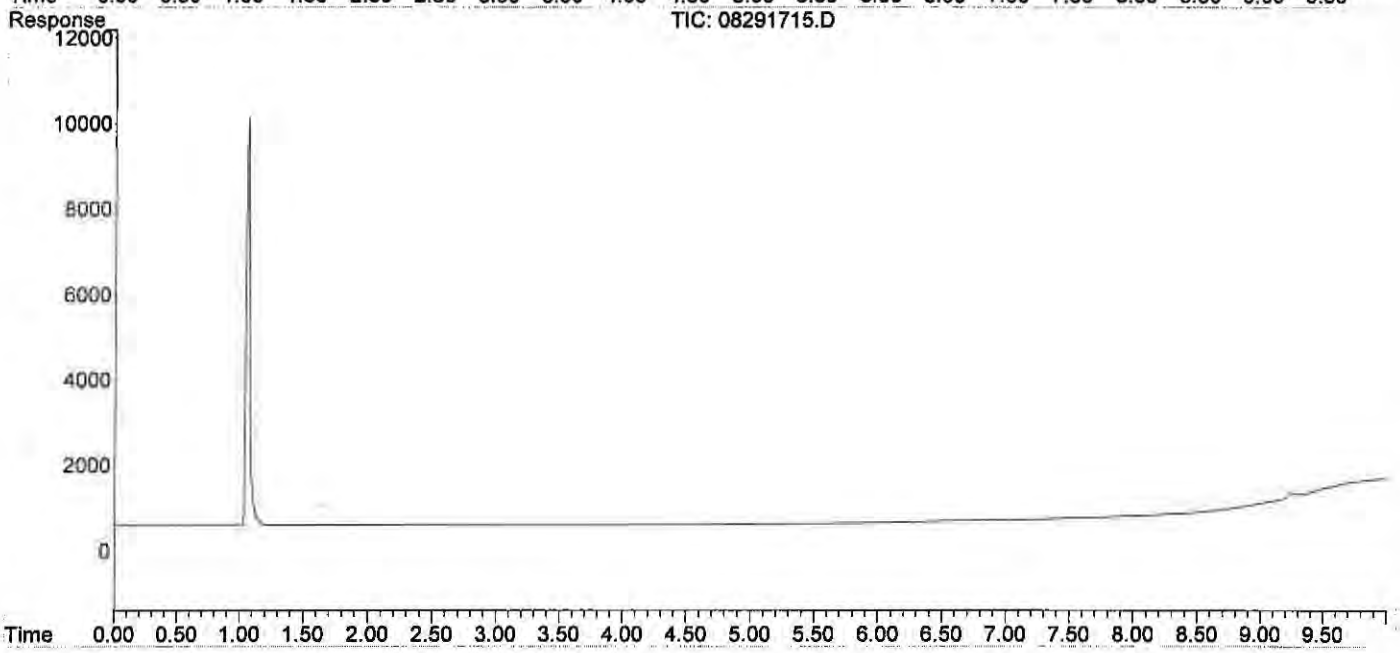
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

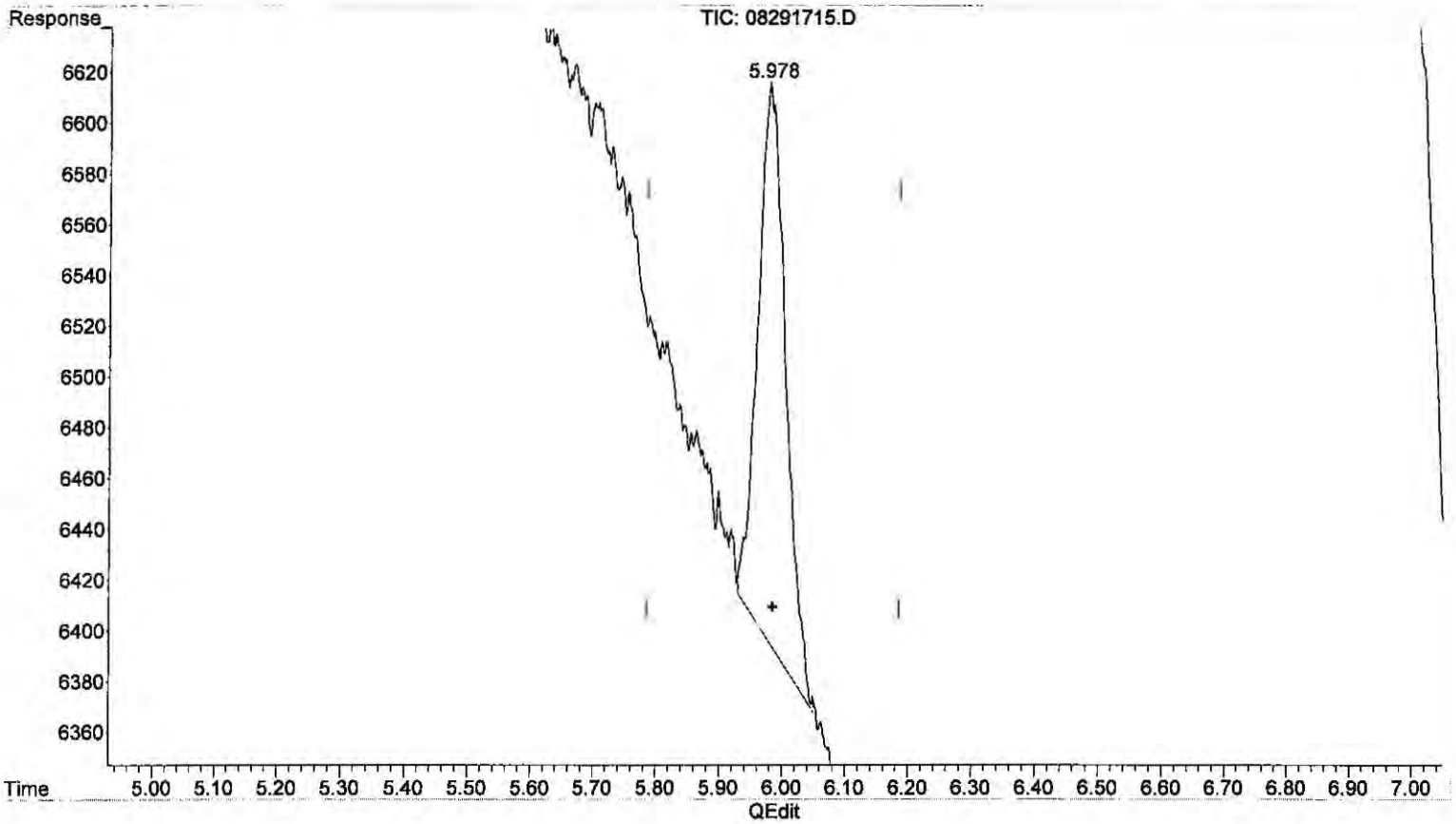




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

8/30/17
BW
M.
prelim

8/4/17

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

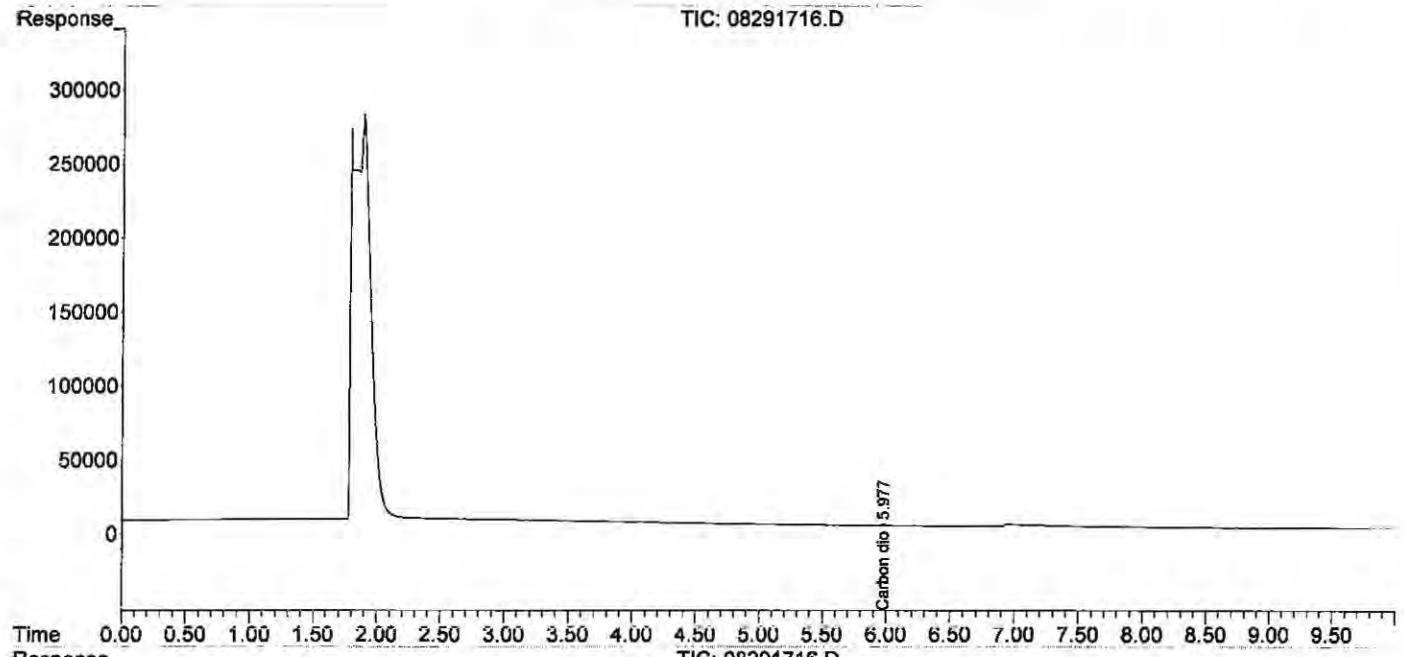
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

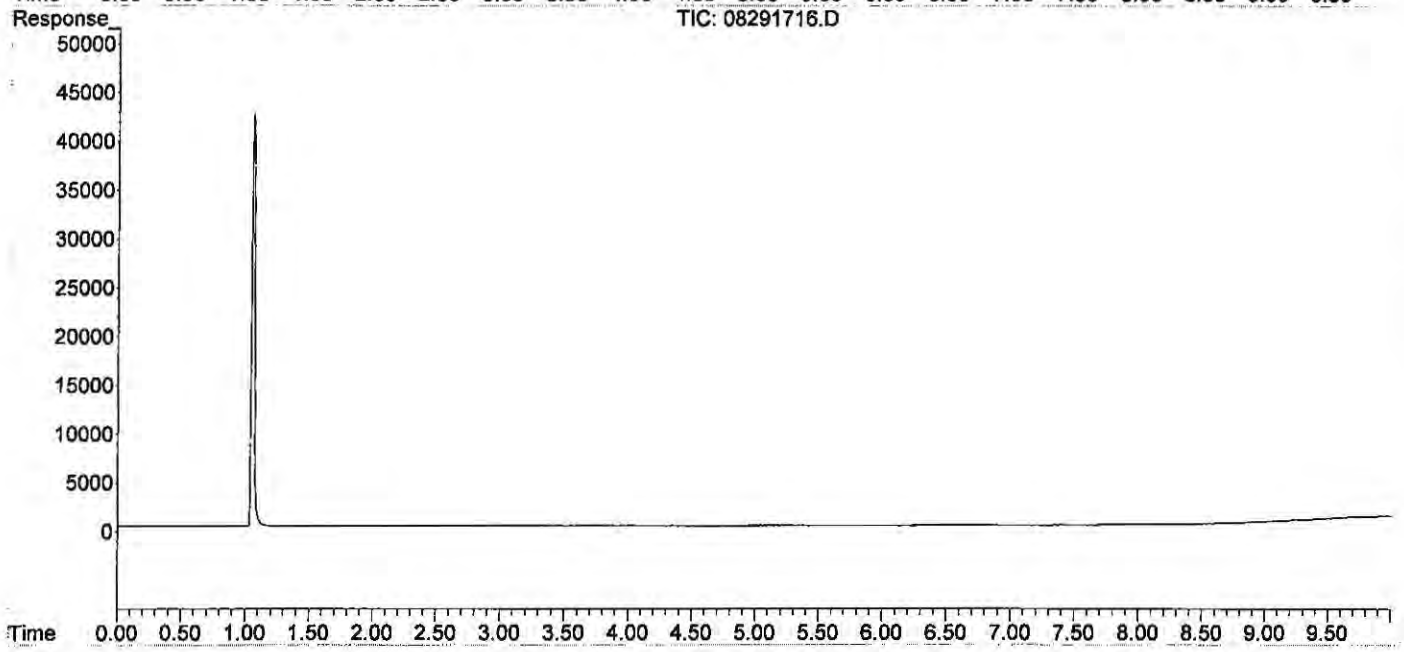
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

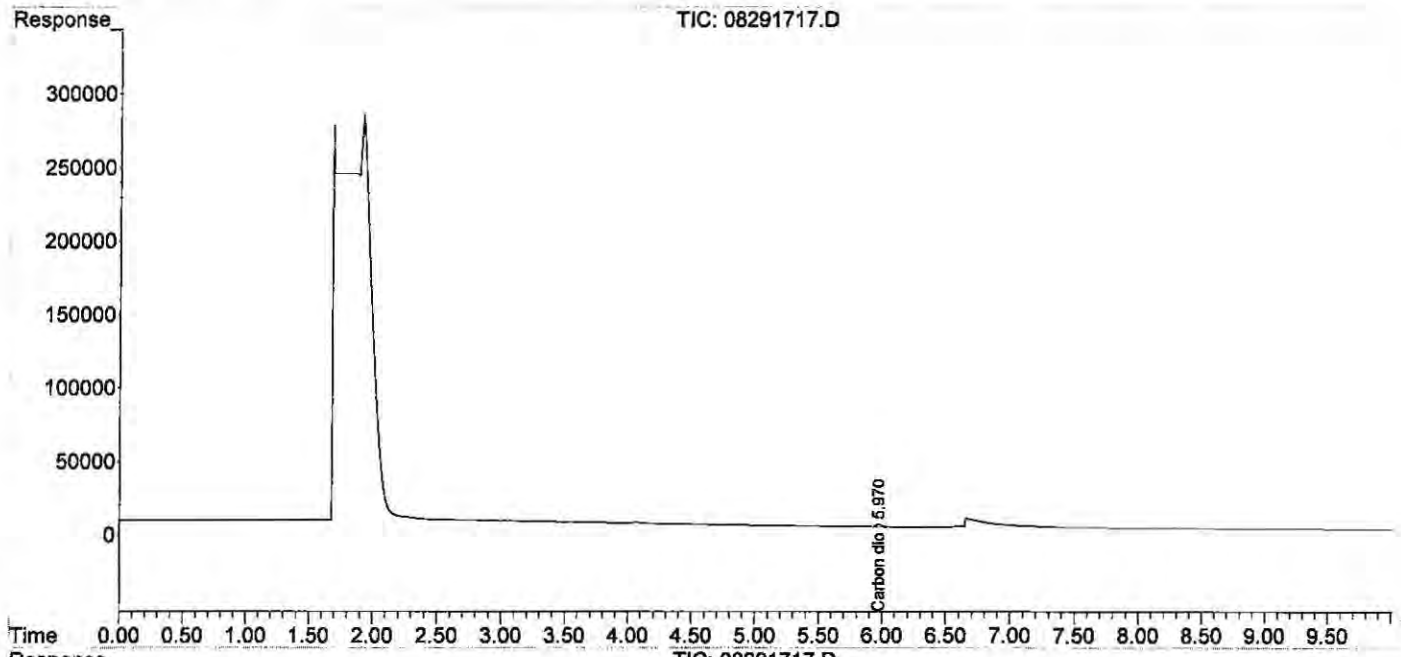
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

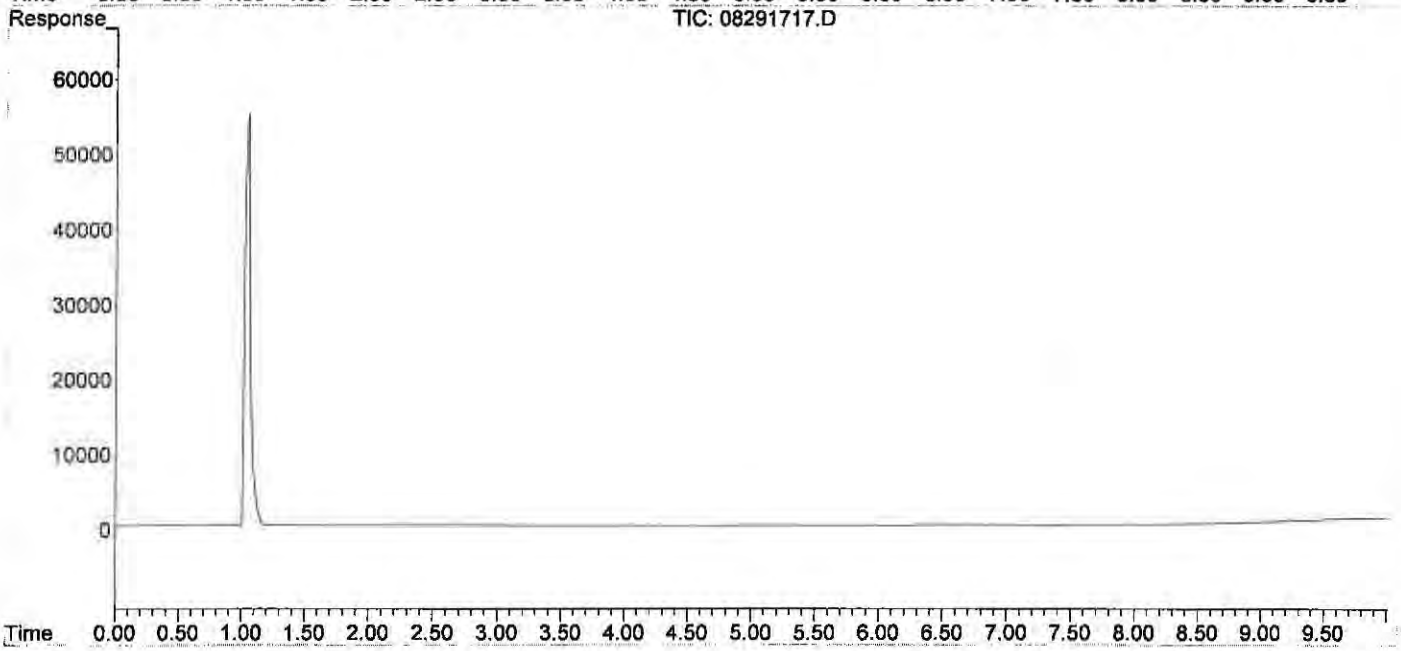
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



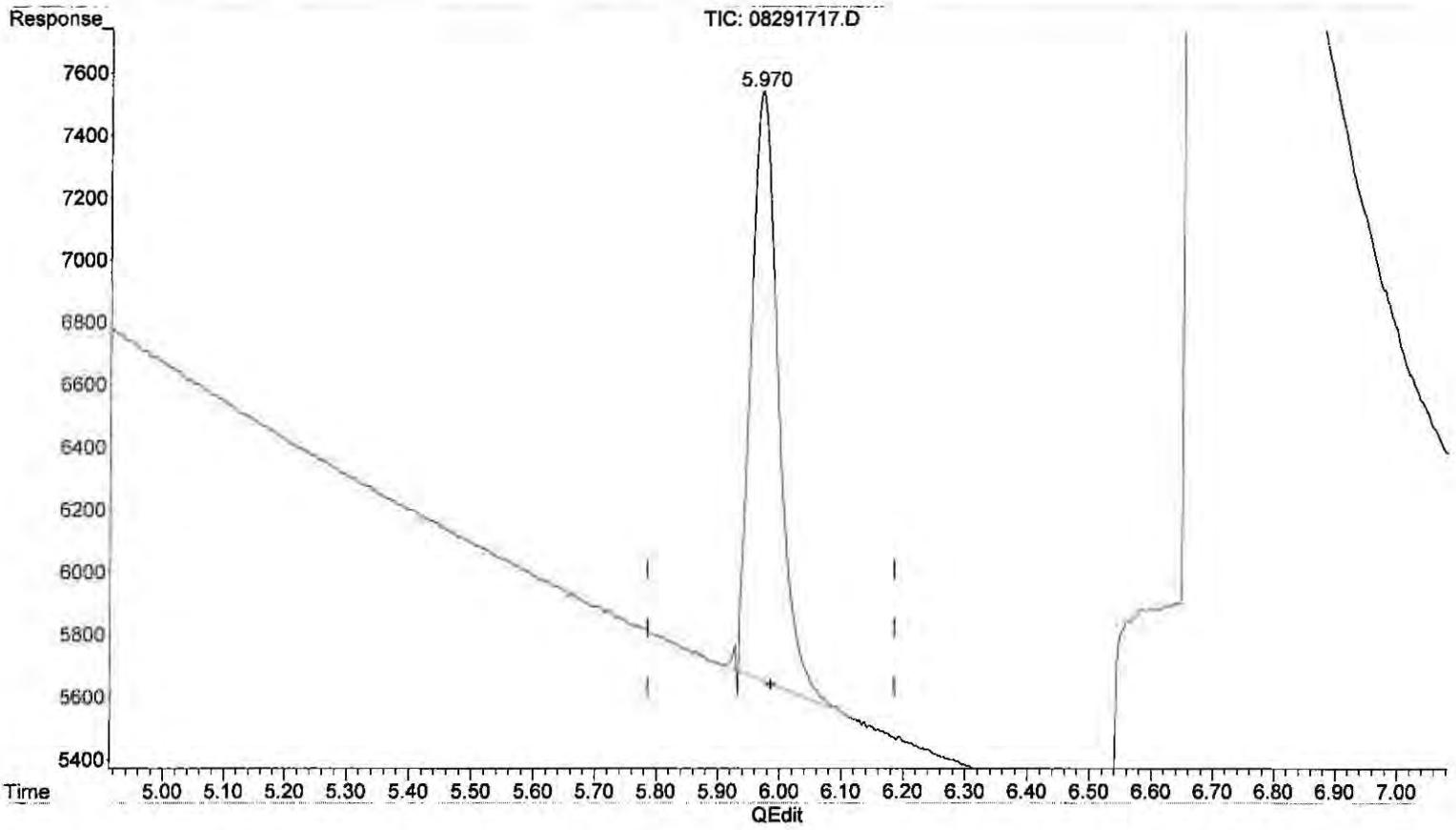


01040932

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

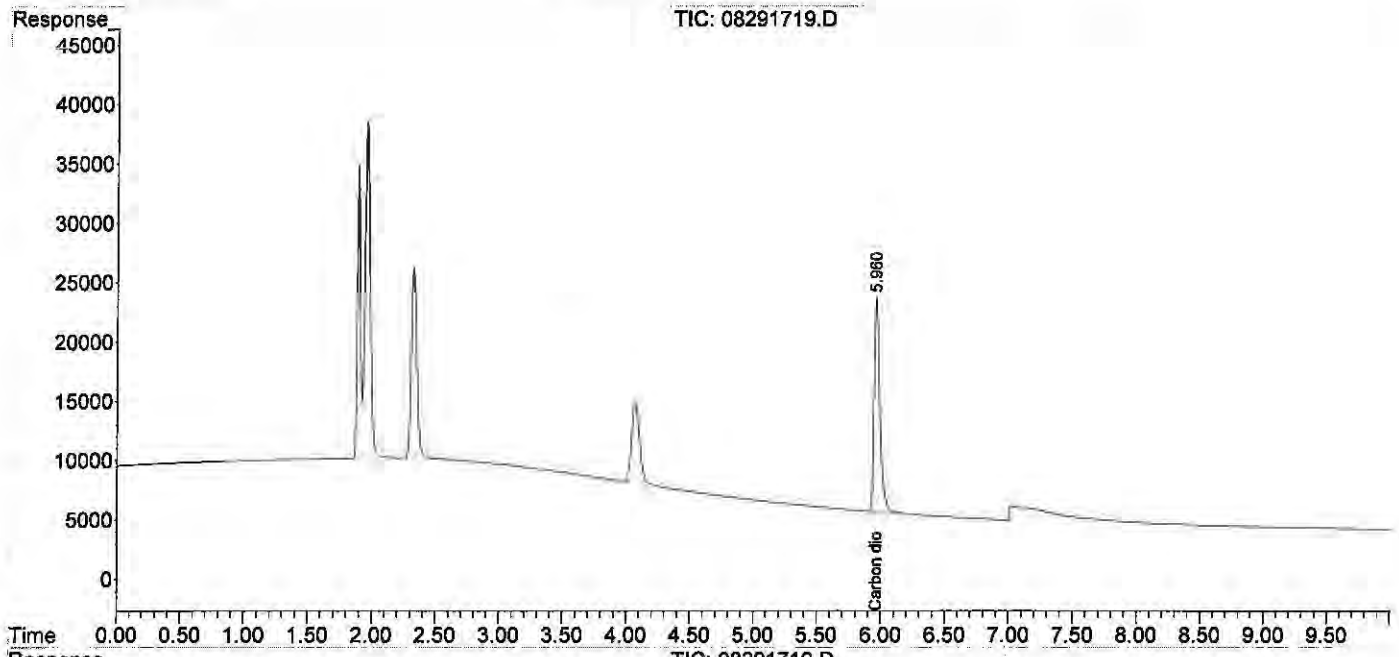
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

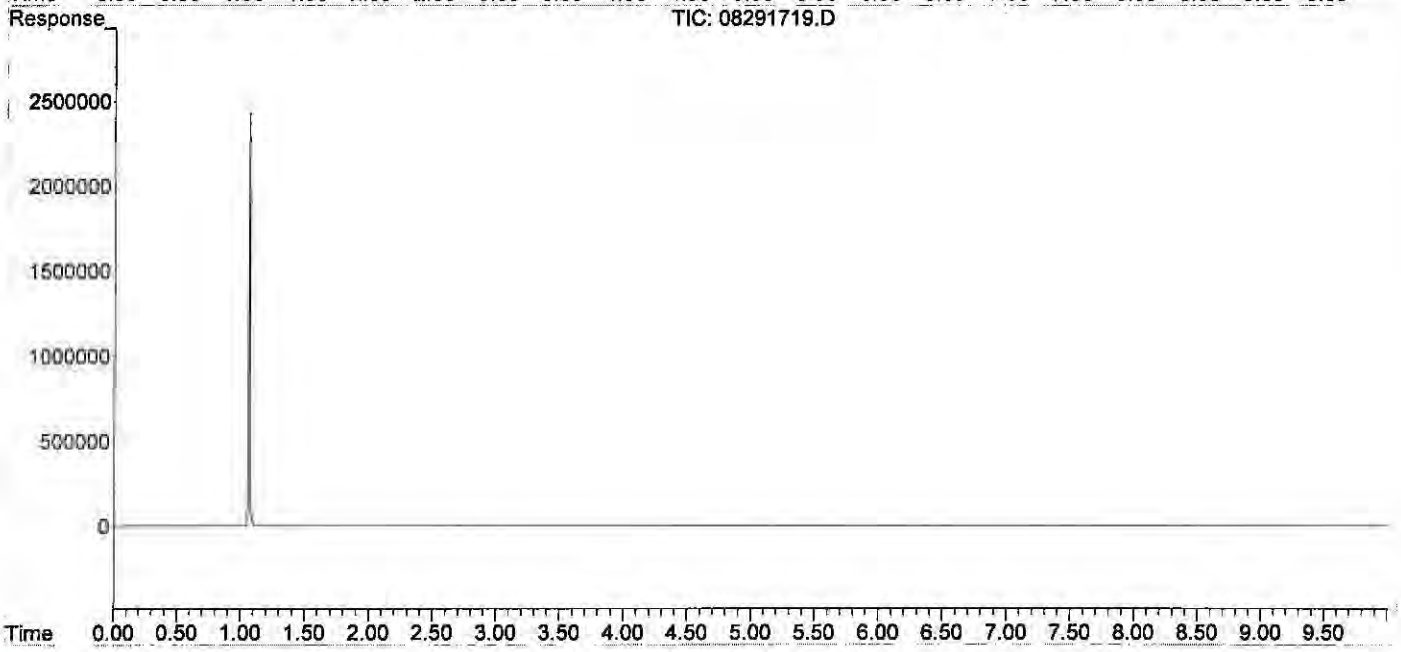
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

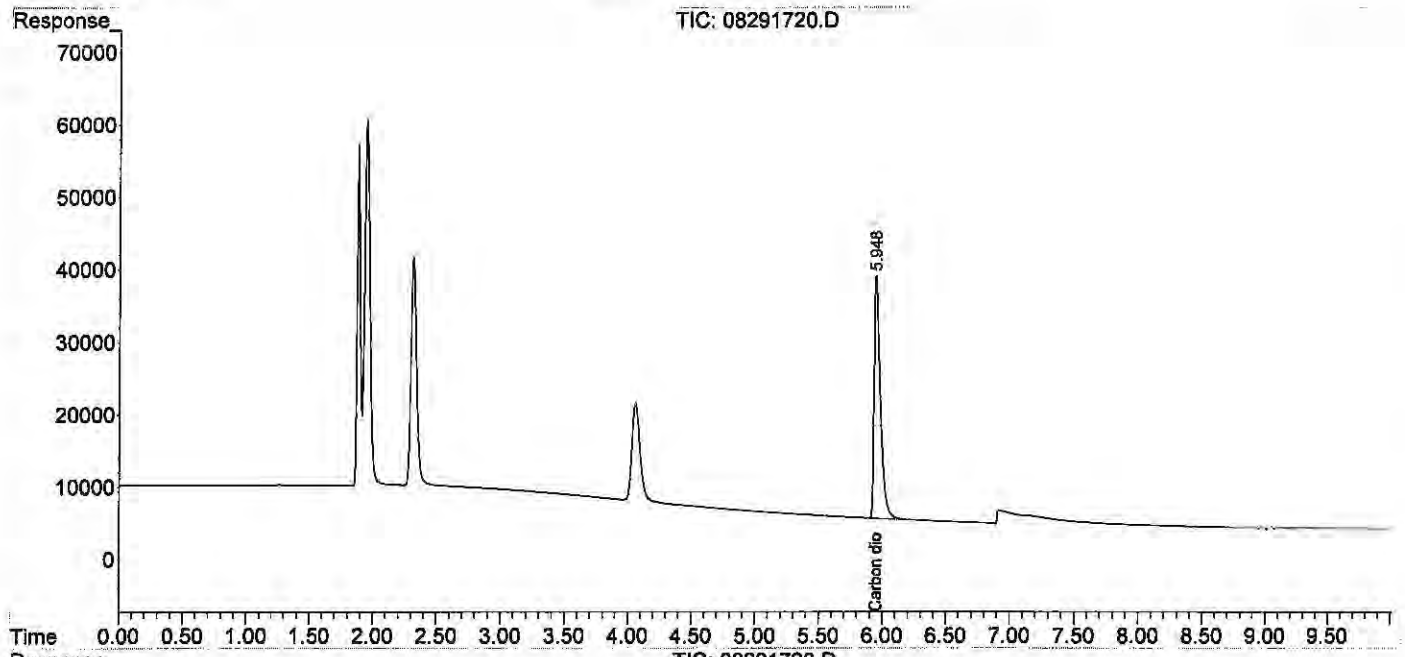
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

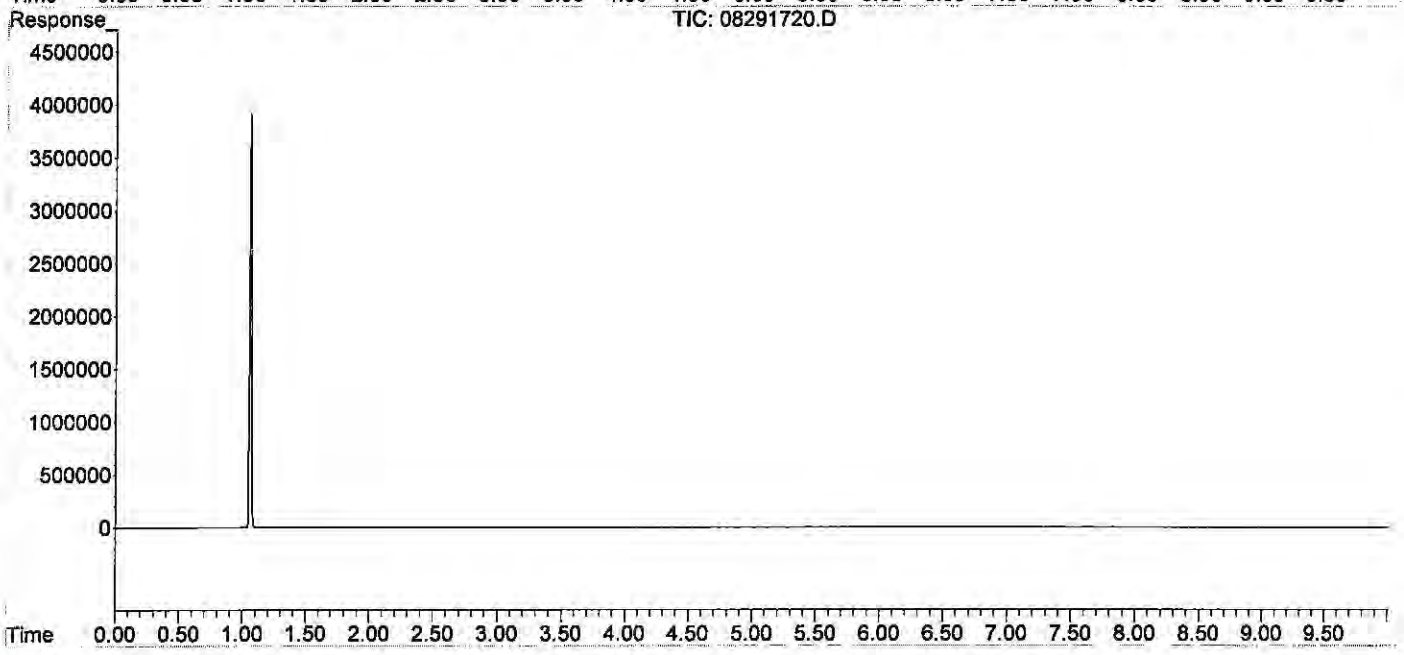
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

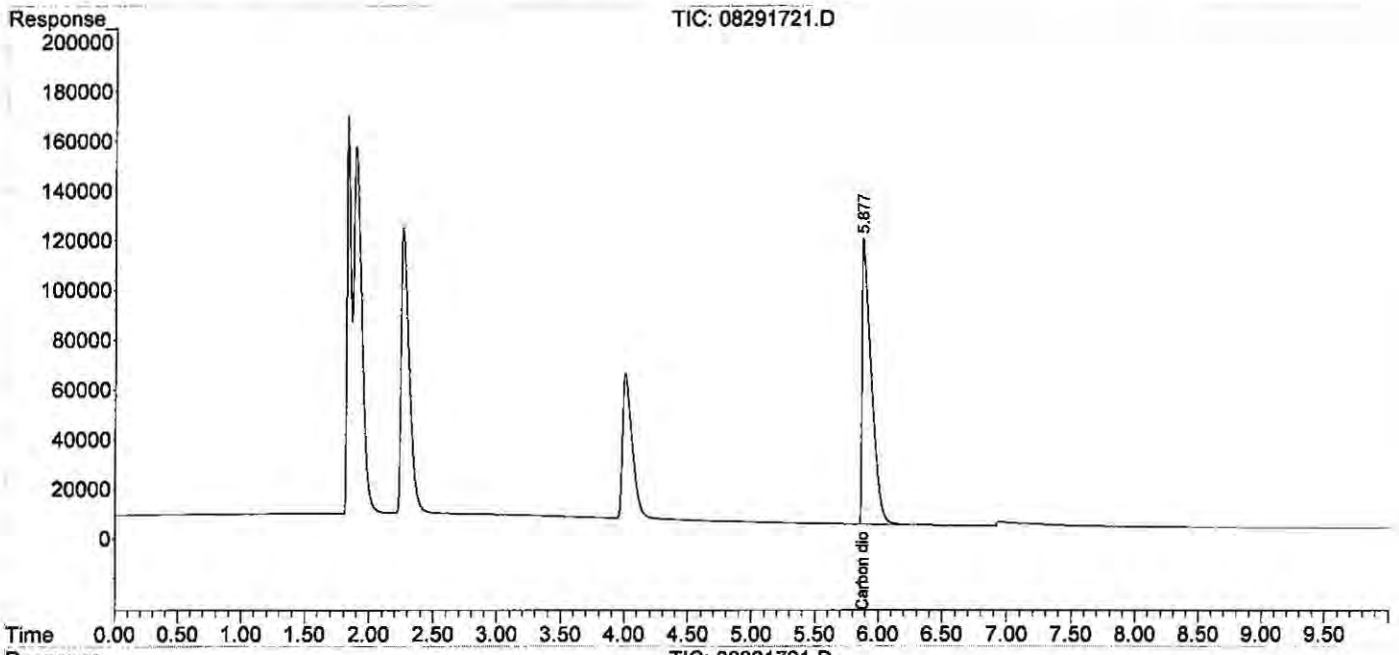
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

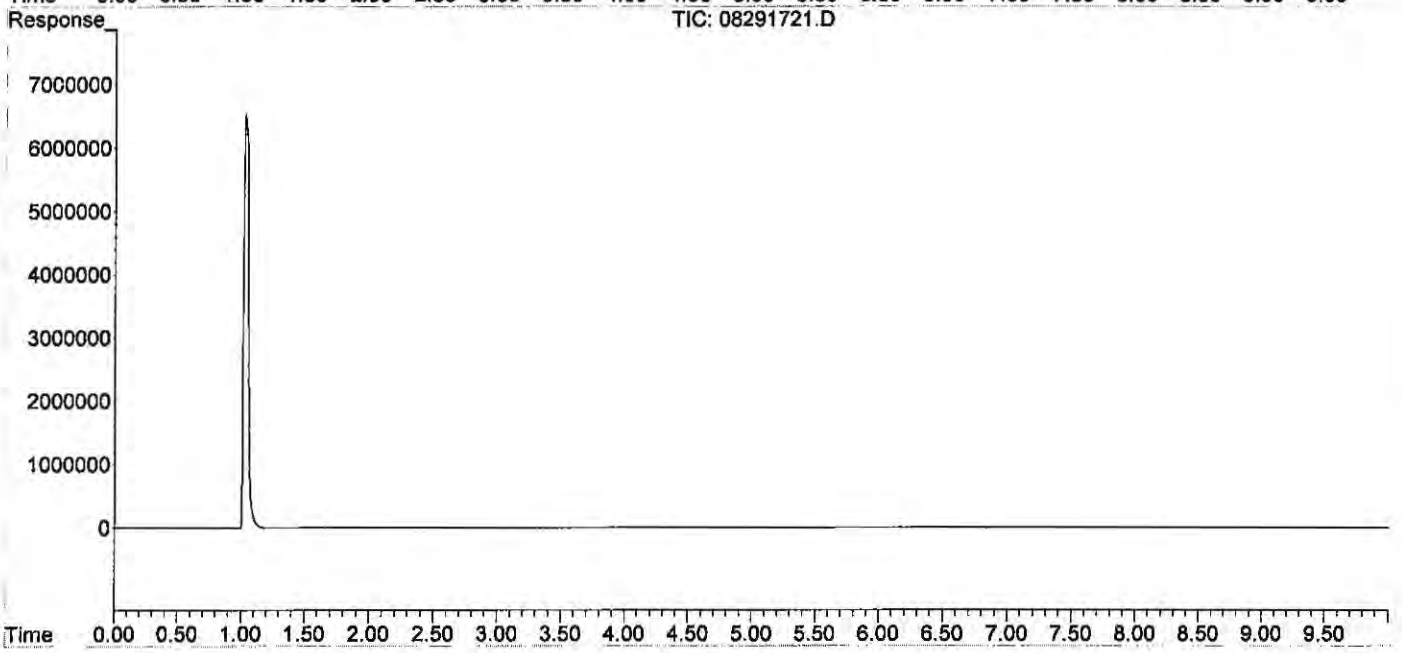
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.886	536422	0.113	ppm	Actual %D
2)	Carbon monoxide	1.886	536422	N.D.	ppm	
3)	Methane (TCD)	4.059f	626500	66244.710	ppm	
4)	Carbon dioxide	5.947	1163775	4957.948	ppm	5000 99.16
6)	Methane (FID)	1.062	37290742	3947.023	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

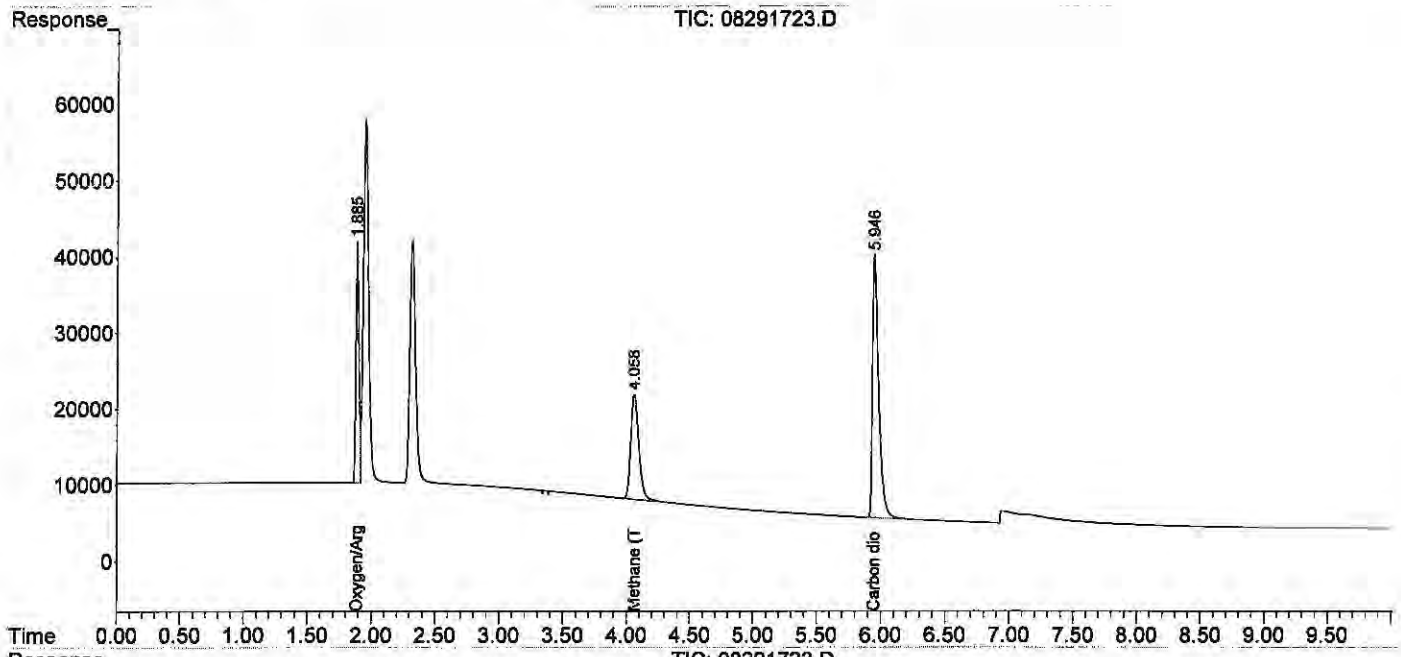
(f)=RT Delta > 1/2 Window (m)=manual int.

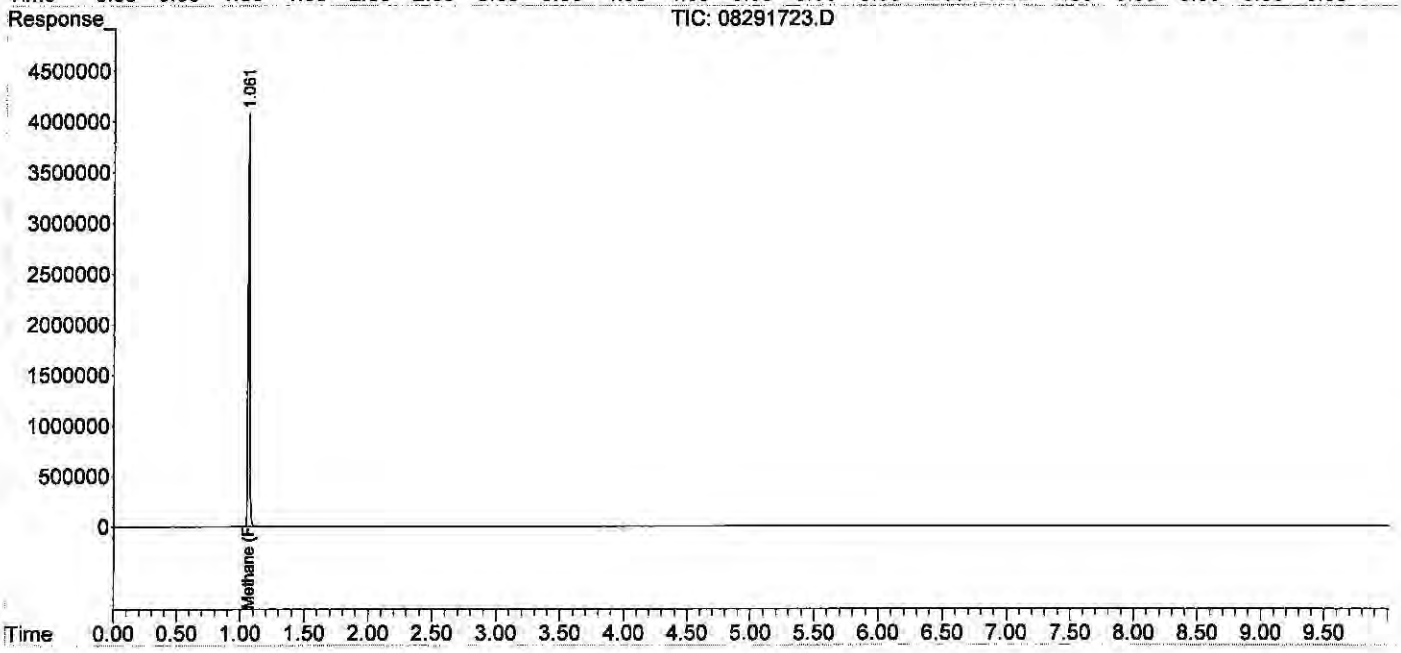
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD

Client : ALS Laboratory Group | Analyst : LD | Instrument : GC#10

Service Request: P2002598 | Date Analysis : 05/14/20 | Detector : FID#10, TCD#10

Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
STD S32-01312001	0.100	4965.087
ACTUAL		5000.00
%Difference		0.7%
MCS 0.1ml	0.100	0.000
RB 0.1ml	0.100	0.000
LCS S32-01212003	0.100	1104.718
LCSD S32-01212003	0.100	999.376
P2002598-001 0.1ml	0.100	1324.942
P2002598-002 0.1ml	0.100	1925.111

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1ml	0.000
LCS S32-01212003	11047.180
LCSD S32-01212003	9993.760
P2002598-001 0.1ml	13249.420
P2002598-002 0.1ml	19251.110

LD 05/14

STD S32-01312001	4871.402
ACTUAL	5000.00
%Difference	2.6%

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 12:23:07
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 12:49:50 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD 05/14

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

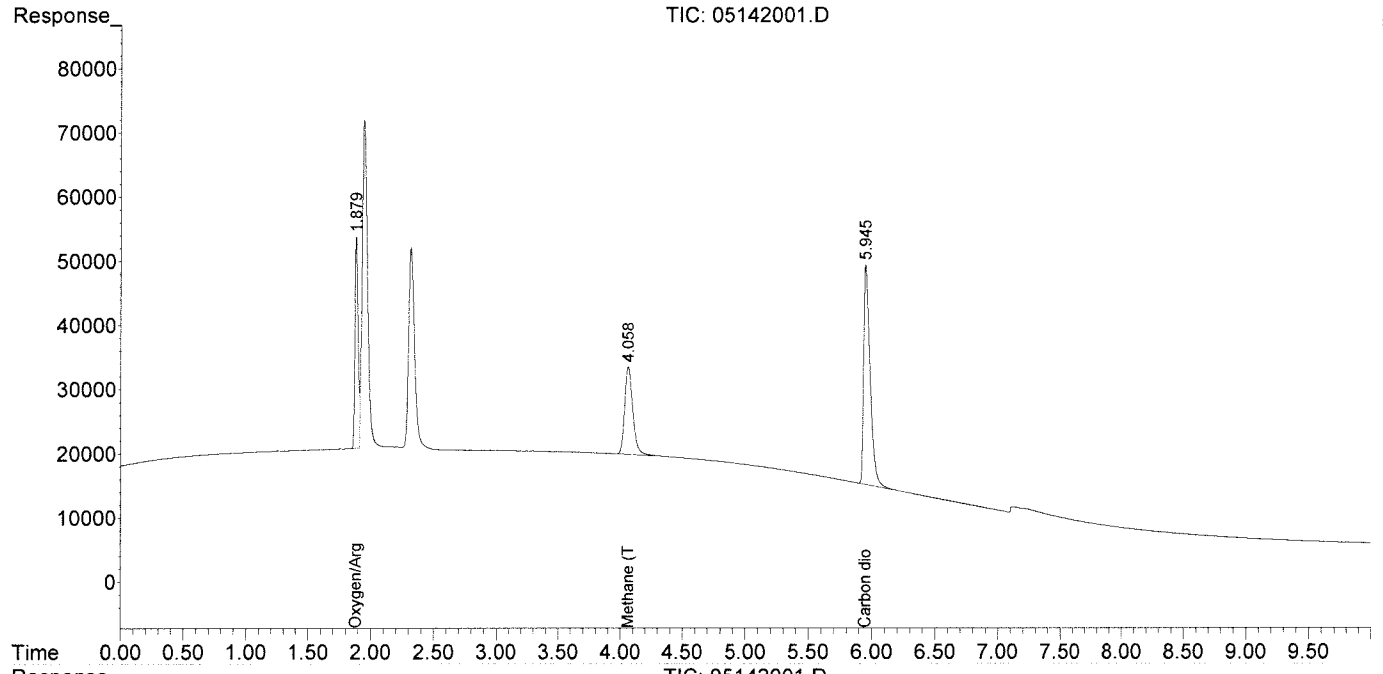
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.880	571936	0.120	ppm
2)	Carbon monoxide	1.880	571936	N.D.	ppm
3)	Methane (TCD)	4.058f	627905	66393.267	ppm
4)	Carbon dioxide	5.947	1165451	4965.087	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

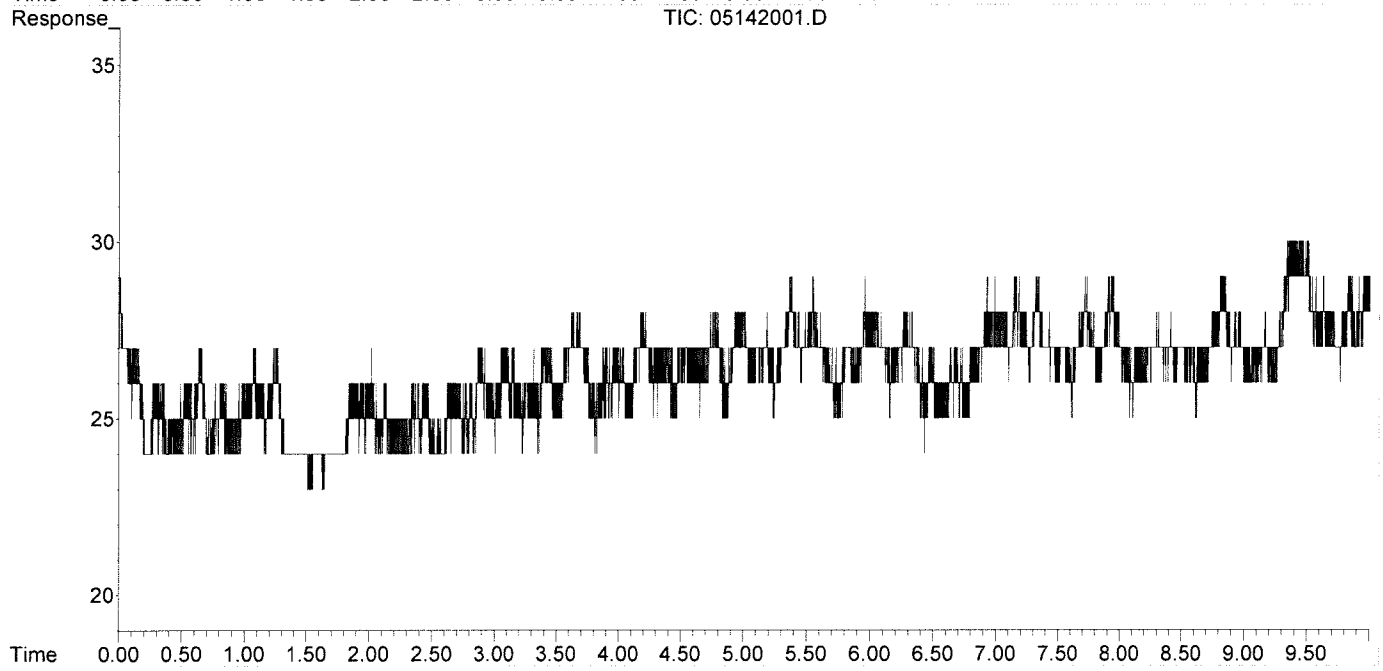
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 12:23:07
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 12:49:50 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:49:55
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 17:04:56 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

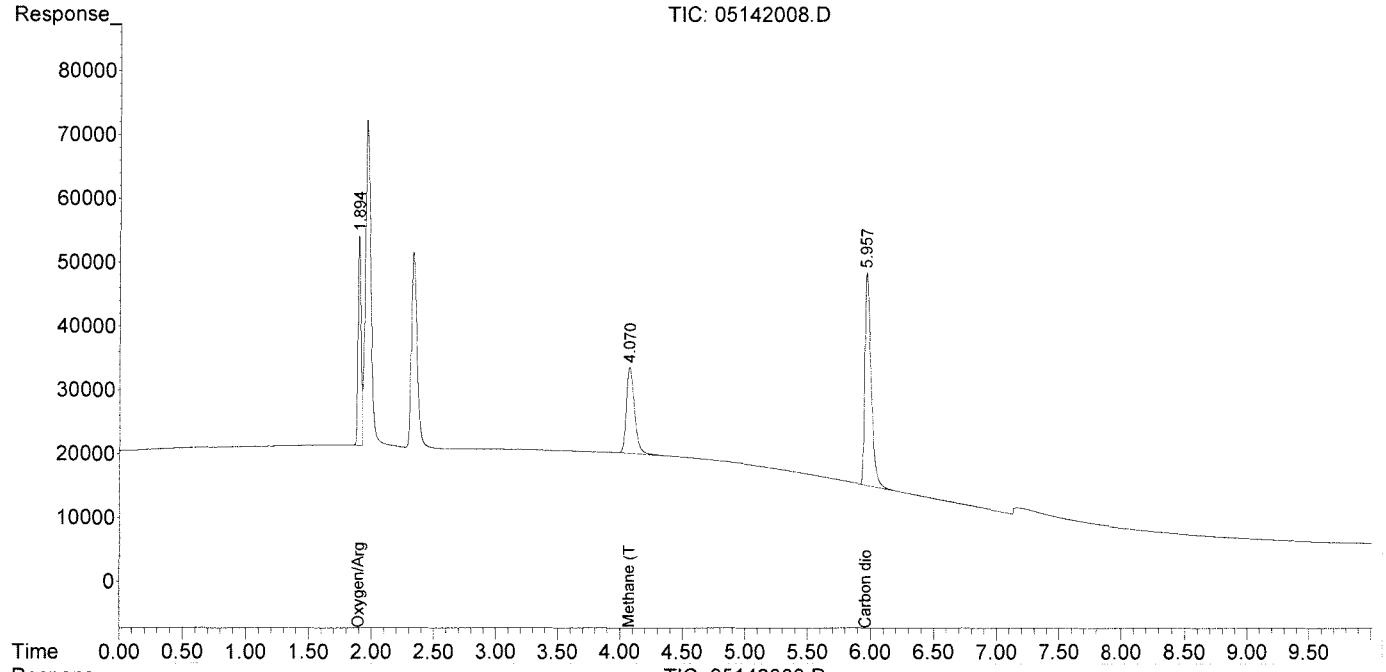
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	571159	0.120	ppm
2)	Carbon monoxide	1.895	571159	N.D.	ppm
3)	Methane (TCD)	4.071f	618718	65421.940	ppm
4)	Carbon dioxide	5.959	1143460	4871.402	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

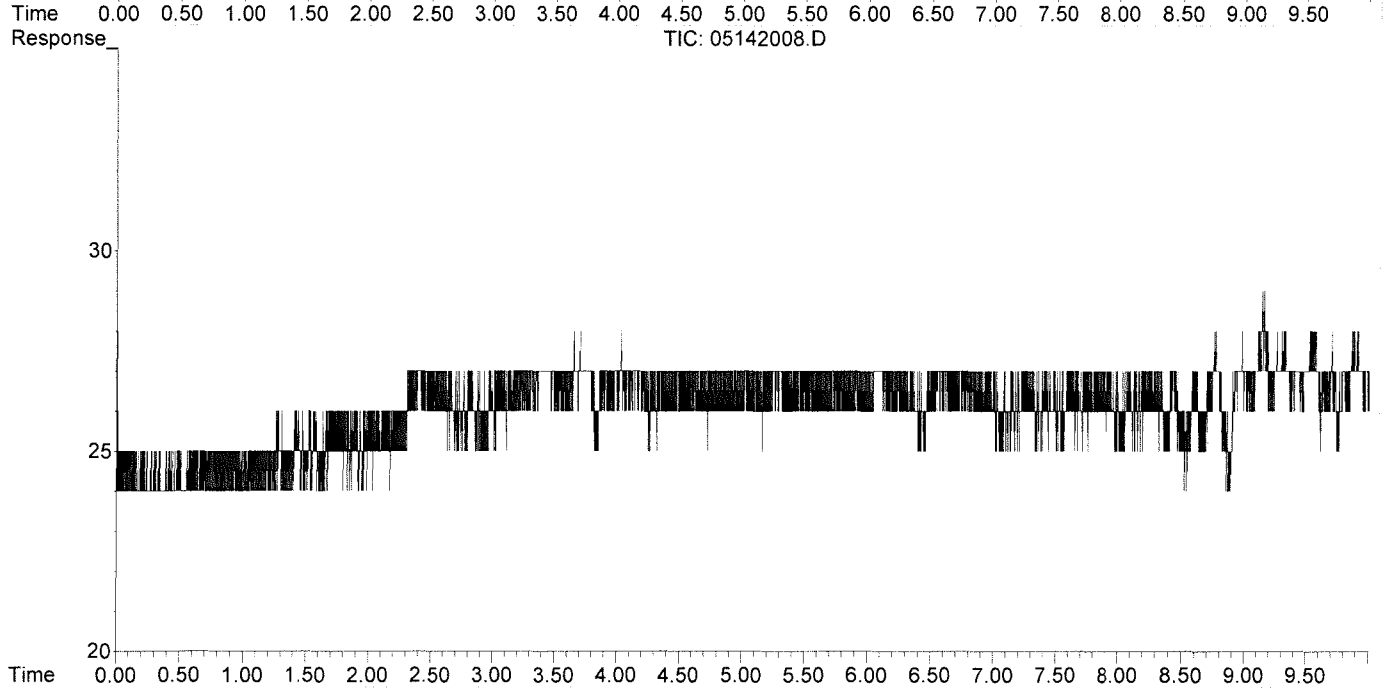
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\14CO2\
Data File : 05142008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2020, 16:49:55
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 17:04:56 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mis inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2020_05\14\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	14-May-20, 12:23:07	05142001.D	STD S32-01312001		LD	RSKBOTH.M	pass
2	14-May-20, 12:52:30	05142002.D	RB 0.1ml		LD	RSKBOTH.M	pass
3	14-May-20, 15:35:05	05142003.D	MCS 0.1ml		LD	RSKBOTH.M	pass
4	14-May-20, 15:50:49	05142004.D	LCS S32-01212003		LD	RSKBOTH.M	pass
5	14-May-20, 16:06:17	05142005.D	LCSD S32-01212003		LD	RSKBOTH.M	pass
6	14-May-20, 16:22:25	05142006.D	P2002598-001 0.1ml		LD	RSKBOTH.M	
7	14-May-20, 16:35:38	05142007.D	P2002598-002 0.1ml		LD	RSKBOTH.M	
8	14-May-20, 16:49:55	05142008.D	STD S32-01312001		LD	RSKBOTH.M	pass

01040948

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132016.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 17:48:43
Operator : LD
Sample : P2002598-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 18:32:43 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

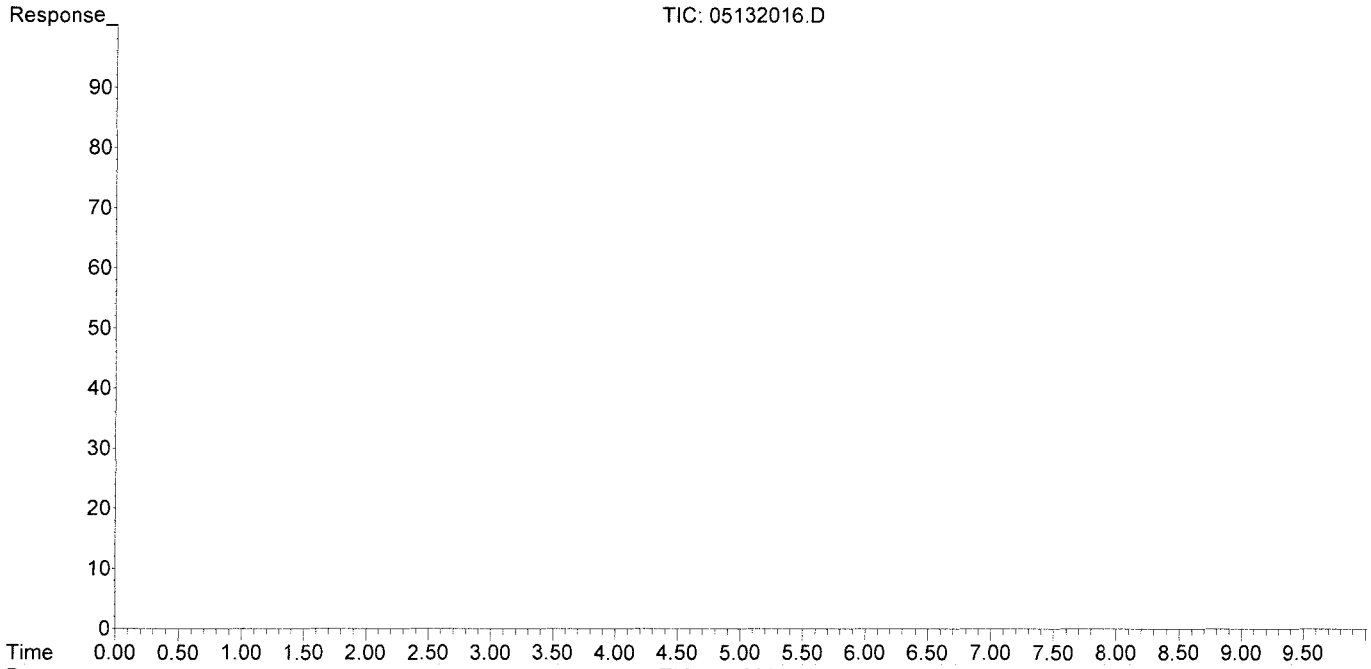
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

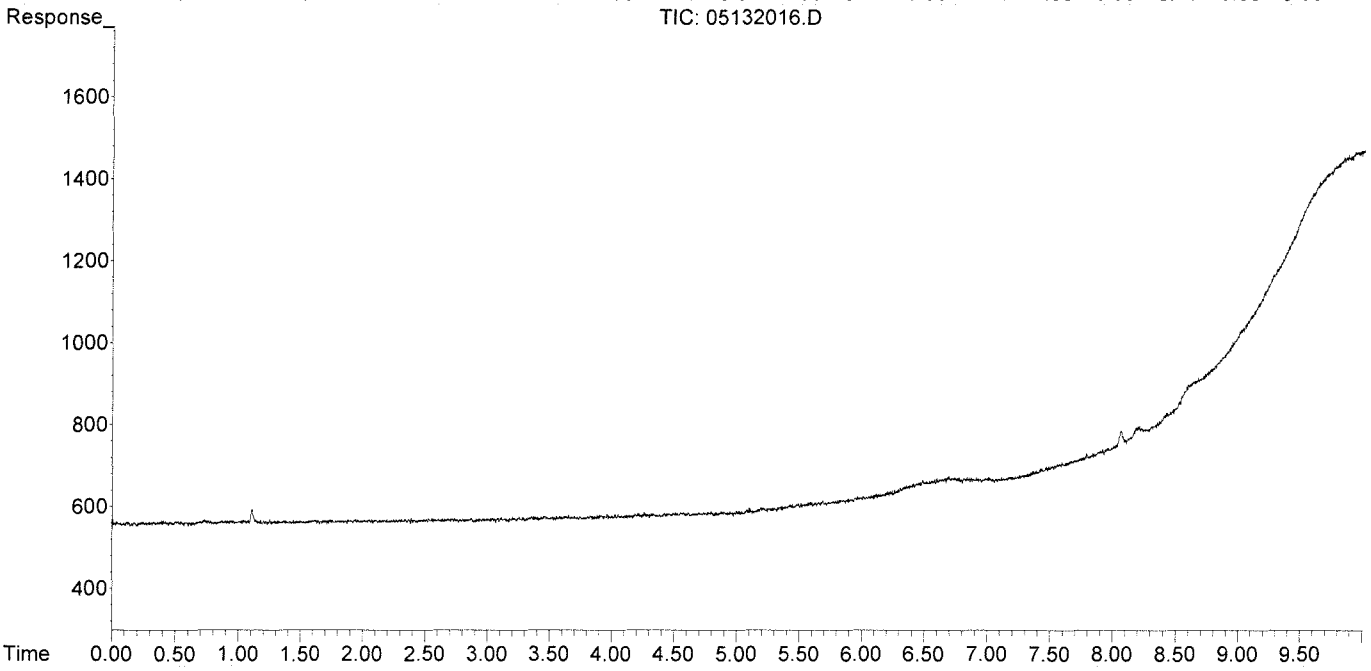
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132016.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 17:48:43
Operator : LD
Sample : P2002598-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 18:32:43 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132017.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 18:02:53
Operator : LD
Sample : P2002598-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 18:32:53 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

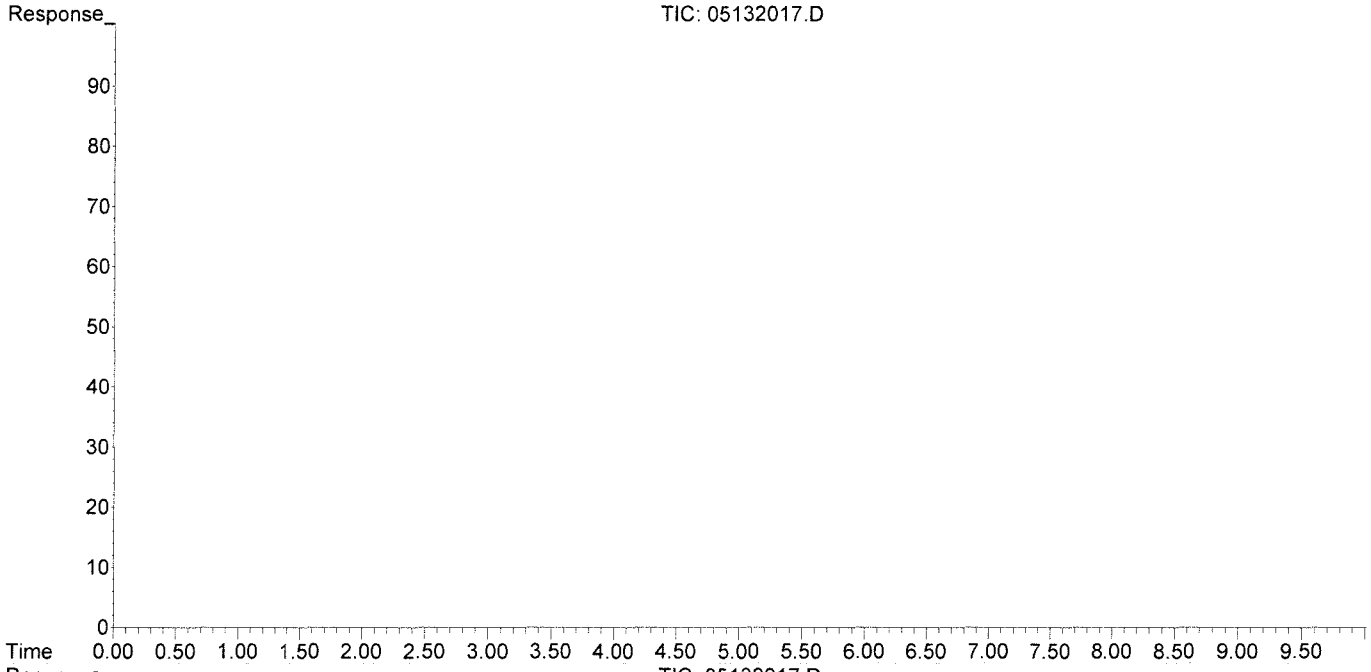
(f)=RT Delta > 1/2 Window (m)=manual int.

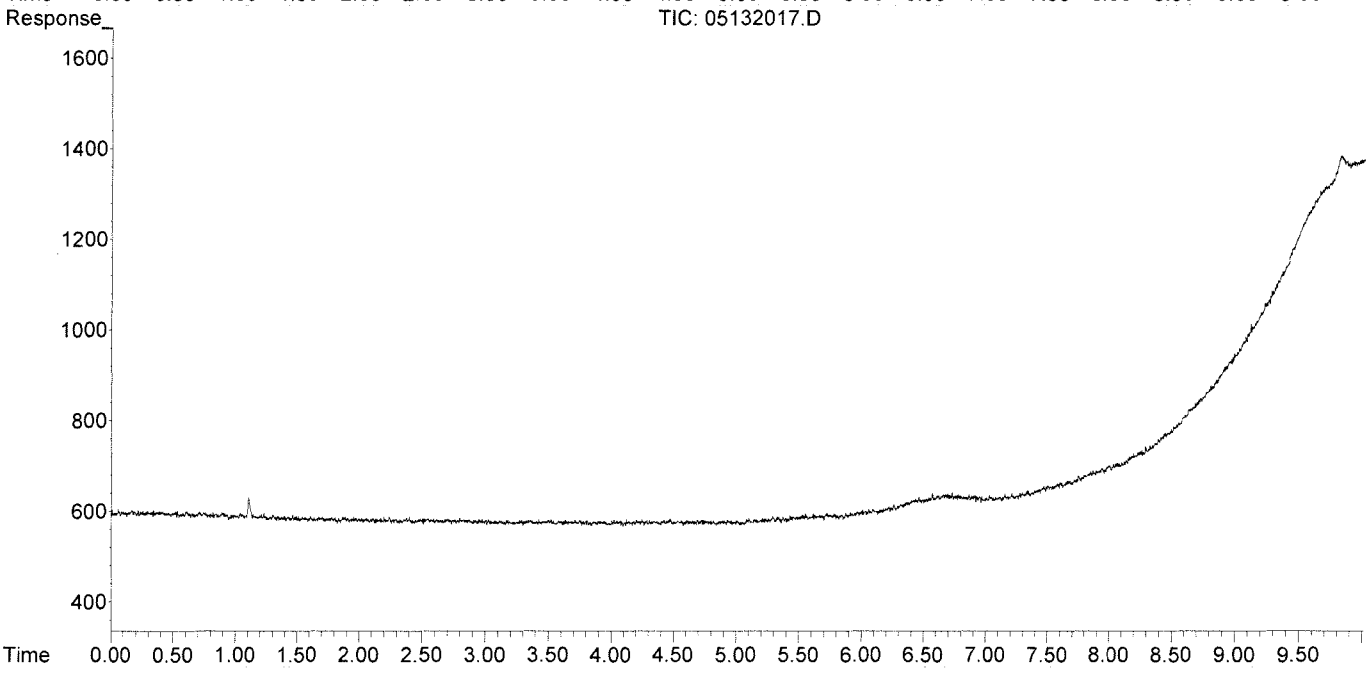
01040951

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132017.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 18:02:53
Operator : LD
Sample : P2002598-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 18:32:53 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132013.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 16:20:04
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 17:34:07 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

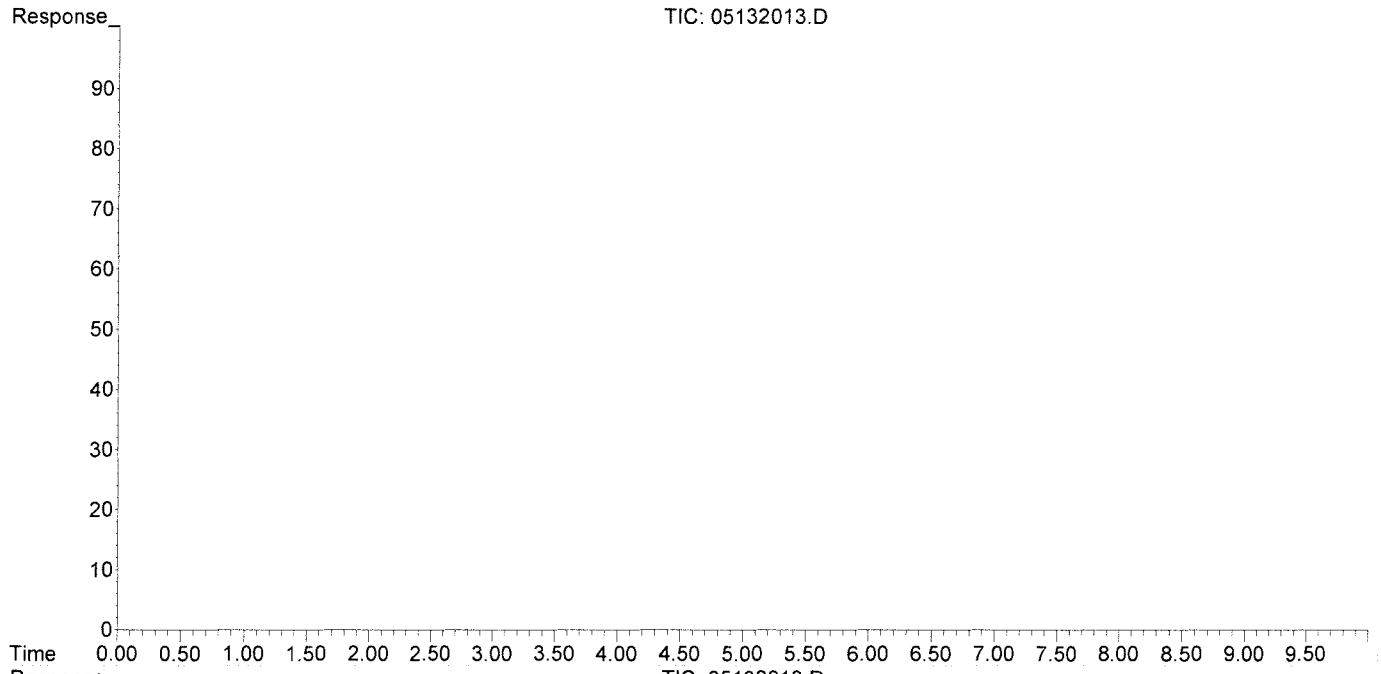
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

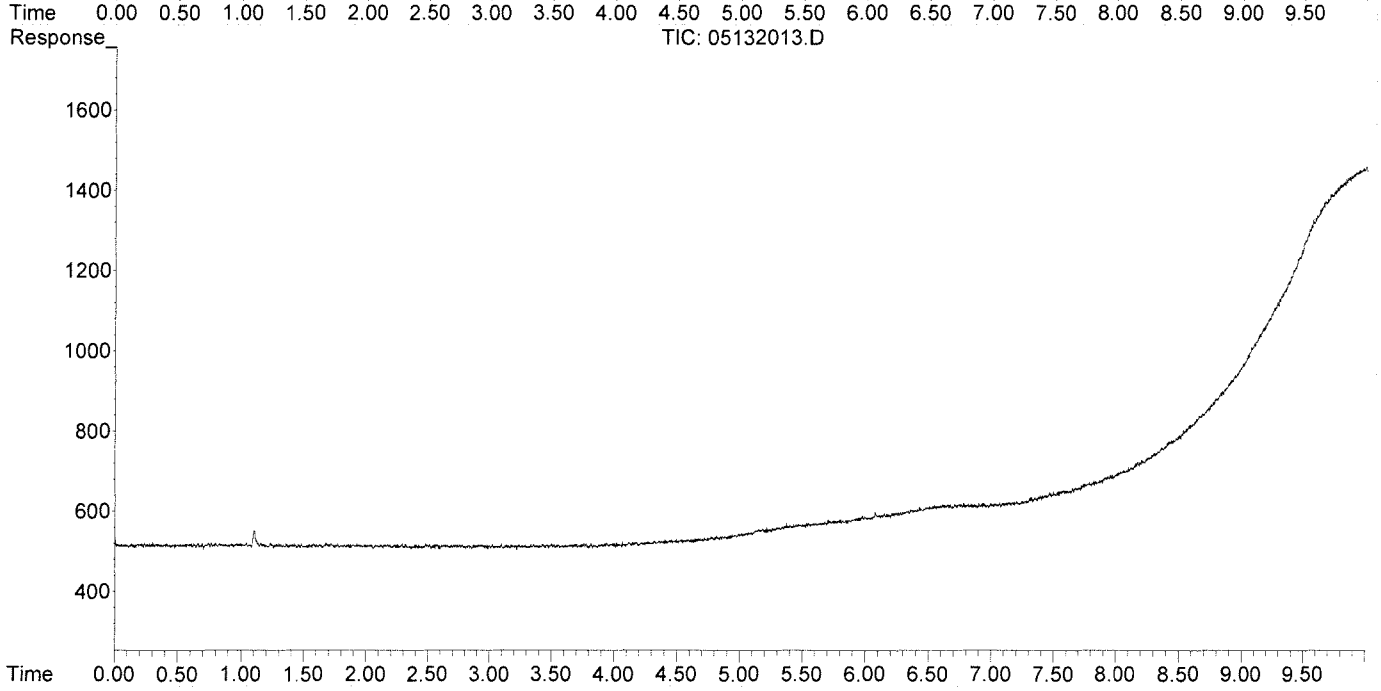
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132013.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 16:20:04
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 17:34:07 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132014.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 17:10:36
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 17:34:17 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

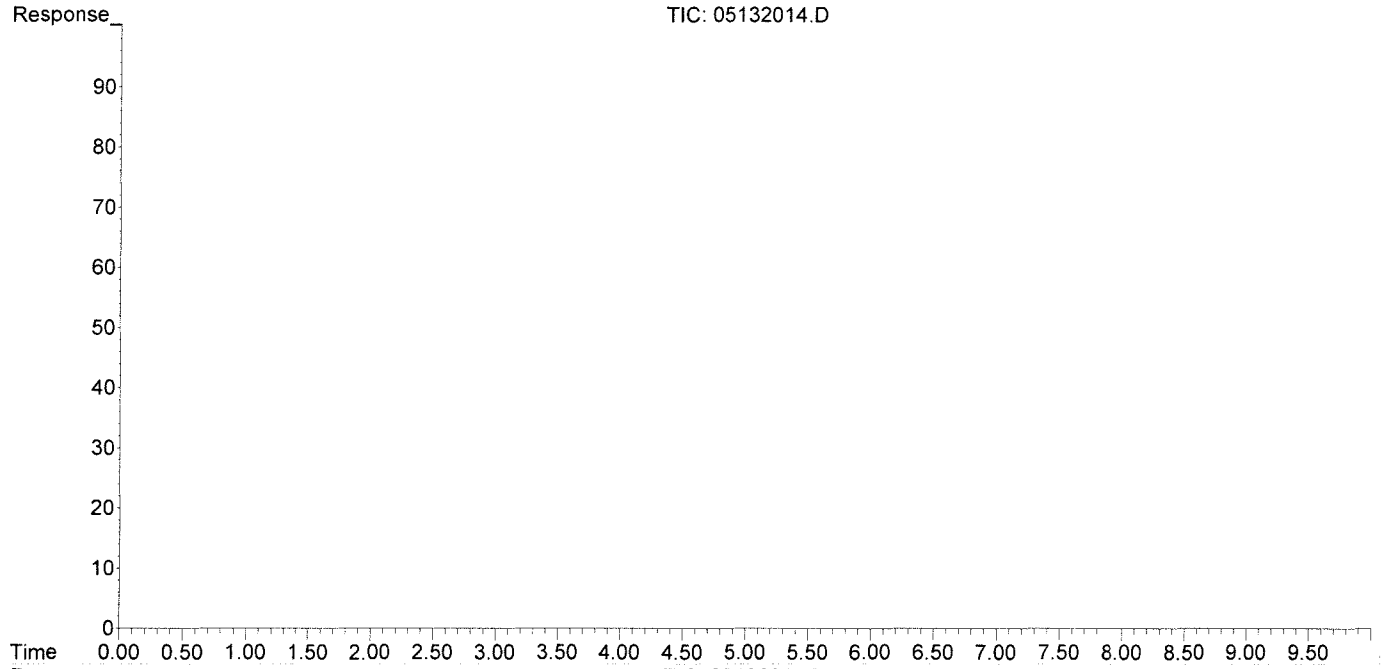
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.106	12520	1.380	ppm	
7)	Ethylene	1.676	16749	1.001	ppm	
8)	Ethane	1.941	20981	1.238	ppm	
9)	Propylene	4.323	22200	0.947	ppm	
10)	Propane	4.445	31269	1.257	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	d
13)	n-Butane	0.000	0	N.D.	ppm	d

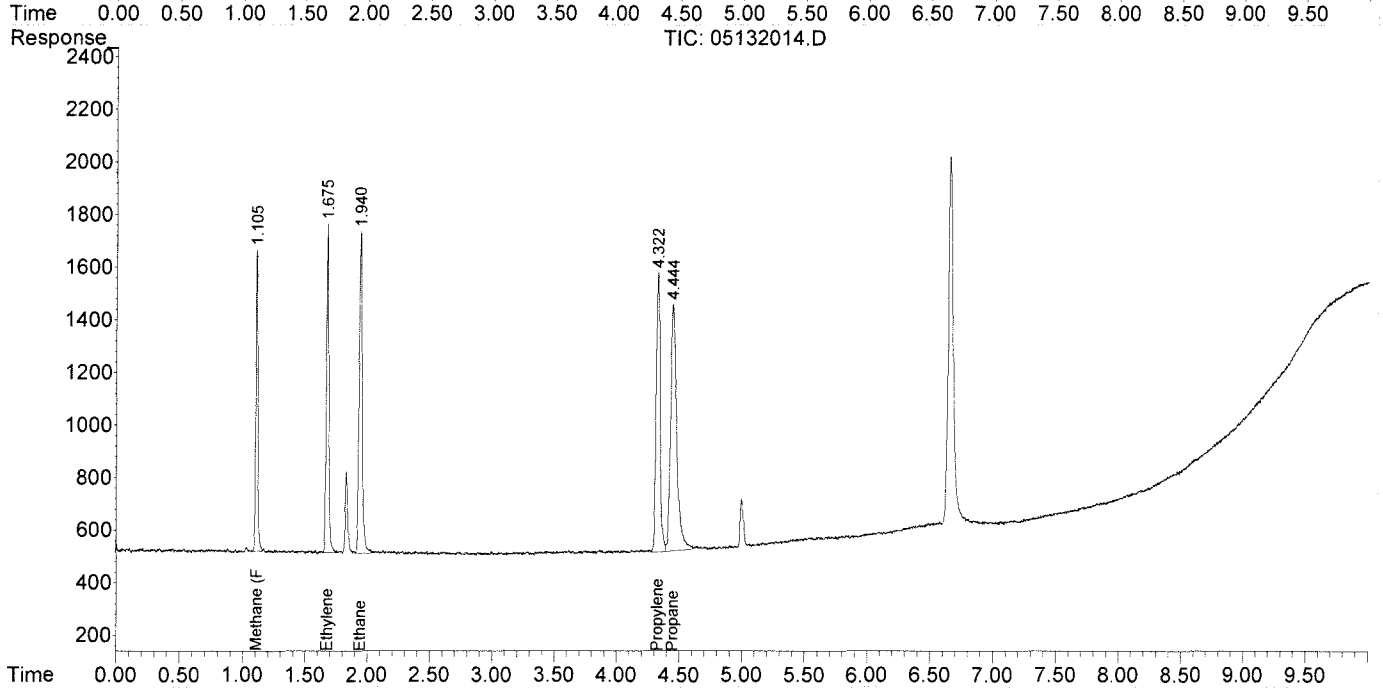
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132014.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 17:10:36
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 17:34:17 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132015.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 17:29:50
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 17:47:35 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

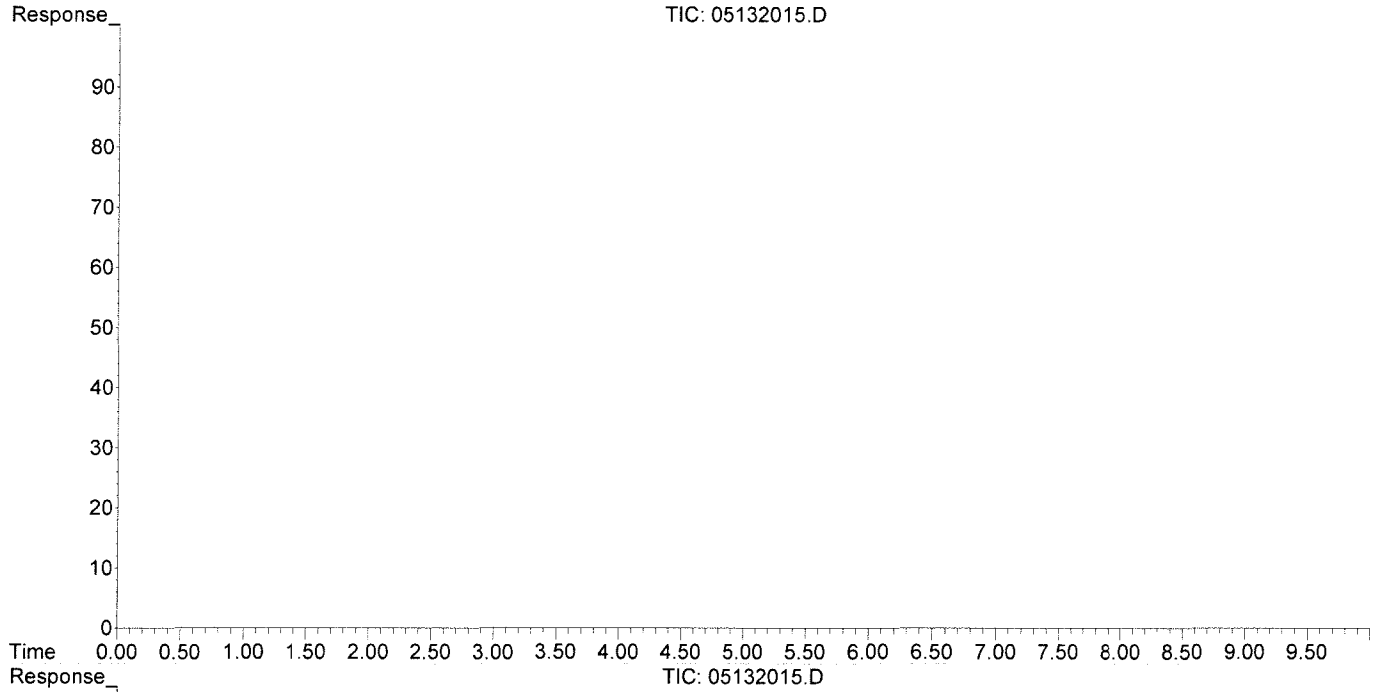
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.103	12712	1.401	ppm	
7)	Ethylene	1.674	16646	0.995	ppm	
8)	Ethane	1.940	20809	1.228	ppm	
9)	Propylene	4.323	22388	0.955	ppm	
10)	Propane	4.445	31442	1.264	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	d
13)	n-Butane	0.000	0	N.D.	ppm	d

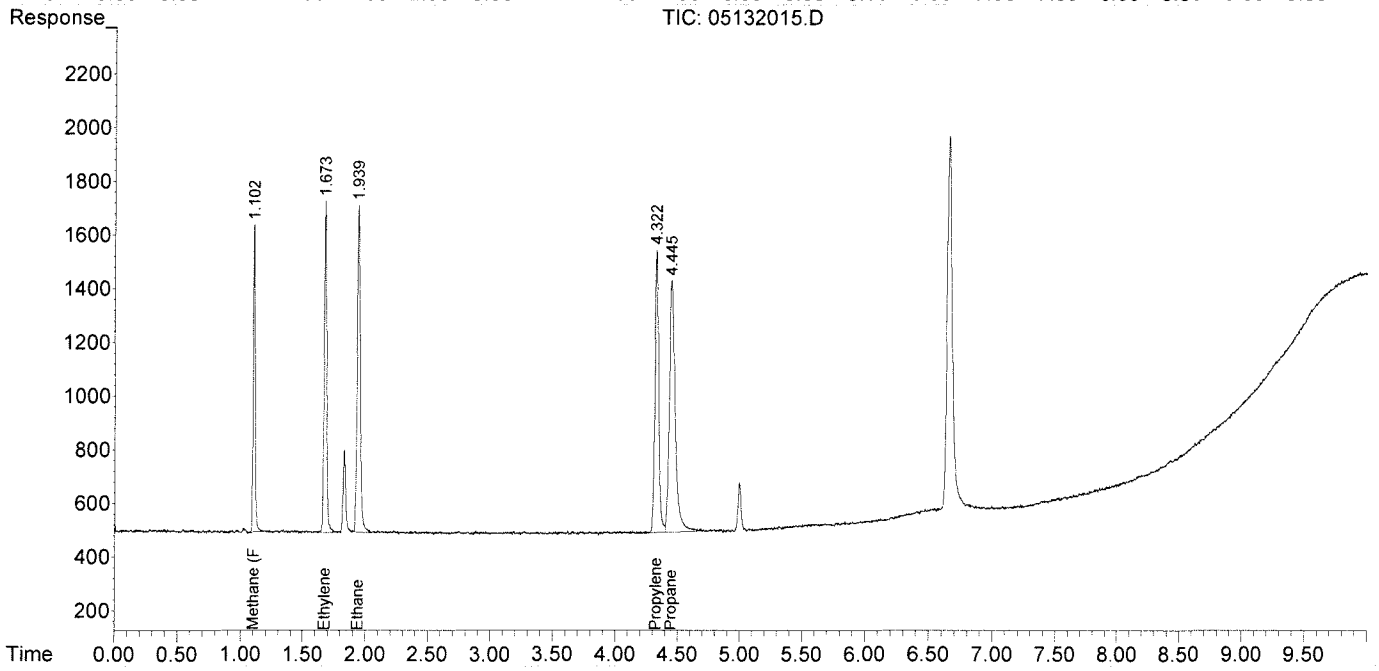
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132015.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 17:29:50
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 17:47:35 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793 E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594 E6	221.92
3)	Methane (TCD)						2.161	0.951 E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438 E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907 E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673 E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695 E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343 E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488 E4	4.20
11)	Isobutylene							0.652 E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

Edit Compounds -- Compound #6 -- Methane (FID)

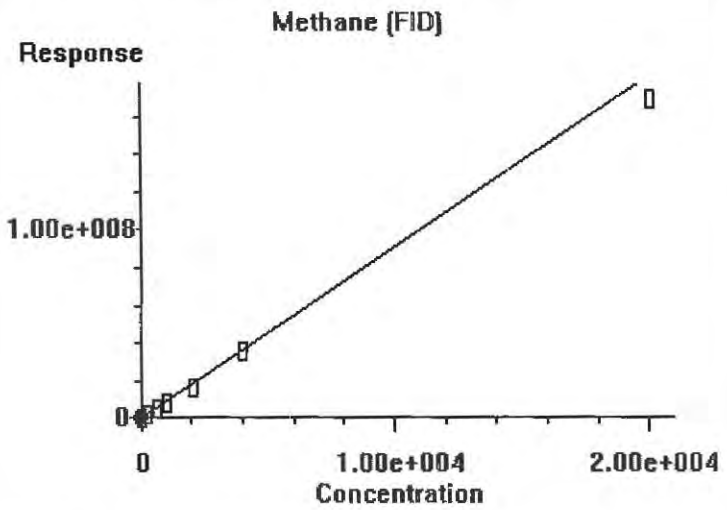
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	
2	0.302000	3564.400000
3	1.510000	14725.268625
4	4.530000	41128.575000
5	10.570000	91966.784531
6	200.000000	1735997.497500
7	600.000000	5189848.900000
8	1000.000000	8598533.570000
9	2000.000000	16098209.390000
10	4000.000000	35776839.311362

Lvl ID	Concentration	Response
11	20000.000000	169009160.49199



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

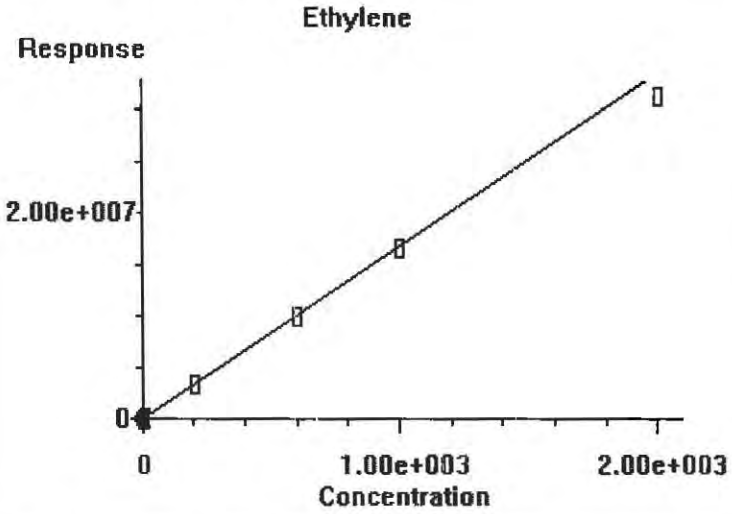
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

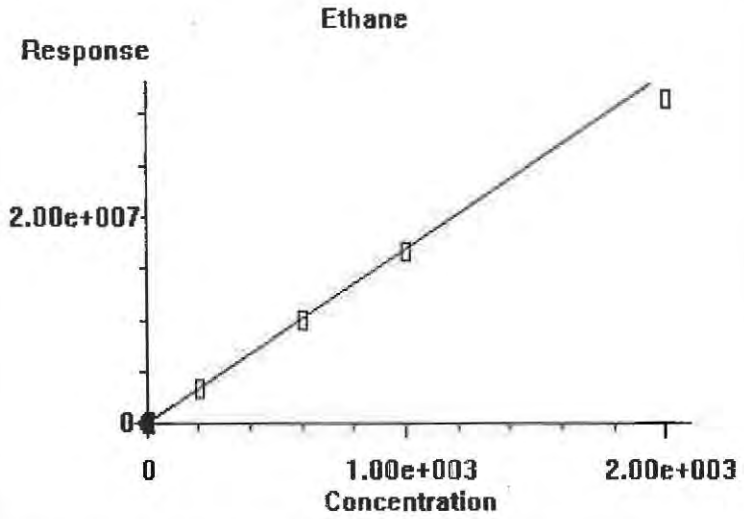
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

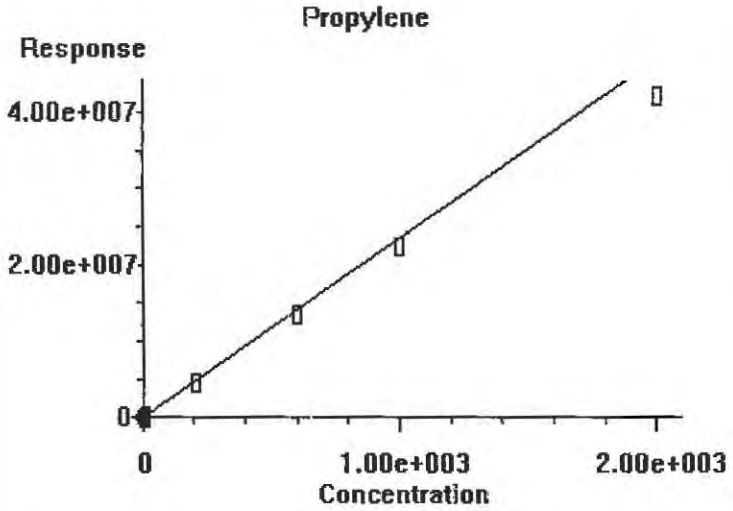
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

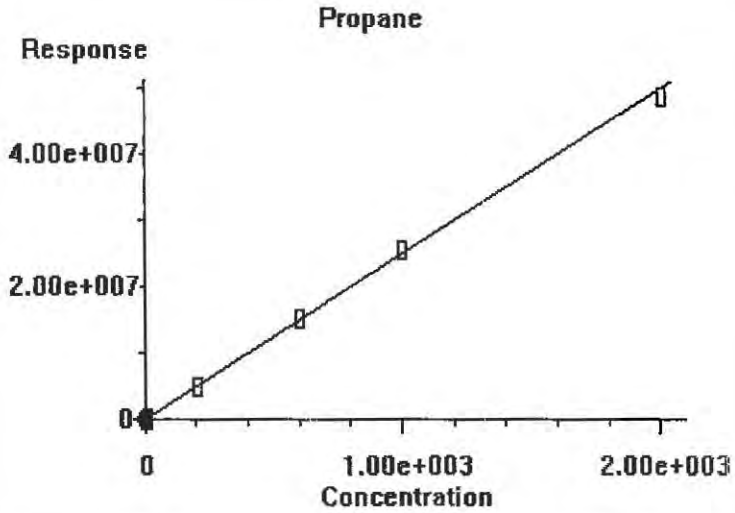
Search by: Ret Time | Name | Index — Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

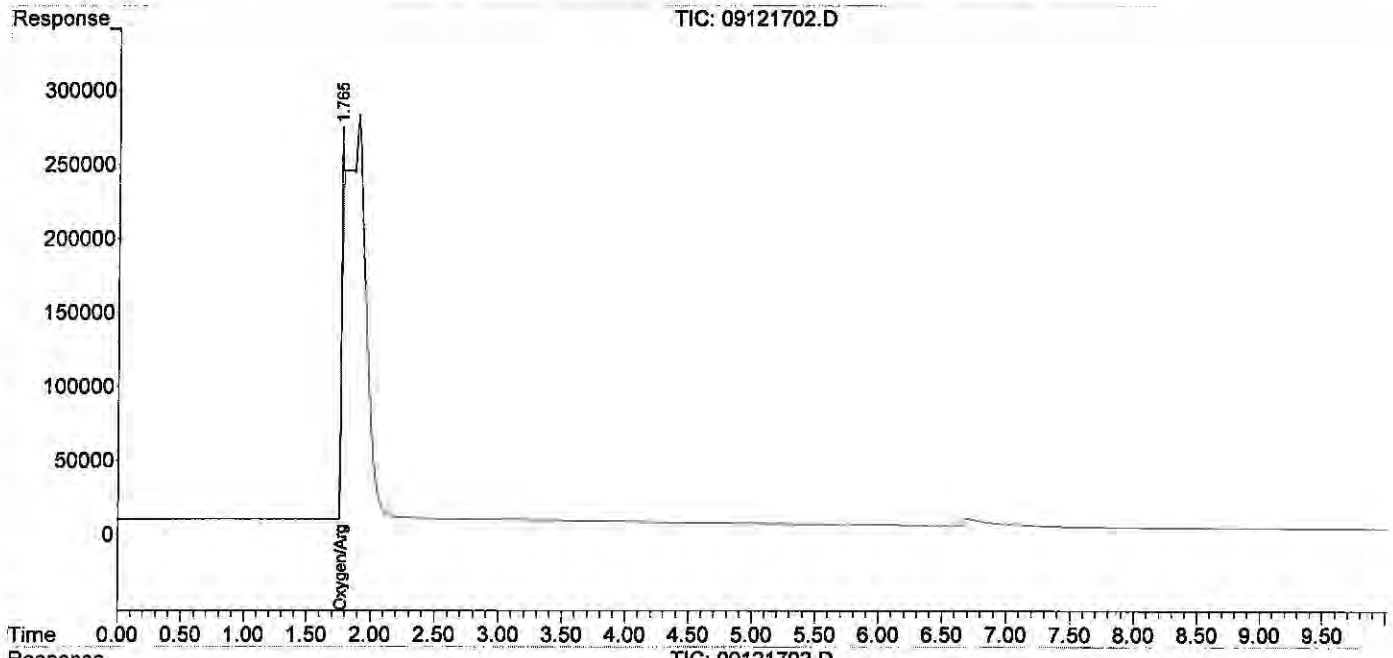
9/13/17

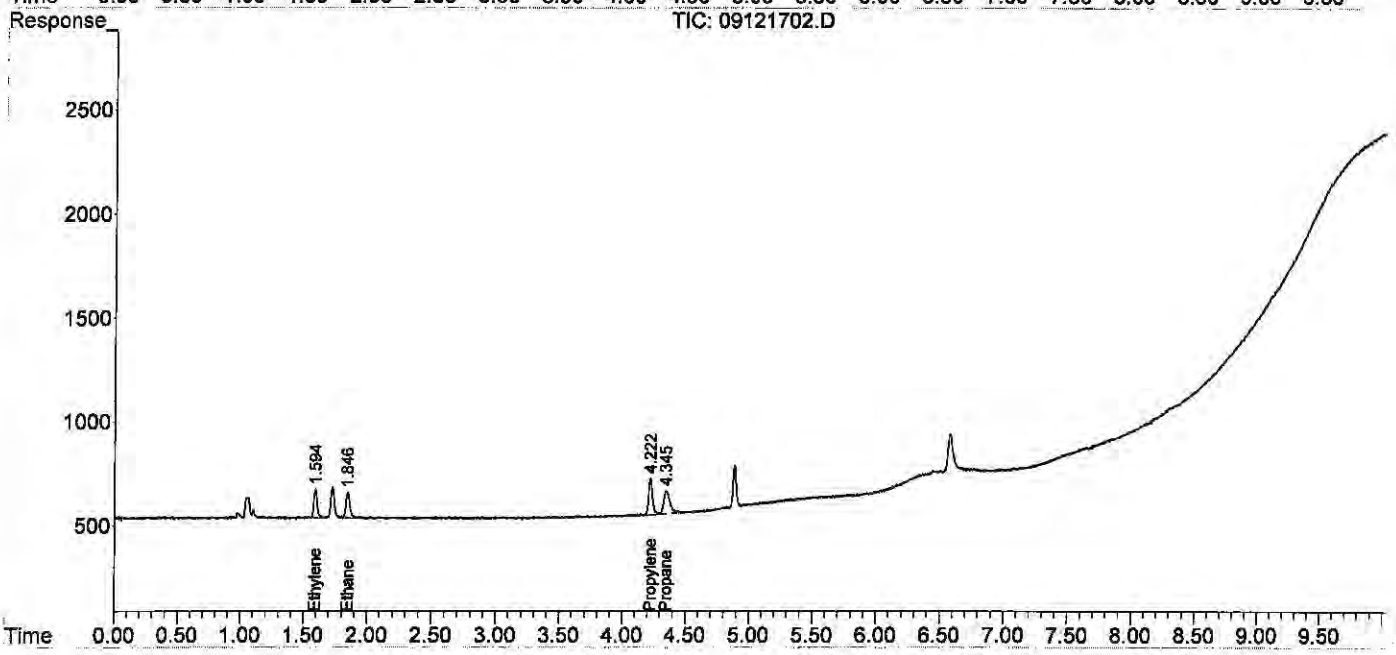
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

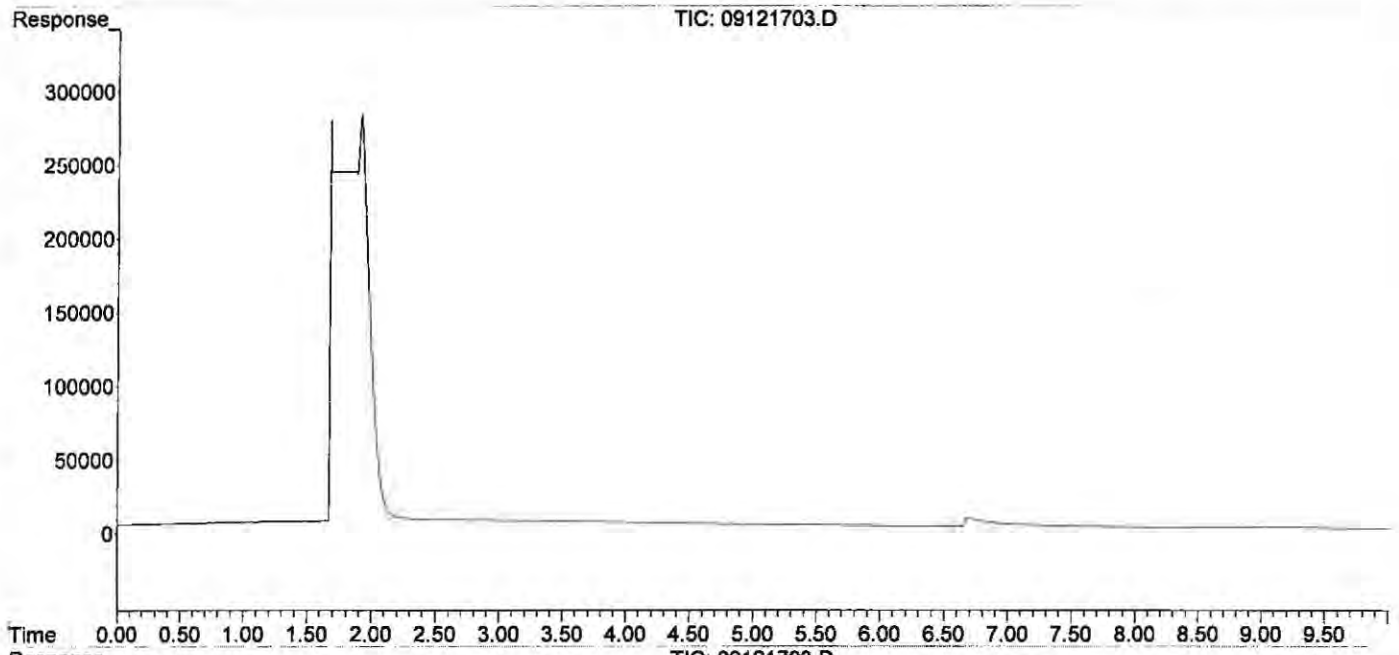
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

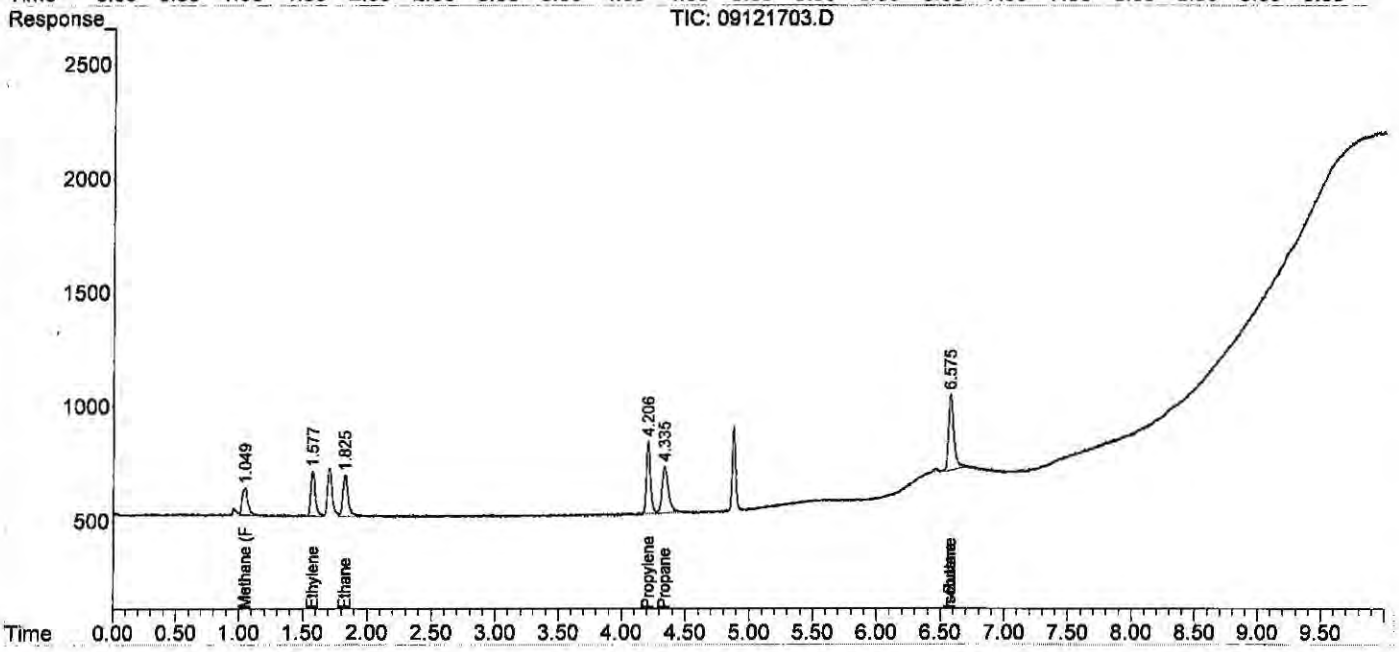
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

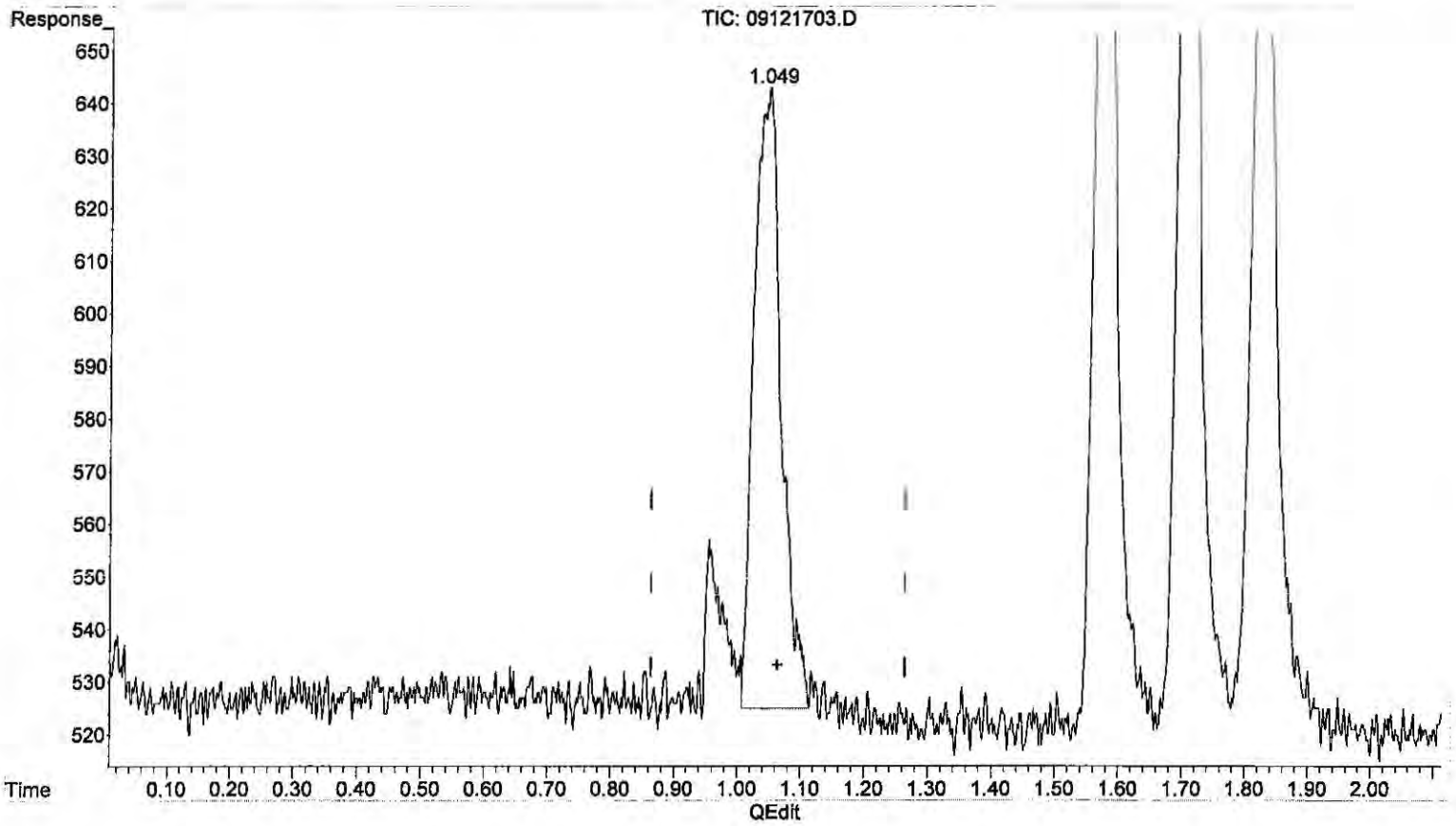




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

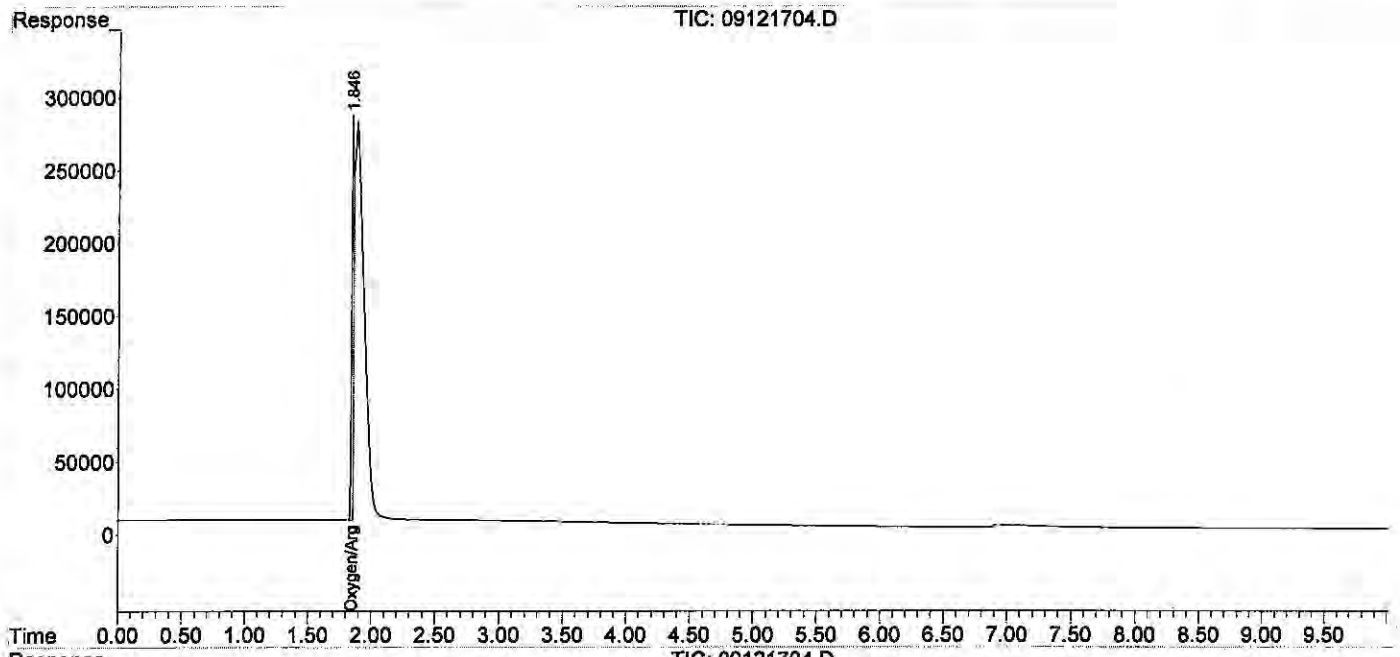
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

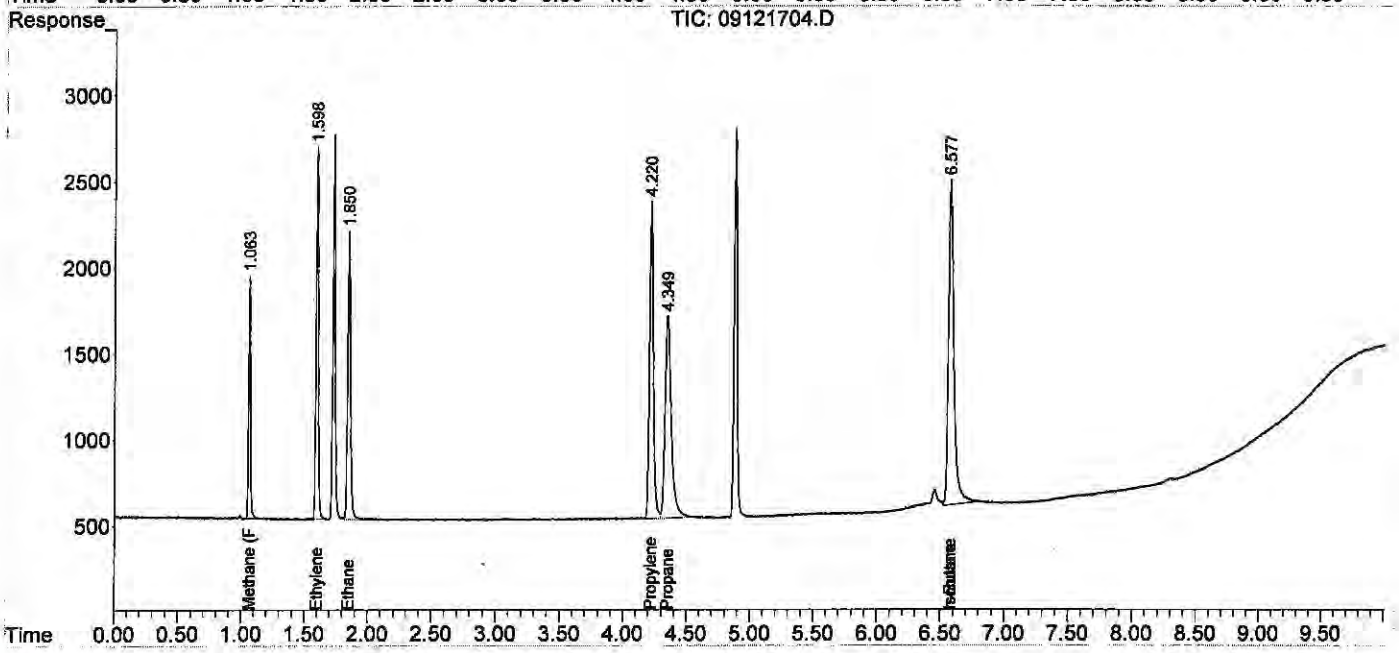
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

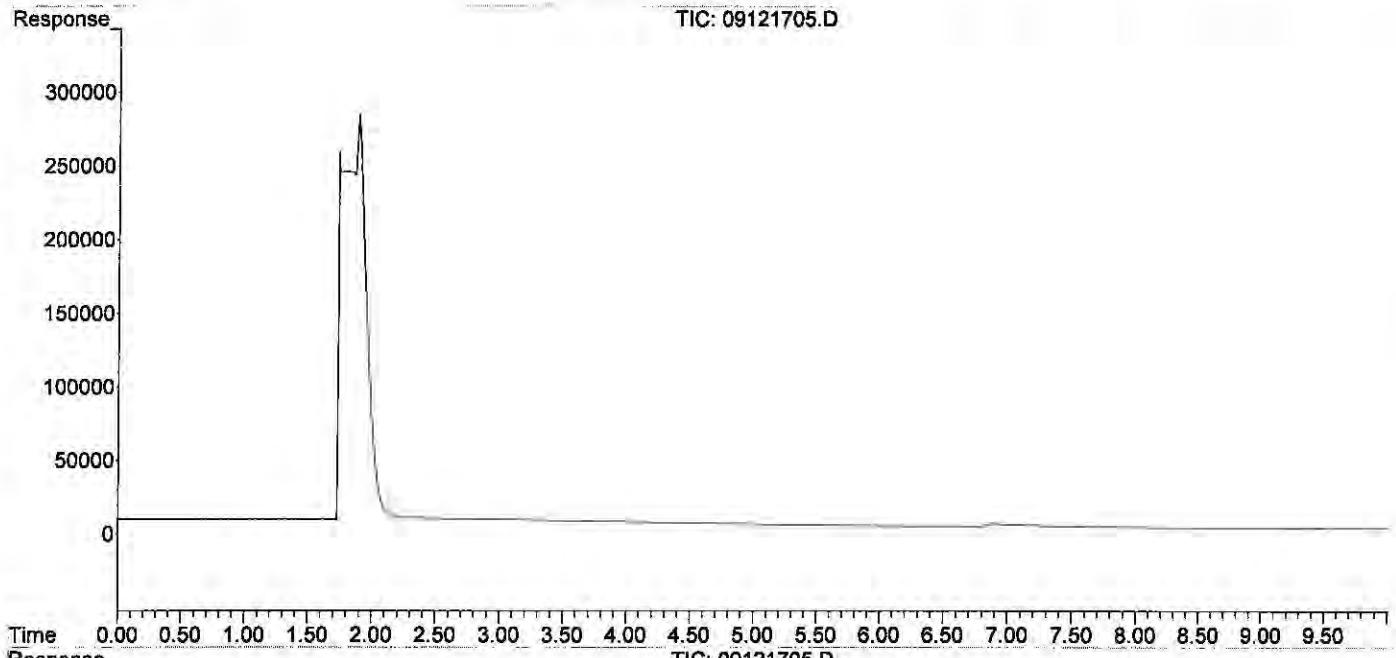
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

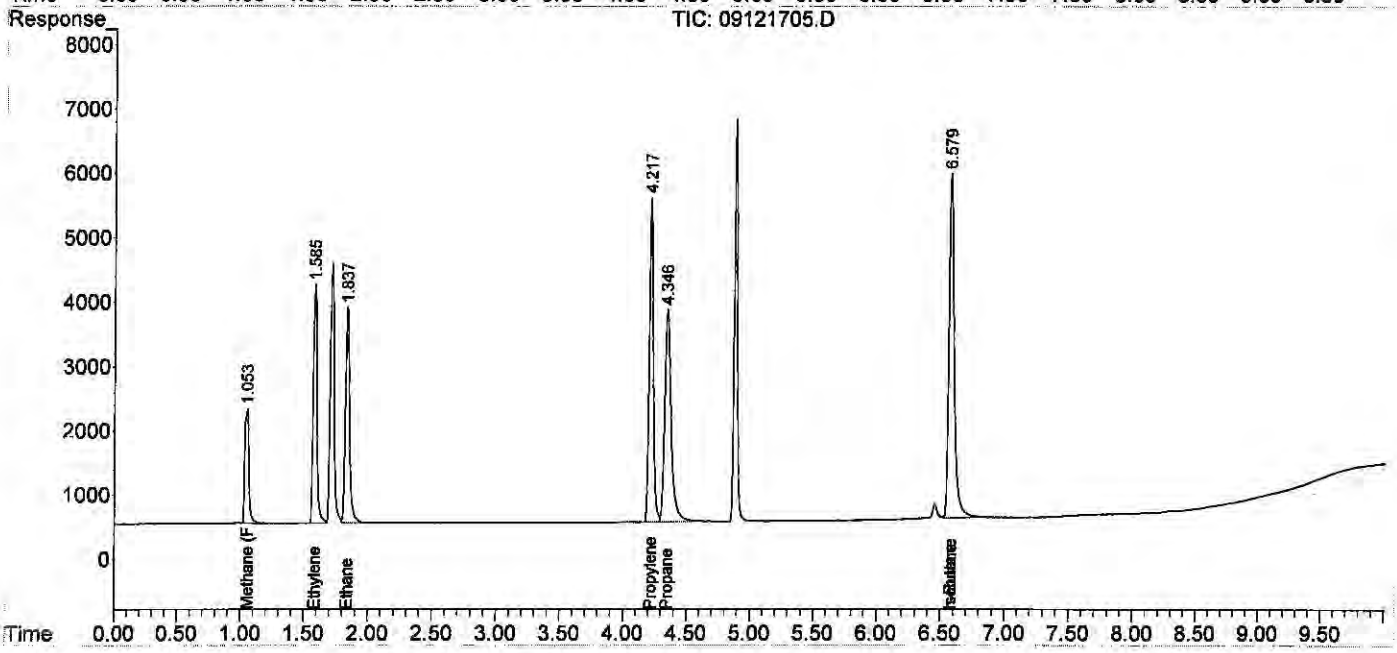
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

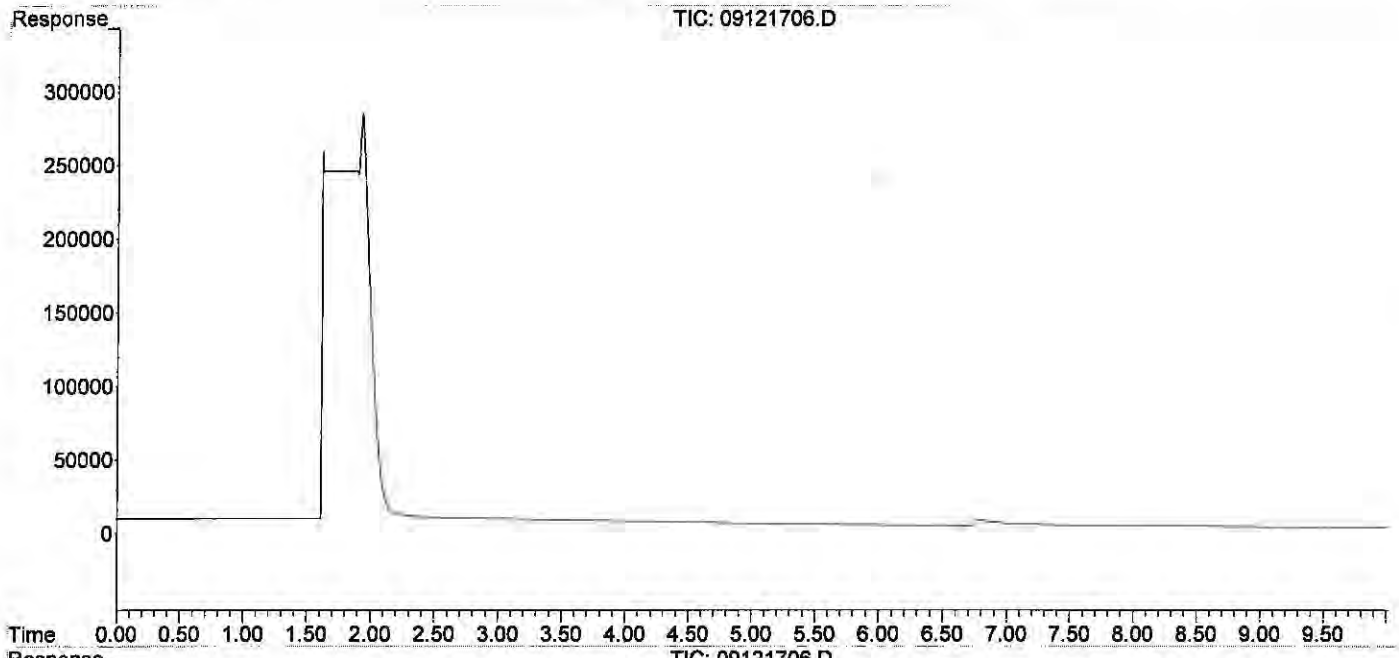
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

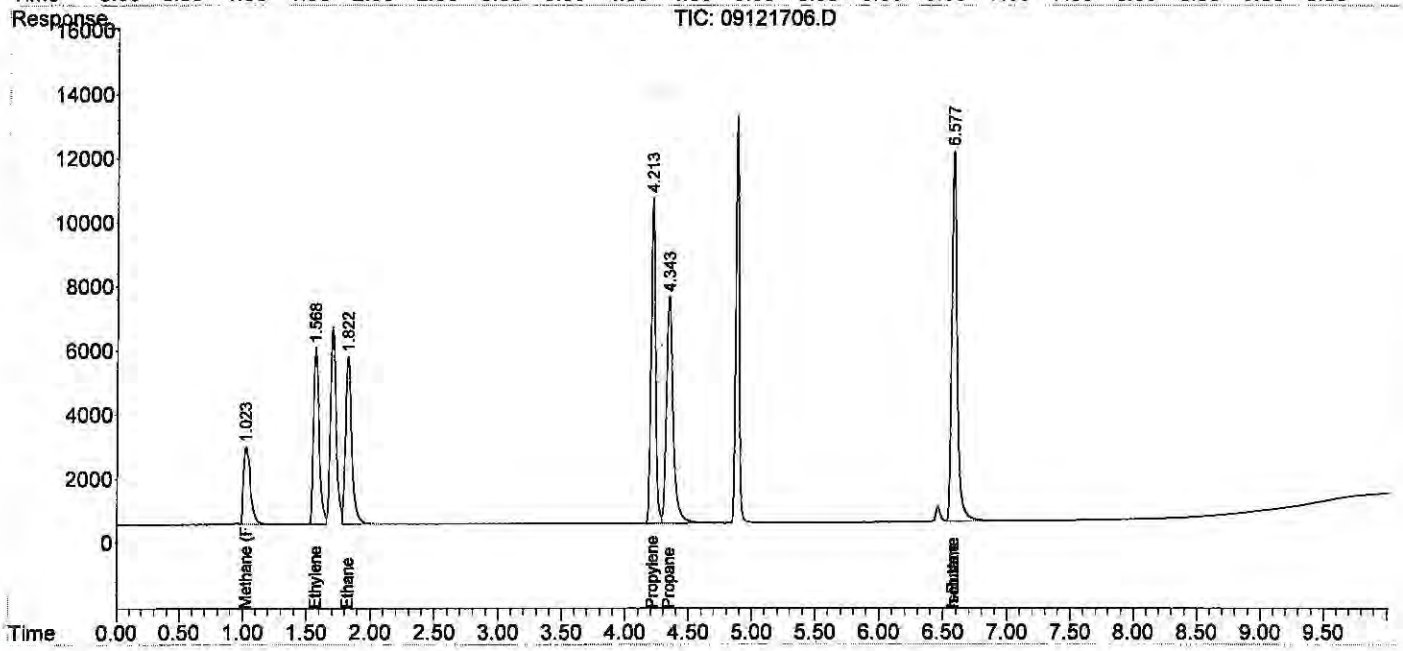
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

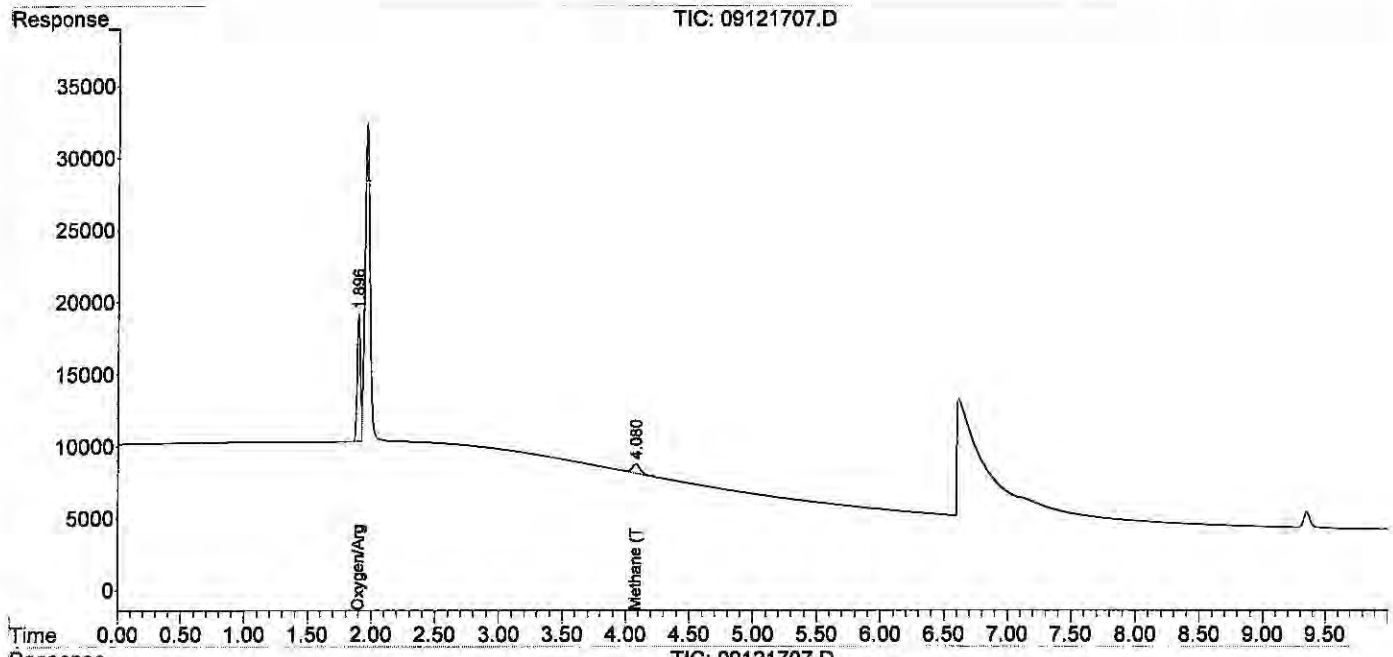
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

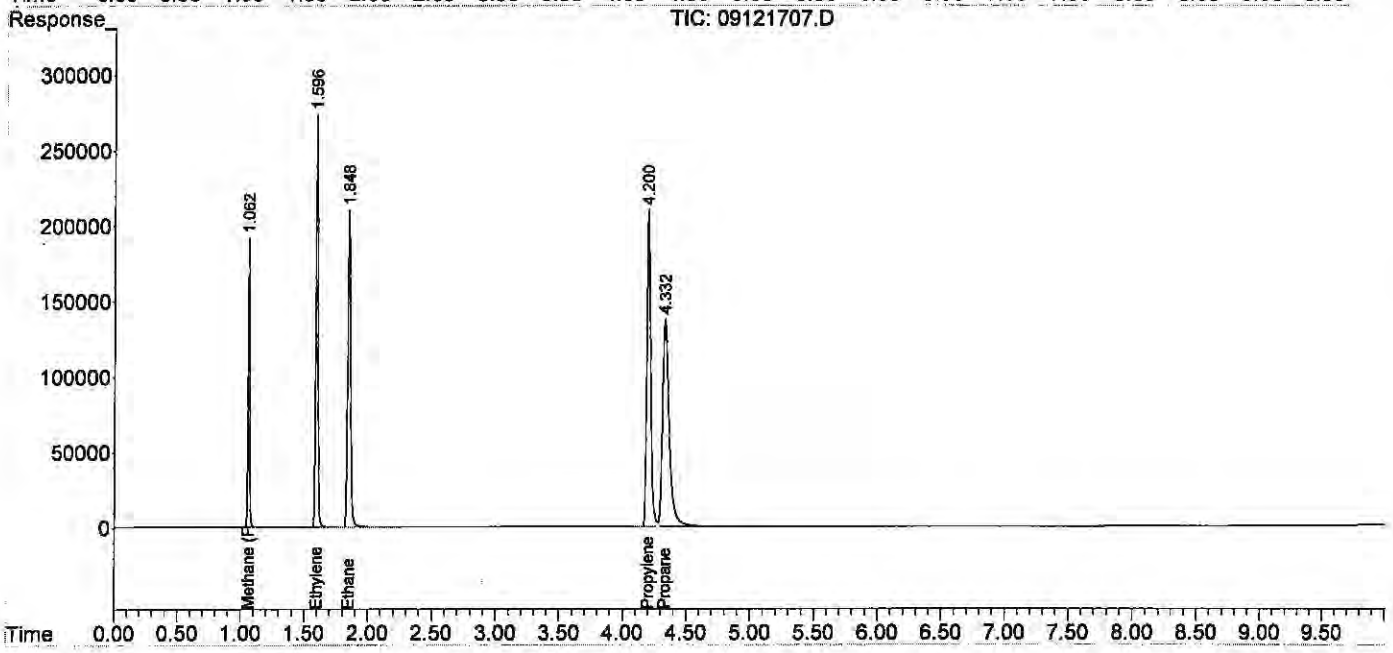
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

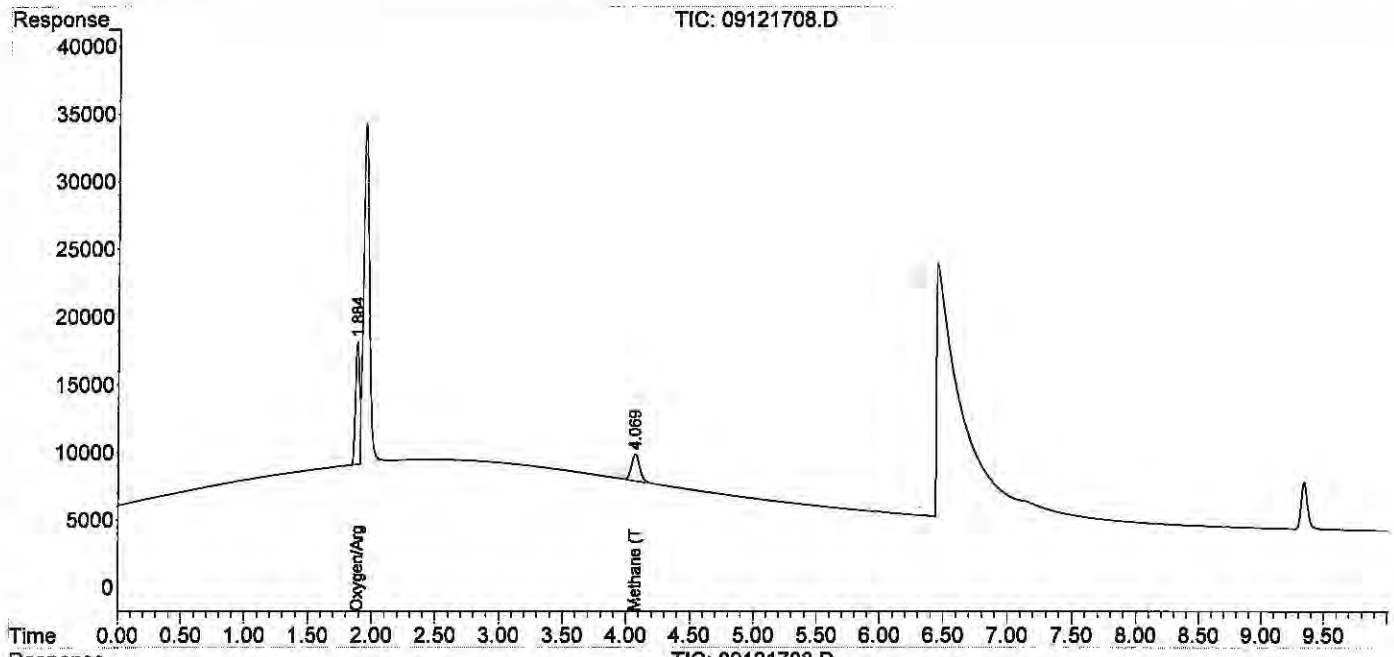
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

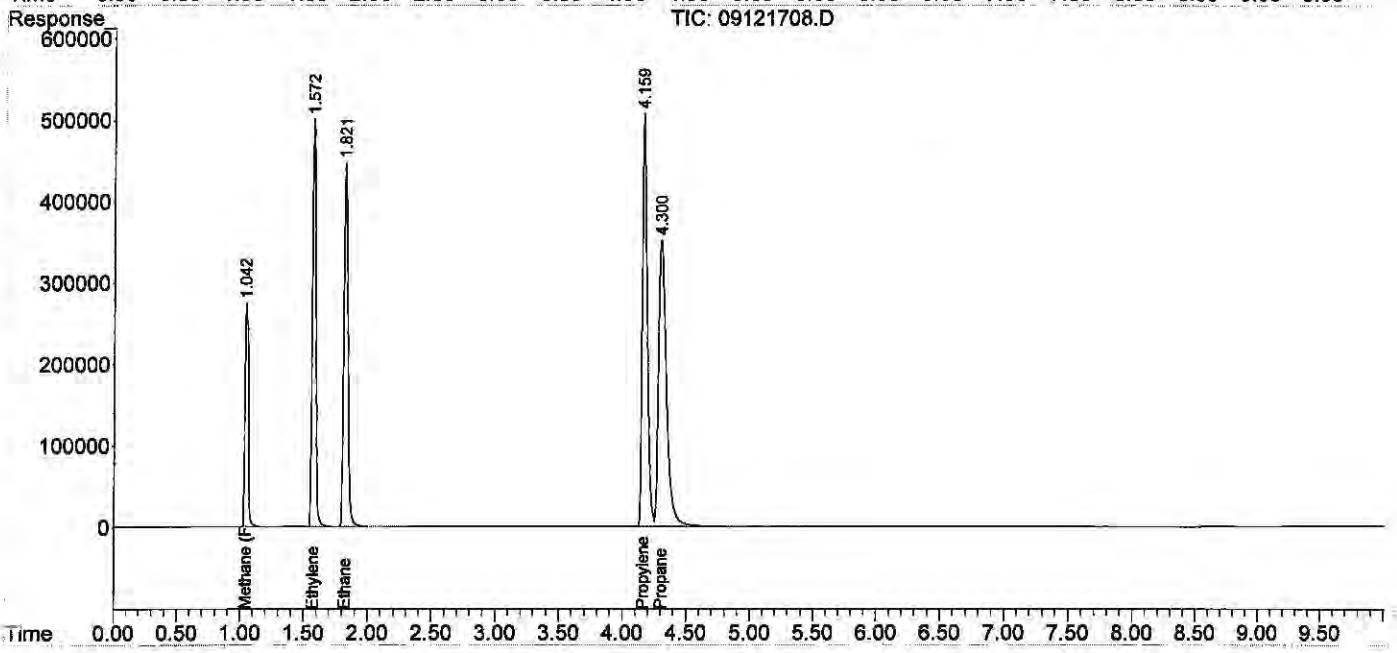
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

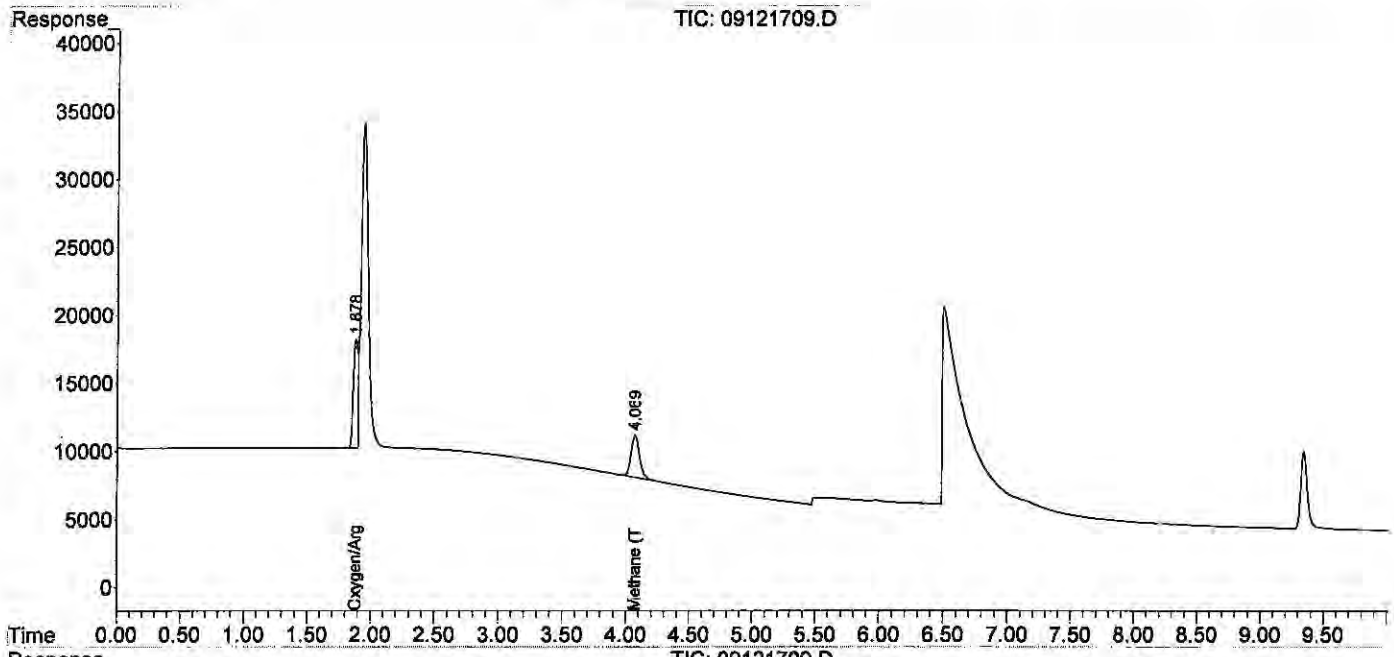
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

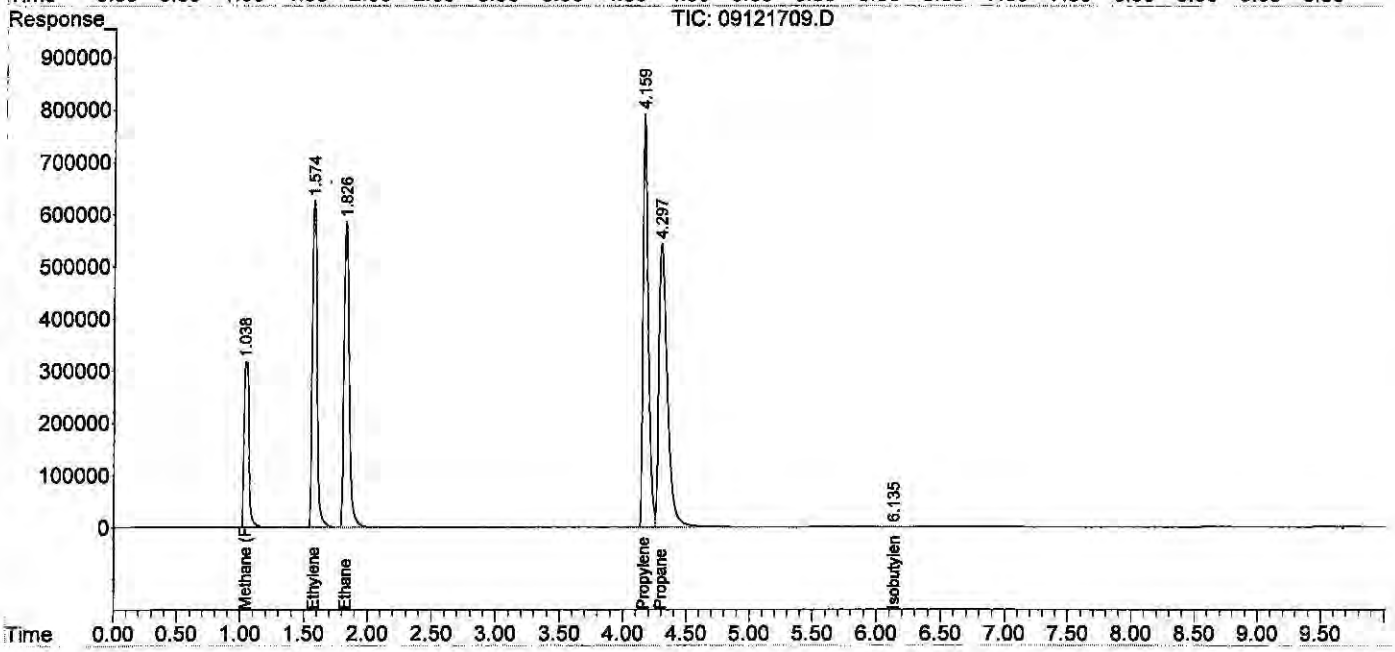
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

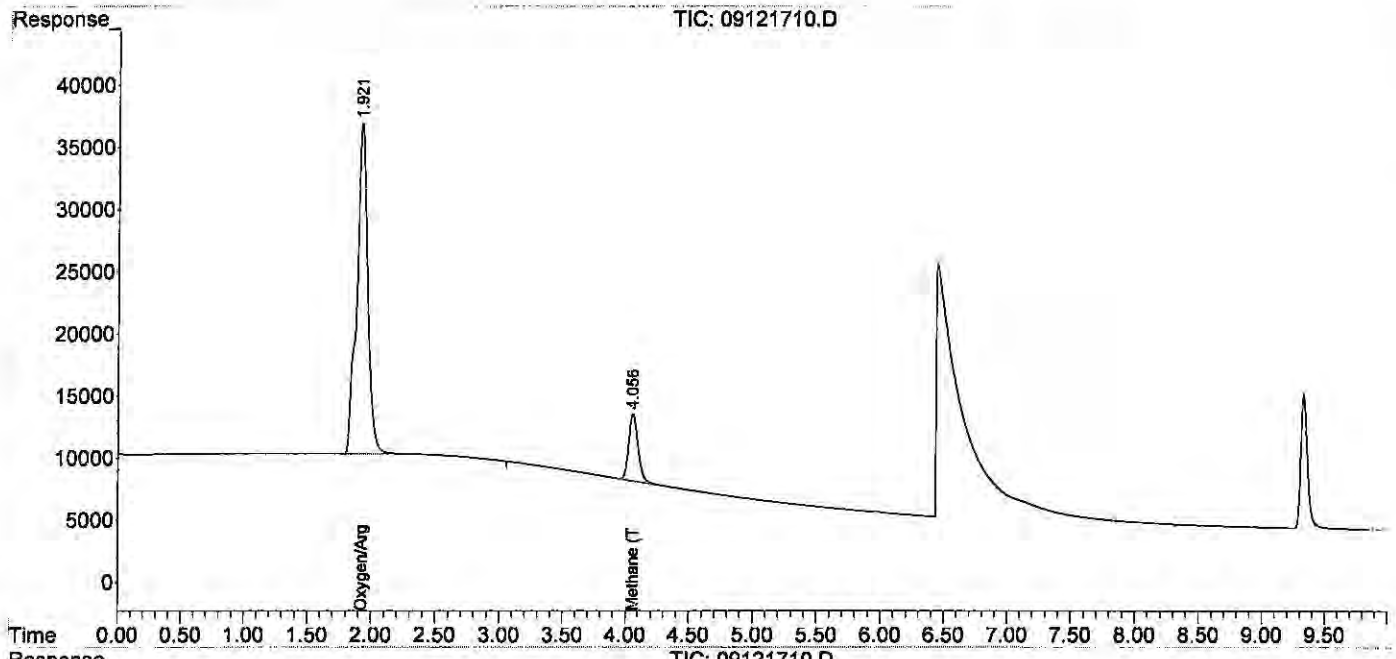
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

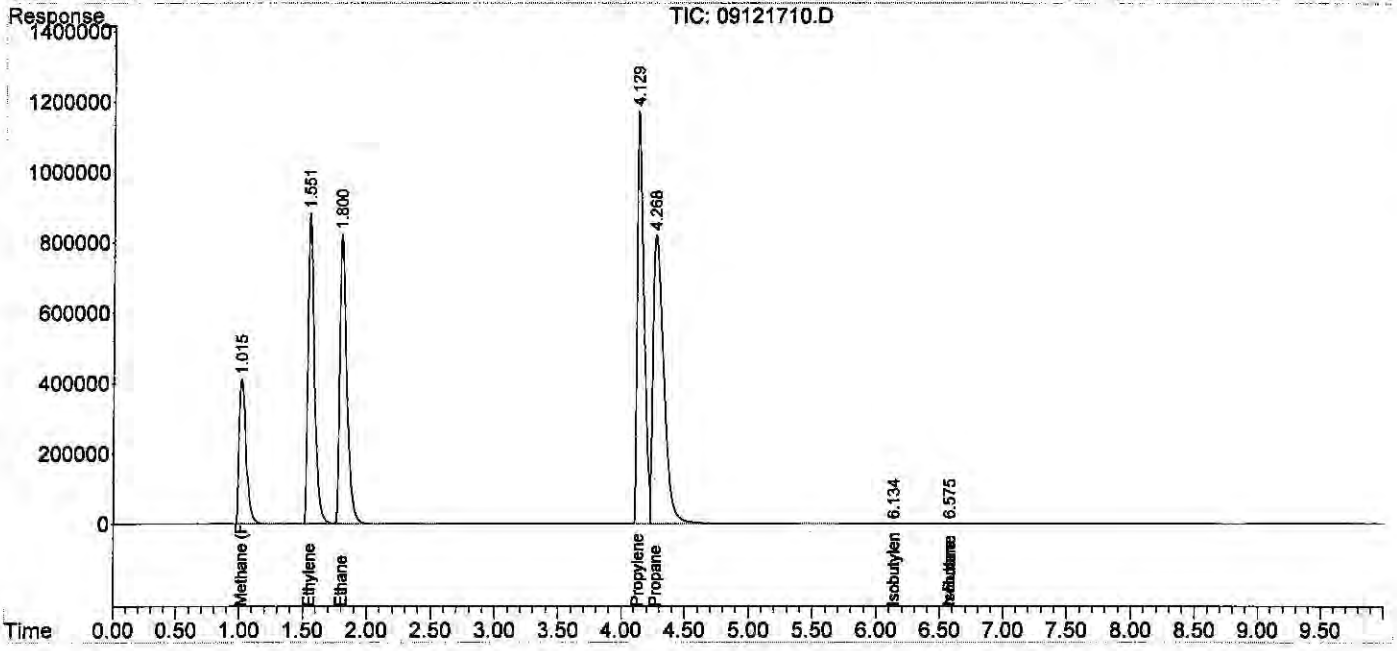
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



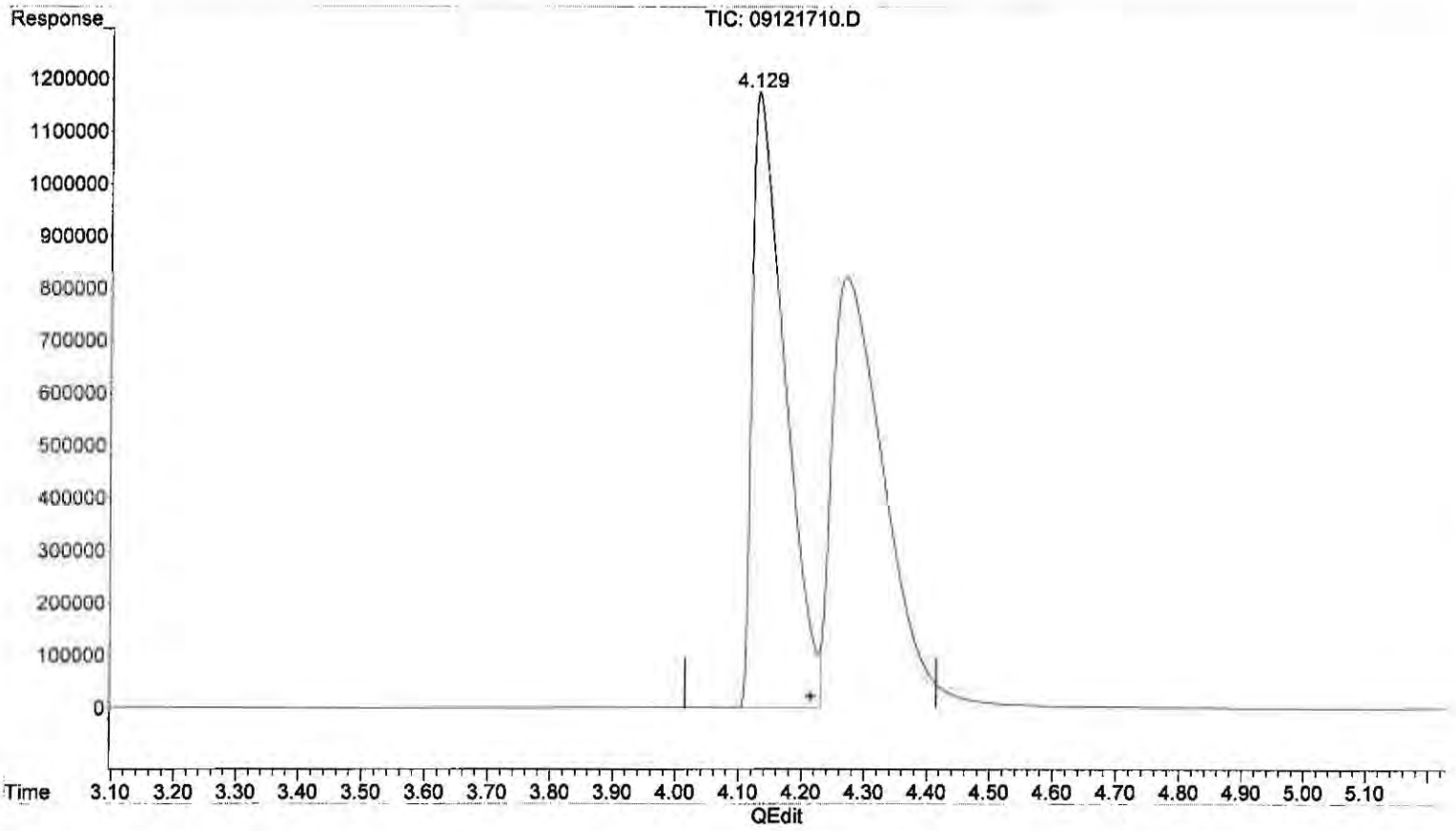


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

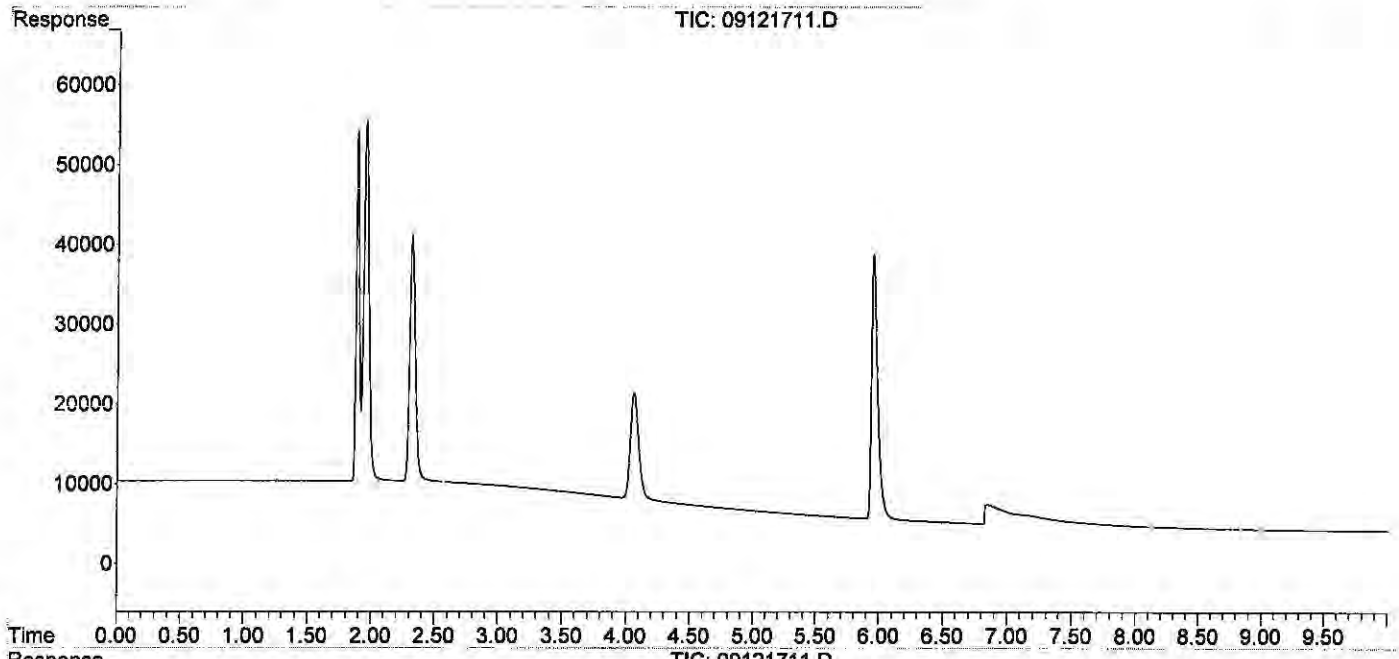
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

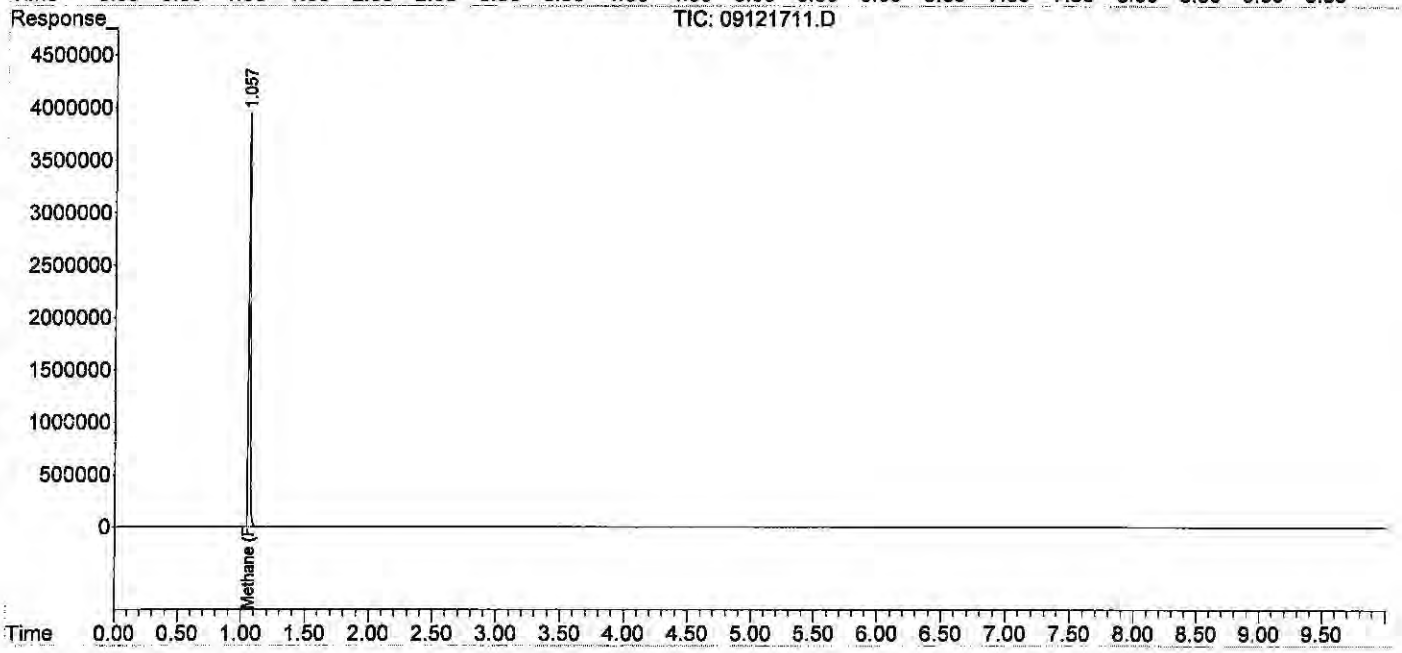
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

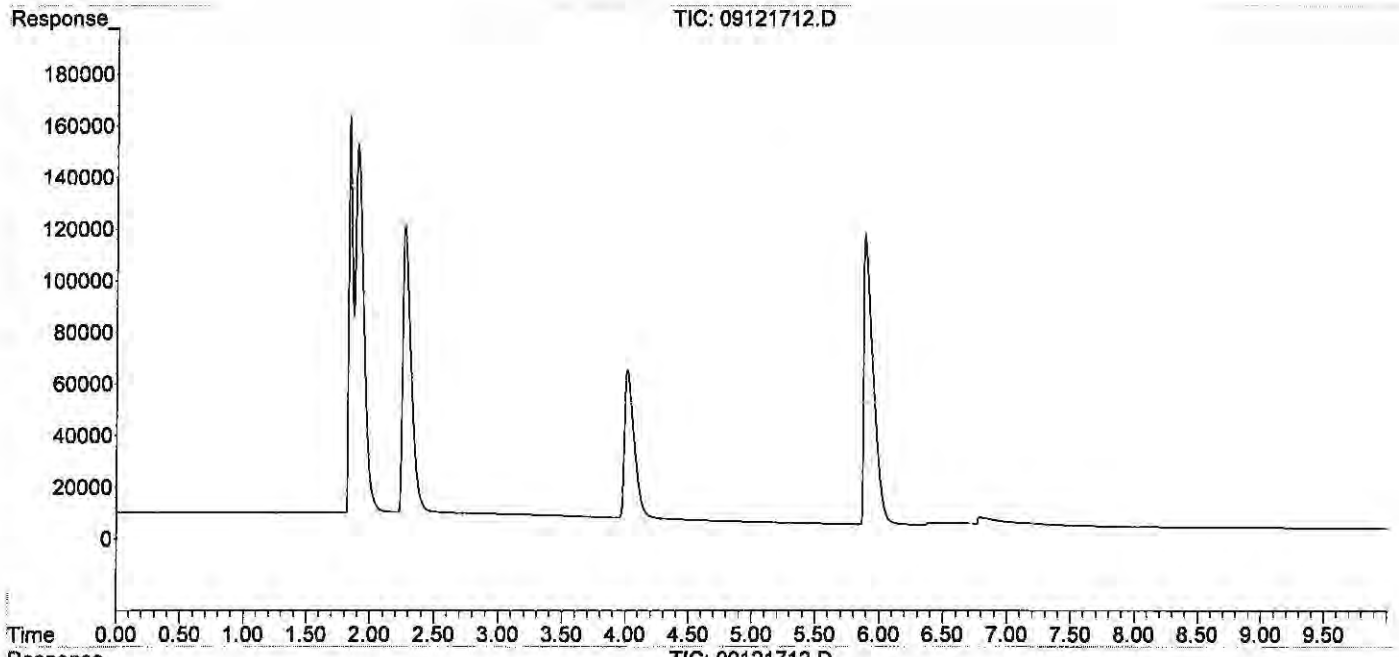
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

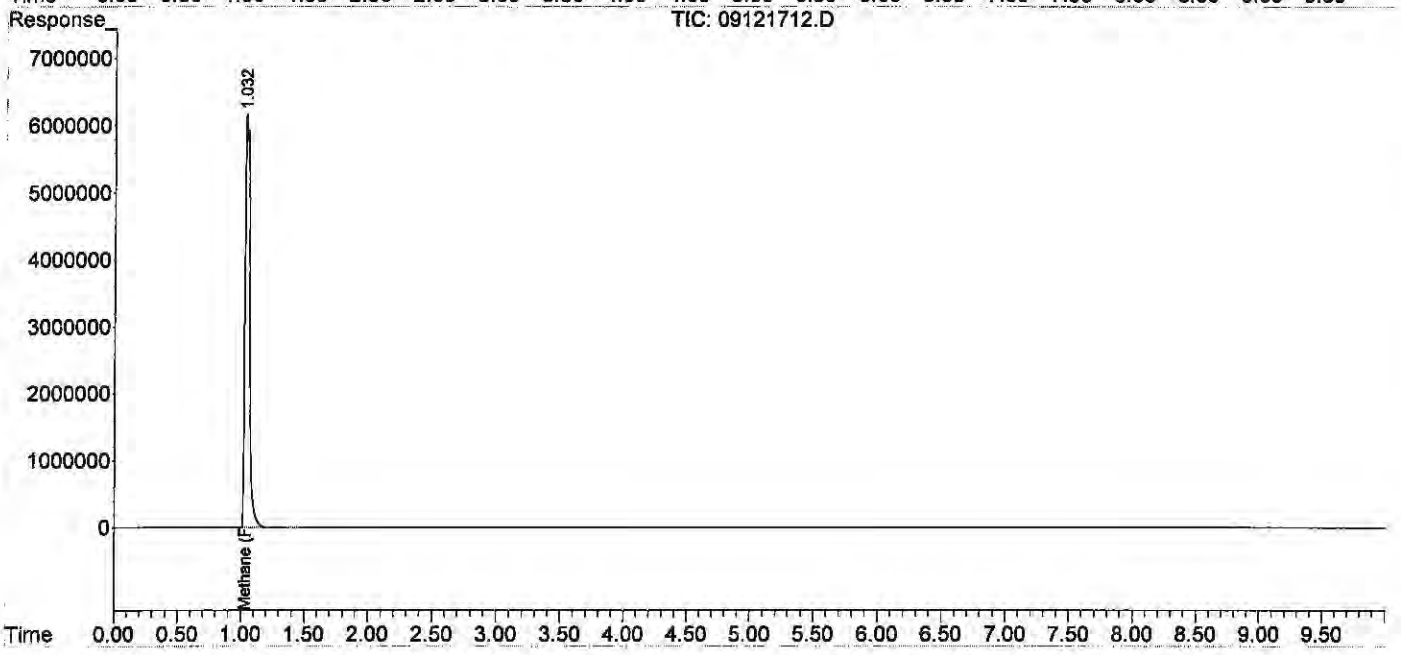
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

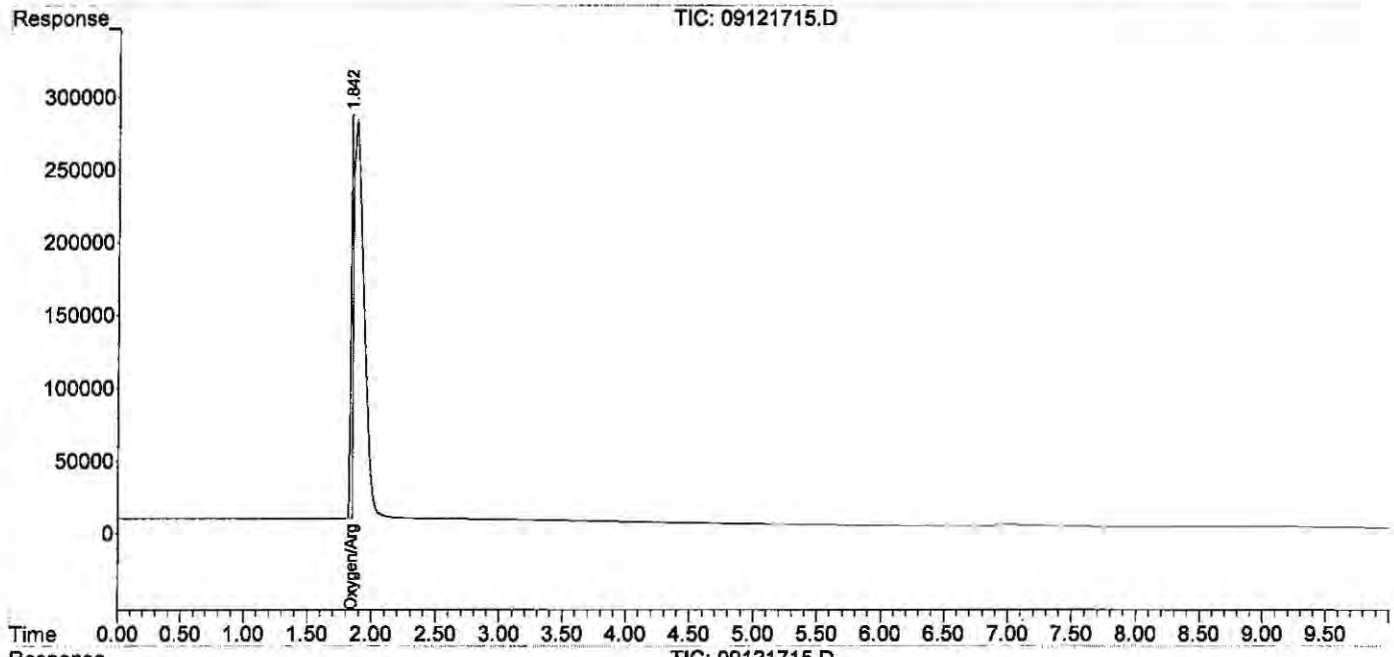
(f)=RT Delta > 1/2 Window (m)=manual int.

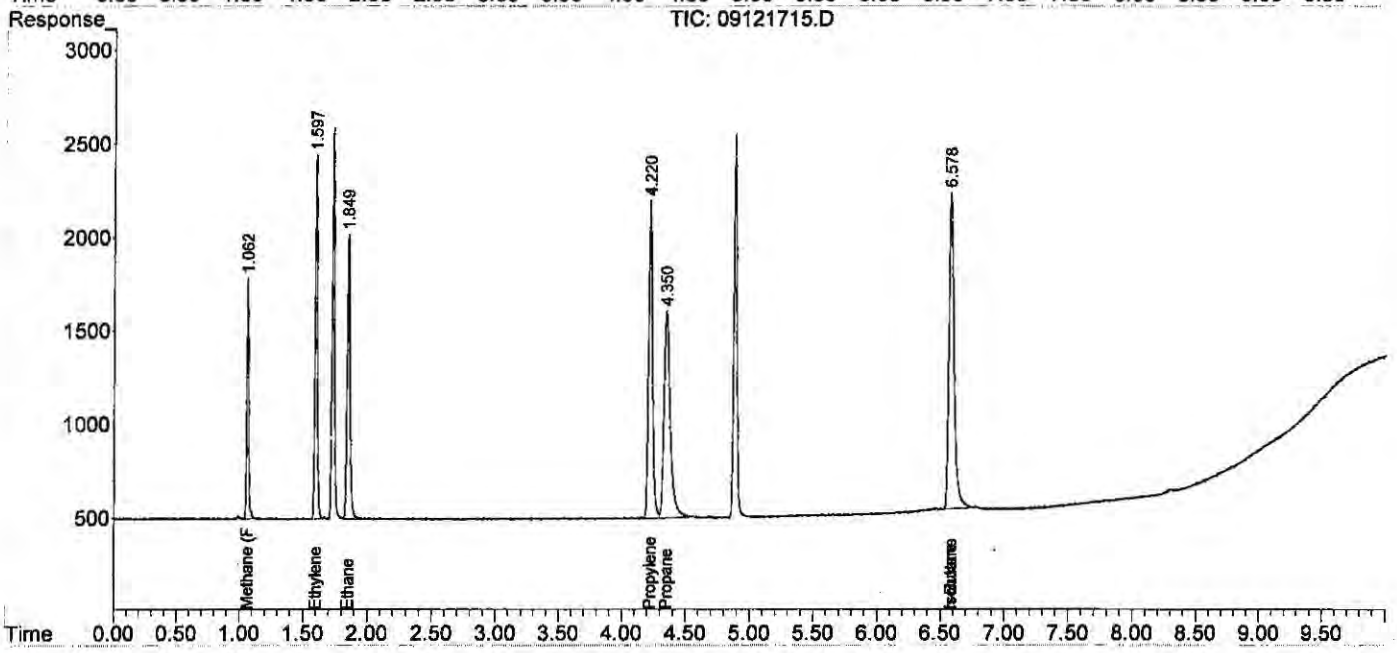
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P2002598
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 05/13/20
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901	0.100	95.492	101.940	101.504
ACTUAL		101.50	100.90	101.40
%Difference		5.9%	1.0%	0.1%
MCS 0.1ml	0.100	0.000	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID 0.1ml	0.100	1.380	1.001	1.238
LCSD FID 0.1ml	0.100	1.401	0.995	1.228
P2002598-001 0.1ml	0.100	0.000	0.000	0.000
P2002598-002 0.1ml	0.100	0.000	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ml	0.000	0.000	0.000
LCS FID 0.1ml	13.800	10.010	12.380
LCSD FID 0.1ml	14.010	9.950	12.280
P2002598-001 0.1ml	0.000	0.000	0.000
P2002598-002 0.1ml	0.000	0.000	0.000

LD
05/14

STD S32-05221901	95.924	102.149	101.660
ACTUAL	101.50	100.90	101.40
%Difference	5.5%	1.2%	0.3%

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132011.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 14:39:27
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:50:49 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

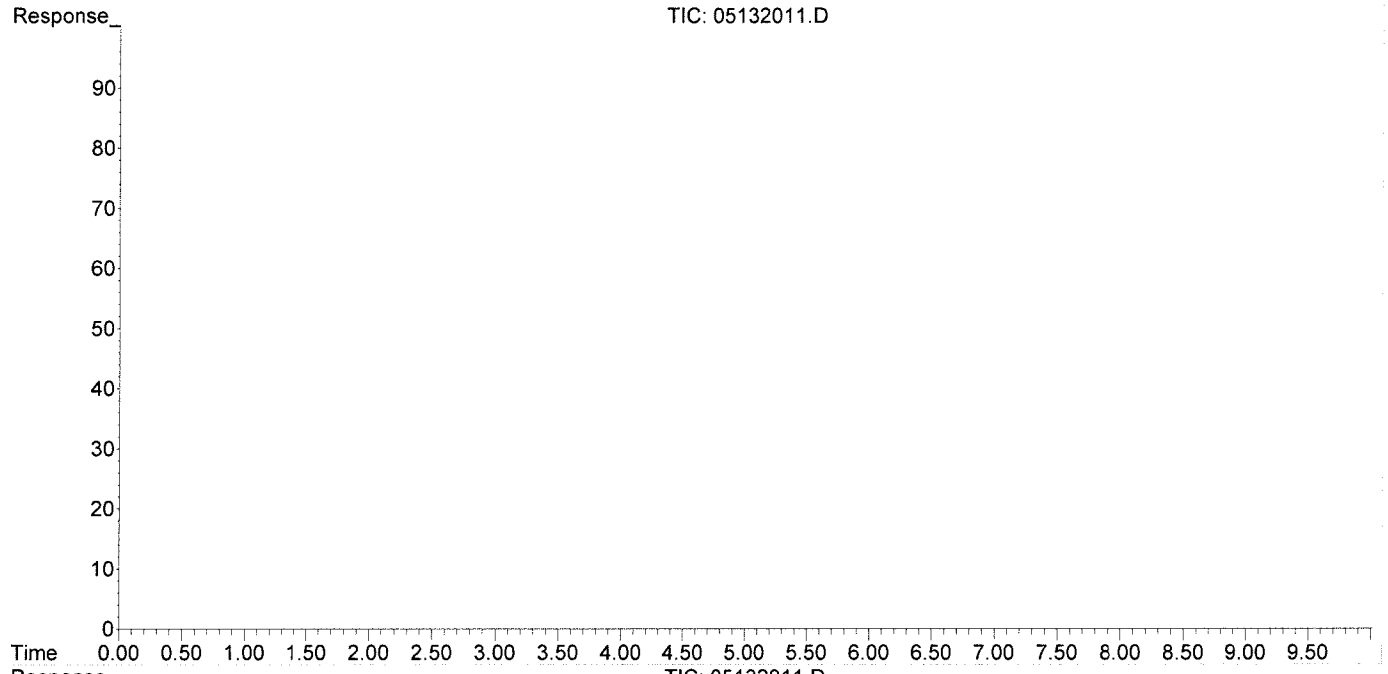
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	866177	95.492	ppm
7)	Ethylene	1.678	1705890	101.940	ppm
8)	Ethane	1.942	1720507	101.504	ppm
9)	Propylene	4.315	2523158	107.682	ppm
10)	Propane	4.437	2589266	104.069	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

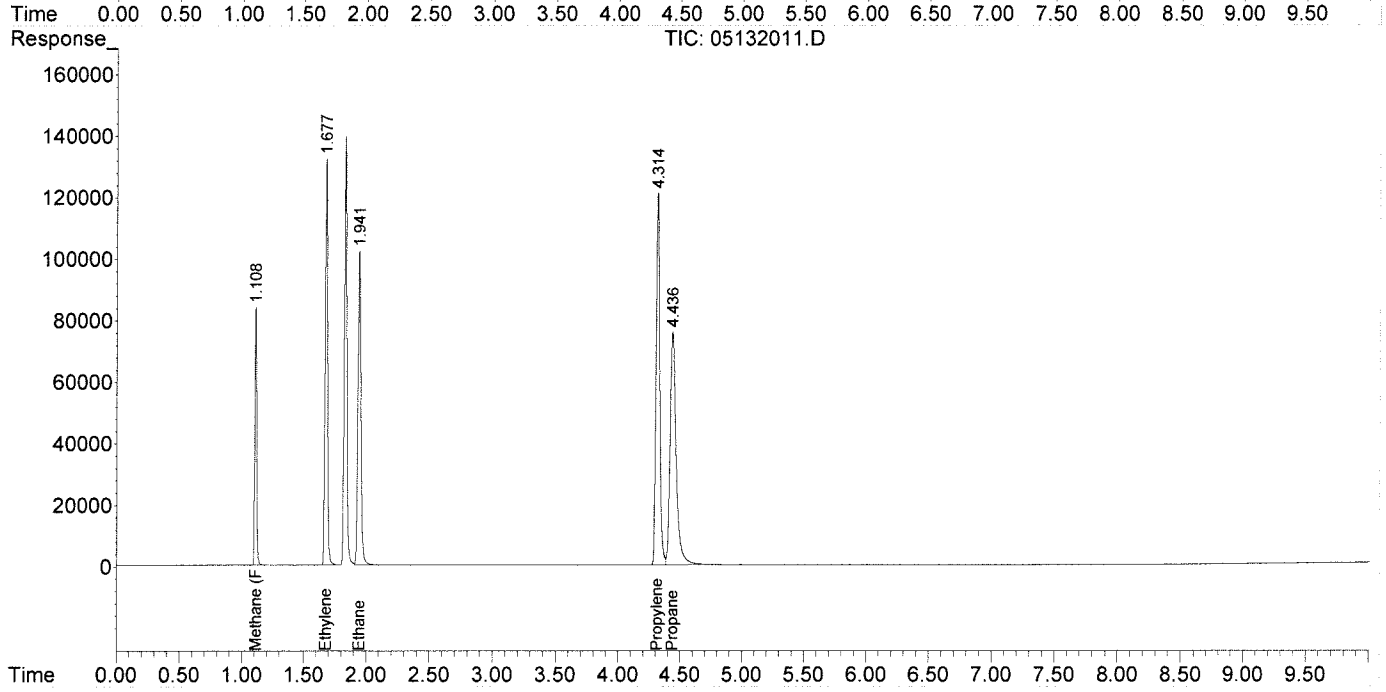
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132011.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 14:39:27
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:50:49 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132018.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 18:21:32
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 18:33:10 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

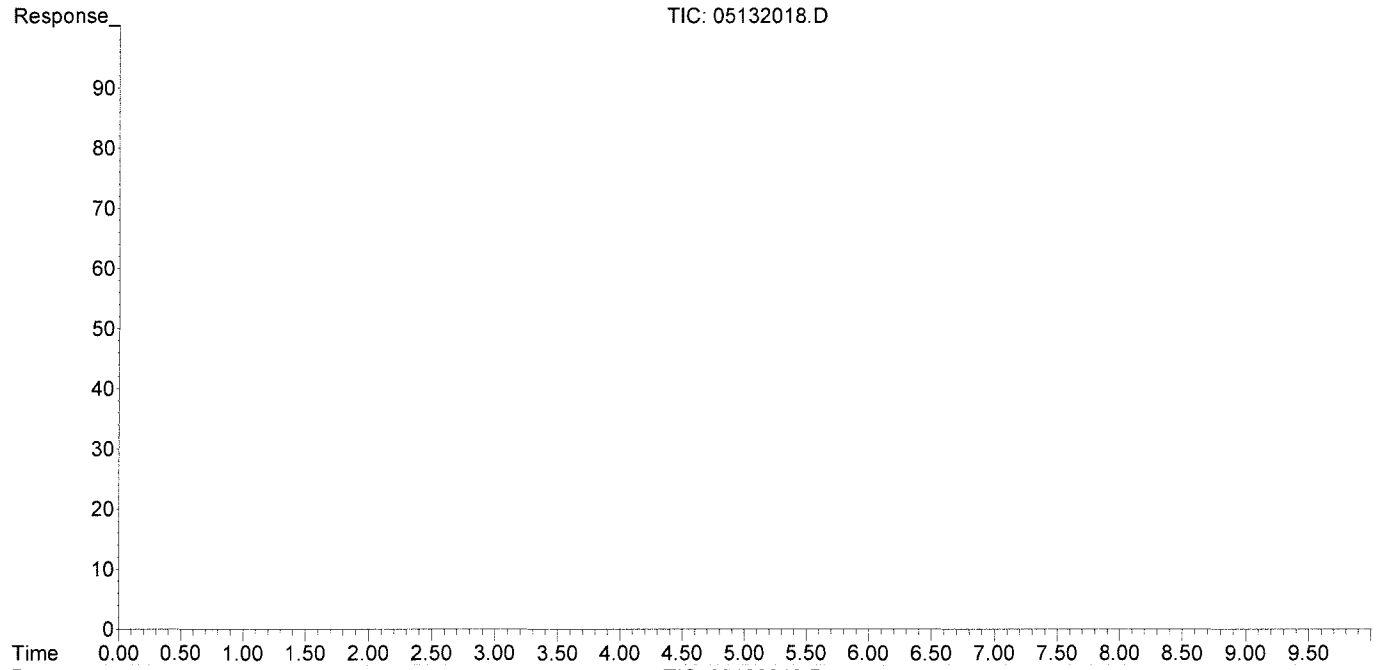
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.102	870096	95.924	ppm
7)	Ethylene	1.672	1709401	102.149	ppm
8)	Ethane	1.937	1723148	101.660	ppm
9)	Propylene	4.315	2527788	107.880	ppm
10)	Propane	4.438	2596090	104.344	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

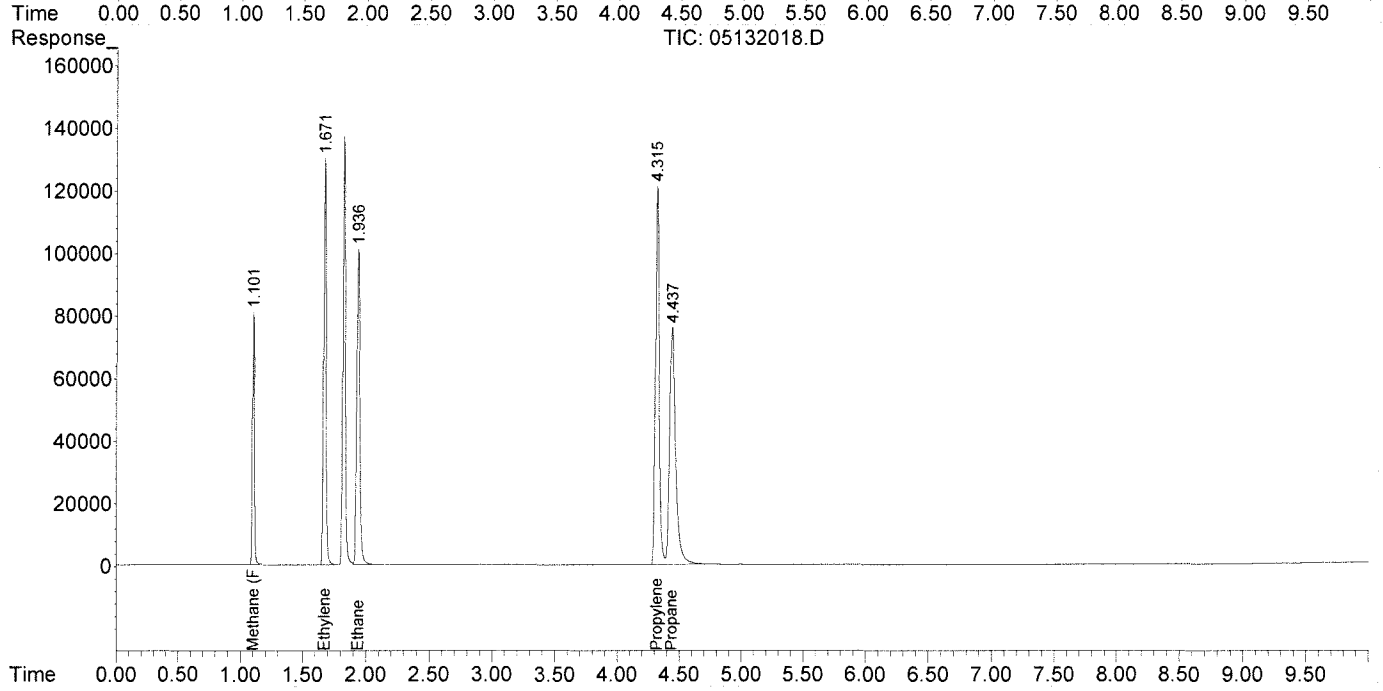
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\13\
Data File : 05132018.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2020, 18:21:32
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 18:33:10 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2020_05\13\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	13-May-20, 12:01:28	05132001.D	STD S32-05221901		LD	RSKBOTH.M	pass
2	13-May-20, 12:16:57	05132002.D	MB 1ml		LD	RSKBOTH.M	pass
3	13-May-20, 12:33:28	05132003.D	LCS S32-07231801		LD	RSKBOTH.M	pass
4	13-May-20, 12:46:31	05132004.D	LCSD S32-07231801		LD	RSKBOTH.M	pass
5	13-May-20, 12:59:56	05132005.D	P2002368-001 0.5ml		LD	RSKBOTH.M	
6	13-May-20, 13:13:55	05132006.D	P2002368-002 0.5ml		LD	RSKBOTH.M	
7	13-May-20, 13:33:44	05132007.D	P2002368-003 0.5ml		LD	RSKBOTH.M	
8	13-May-20, 13:46:56	05132008.D	P2002368-004 0.5ml		LD	RSKBOTH.M	
9	13-May-20, 14:07:52	05132009.D	P2002368-005 0.5ml		LD	RSKBOTH.M	
10	13-May-20, 14:21:47	05132010.D	P2002368-006 0.5ml		LD	RSKBOTH.M	
11	13-May-20, 14:39:27	05132011.D	STD S32-05221901		LD	RSKBOTH.M	pass
12	13-May-20, 15:01:51	05132012.D	RB 0.1ml		LD	RSKBOTH.M	pass
13	13-May-20, 16:20:04	05132013.D	MCS 0.1ml		LD	RSKBOTH.M	pass
14	13-May-20, 17:10:36	05132014.D	LCS FID 0.1ml		LD	RSKBOTH.M	pass
15	13-May-20, 17:29:50	05132015.D	LCSD FID 0.1ml		LD	RSKBOTH.M	pass
16	13-May-20, 17:48:43	05132016.D	P2002598-001 0.1ml		LD	RSKBOTH.M	
17	13-May-20, 18:02:53	05132017.D	P2002598-002 0.1ml		LD	RSKBOTH.M	
18	13-May-20, 18:21:32	05132018.D	STD S32-05221901		LD	RSKBOTH.M	pass

HS20050292 8260 Raw Data

ALS WO# HS20050292

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	ICV	98	96	102	100	0
02	VLCSW-200511	103	104	102	100	0
03	VBLKW-200508	91	90	105	98	0
04	HS20050292-01	92	90	106	101	0
05	HS20050292-02	91	89	106	100	0
06	HS20050292-03	92	88	106	99	0
07	HS20050292-03	92	89	107	99	0
08	HS20050292-03	93	87	107	98	0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(71-125)
SMC3 (TOL)	= Toluene-d8	(78-123)
OTHER	= 4-Bromofluorobenzene	(70-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-200512	99	100	102	101	0
02	VBLKW-200512	92	89	108	99	0
03	HS20050292-04	90	88	106	99	0
04	HS20050292-05	93	90	108	100	0
05	HS20050292-09	92	90	108	98	0
06	HS20050292-06	91	90	110	99	0
07	HS20050292-07	91	91	107	98	0
08	HS20050292-08	93	90	108	97	0
09	HS20050234-01	91	88	106	99	0
10	HS20050234-01	92	90	108	100	0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(71-125)
SMC3 (TOL)	= Toluene-d8	(78-123)
OTHER	= 4-Bromofluorobenzene	(70-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromochloromethane	50.00	47.43	95	80-120
Vinyl Chloride	50.00	46.46	93	80-120
Chloromethane	50.00	44.04	88	80-120
Bromomethane	50.00	50.90	102	80-120
Chloroethane	50.00	44.86	90	80-120
Methylene Chloride	50.00	47.67	95	80-120
Acetone	100.00	96.04	96	80-120
1,1-Dichloroethene	50.00	47.66	95	80-120
trans-1,2-Dichloroethen	50.00	47.92	96	80-120
Carbon Tetrachloride	50.00	47.41	95	80-120
1,1-Dichloroethane	50.00	45.20	90	80-120
Bromodichloromethane	50.00	48.69	97	80-120
1,2-Dichloropropane	50.00	47.53	95	80-120
cis-1,3-Dichloropropene	50.00	49.61	99	80-120
2-Butanone	100.00	107.79	108	80-120
Dibromochloromethane	50.00	49.74	99	80-120
cis-1,2-Dichloroethene	50.00	47.90	96	80-120
1,1,2-Trichloroethane	50.00	47.86	96	80-120
Chloroform	50.00	48.19	96	80-120
Benzene	50.00	47.92	96	80-120
trans-1,3-Dichloroprope	50.00	49.97	100	80-120
Bromoform	50.00	50.11	100	80-120
4-Methyl-2-Pentanone	100.00	92.90	93	80-120
1,1,1-Trichloroethane	50.00	47.51	95	80-120
2-Hexanone	100.00	94.75	95	80-120
1,2-Dichloroethane	50.00	49.48	99	80-120
1,1,2,2-Tetrachloroetha	50.00	46.16	92	80-120
Trichloroethene	50.00	49.38	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Toluene	50.00	48.70	97	80-120
Dichlorodifluoromethane	50.00	46.95	94	80-120
Trichlorofluoromethane	50.00	48.67	97	80-120
Tetrachloroethene	50.00	49.21	98	80-120
1,2-Dibromoethane	50.00	50.22	100	80-120
Chlorobenzene	50.00	48.90	98	80-120
1,3-Dichlorobenzene	50.00	48.89	98	80-120
1,4-Dichlorobenzene	50.00	47.77	96	80-120
1,2-Dichlorobenzene	50.00	48.42	97	80-120
Ethylbenzene	50.00	48.80	98	80-120
m,p-Xylenes	100.00	98.10	98	80-120
o-Xylene	50.00	49.08	98	80-120
Styrene	50.00	49.46	99	80-120
Carbon Disulfide	100.00	95.54	96	80-120
2,2-Dichloropropane	50.00	47.48	95	80-120
1,1-Dichloropropene	50.00	48.00	96	80-120
Dibromomethane	50.00	49.84	100	80-120
1,3-Dichloropropane	50.00	48.33	97	80-120
1,1,1,2-Tetrachloroetha	50.00	48.99	98	80-120
Isopropylbenzene	50.00	49.54	99	80-120
Bromobenzene	50.00	48.32	97	80-120
1,2,3-Trichloropropane	50.00	46.59	93	80-120
n-Propylbenzene	50.00	48.00	96	80-120
2-Chlorotoluene	50.00	46.75	94	80-120
1,3,5-Trimethylbenzene	50.00	49.68	99	80-120
4-Chlorotoluene	50.00	47.20	94	80-120
tert-Butylbenzene	50.00	48.50	97	80-120
1,2,4-Trimethylbenzene	50.00	49.86	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
sec-Butylbenzene	50.00	48.50	97	80-120
p-Isopropyltoluene	50.00	50.33	101	80-120
n-Butylbenzene	50.00	50.73	101	80-120
1,2-Dibromo-3-Chloropro	50.00	46.37	93	80-120
1,2,4-Trichlorobenzene	50.00	47.52	95	80-120
Hexachlorobutadiene	50.00	49.71	99	80-120
Naphthalene	50.00	53.21	106	80-120
1,2,3-Trichlorobenzene	50.00	54.69	109	80-120
Freon TF	50.00	48.97	98	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Lab File ID: X051101 BFB Injection Date: 05/11/20

Instrument ID: VOA6 BFB Injection Time: 1248

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	24.2
75	30.0 - 60.0% of mass 95	46.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	58.1
175	5.0 - 9.0% of mass 174	5.0 (8.6)1
176	95.0 - 101.0% of mass 174	57.6 (99.1)1
177	5.0 - 9.0% of mass 176	4.7 (8.2)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	VSTD000.5	VSTD000.5	X051103	05/11/20	1400
02	VSTD001	VSTD001	X051104	05/11/20	1424
03	VSTD002	VSTD002	X051105	05/11/20	1448
04	VSTD005	VSTD005	X051106	05/11/20	1512
05	VSTD020	VSTD020	X051107	05/11/20	1536
06	VSTD050	VSTD050	X051108	05/11/20	1600
07	VSTD100	VSTD100	X051109	05/11/20	1624
08	VSTD150	VSTD150	X051110	05/11/20	1647
09	VSTD200	VSTD200	X051111	05/11/20	1711
10	ICV	ICV	X051114	05/11/20	1823
11	VLCSW-200511	VLCSW-200511	X051116	05/11/20	1911
12	VBLKW-200508	VBLKW-200511	X051119	05/11/20	2024
13	HS20050292-0	HS20050292-01	X051123	05/11/20	2200
14	HS20050292-0	HS20050292-02	X051124	05/11/20	2224
15	HS20050292-0	HS20050292-03	X051125	05/11/20	2248
16	HS20050292-0	HS20050292-03M	X051126	05/11/20	2312
17	HS20050292-0	HS20050292-03M	X051127	05/11/20	2336
18	CCV-END	CCV-END	X051128	05/12/20	0000
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF0.5: X051103 RF1: X051104 RF2: X051105
RF5: X051106 RF20: X051107 RF50: X051108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Bromochloromethane	0.363	0.313	0.285	0.299	0.276	0.275
Vinyl Chloride	0.756	0.651	0.677	0.656	0.679	0.684
Chloromethane	2464	4677	8356	19497	77009	185773
Bromomethane	1460	2788	5327	11539	40170	86417
Chloroethane	1364	2214	3636	10011	35750	85402
Methylene Chloride	1939	3655	6641	14433	52520	120730
Acetone	1874	3027	5040	9390	35665	95313
1,1-Dichloroethene	0.461	0.404	0.370	0.376	0.386	0.384
trans-1,2-Dichloroethene	0.523	0.408	0.446	0.450	0.457	0.446
Carbon Tetrachloride	0.629	0.525	0.488	0.473	0.462	0.468
1,1-Dichloroethane	1.312	1.108	1.104	1.086	1.050	1.019
Bromodichloromethane	0.525	0.432	0.461	0.461	0.456	0.457
1,2-Dichloropropane	0.483	0.403	0.398	0.404	0.401	0.395
cis-1,3-Dichloropropene	0.603	0.536	0.520	0.534	0.536	0.541
2-Butanone	0.188	0.183	0.186	0.220	0.241	0.263
Dibromochloromethane	0.441	0.380	0.411	0.397	0.396	0.396
cis-1,2-Dichloroethene	0.543	0.472	0.583	0.527	0.536	0.514
1,1,2-Trichloroethane	0.332	0.252	0.293	0.293	0.271	0.267
Chloroform	1.057	0.803	0.890	0.923	0.881	0.861
Benzene	1.483	1.317	1.243	1.210	1.258	1.234
trans-1,3-Dichloropropene	0.537	0.462	0.480	0.485	0.483	0.486
Bromoform	0.318	0.258	0.306	0.286	0.283	0.274
4-Methyl-2-Pentanone	0.503	0.400	0.504	0.456	0.451	0.430
1,1,1-Trichloroethane	0.928	0.796	0.766	0.770	0.780	0.766
2-Hexanone	0.373	0.243	0.350	0.304	0.307	0.304
1,2-Dichloroethane	0.587	0.485	0.477	0.510	0.523	0.527
1,1,2,2-Tetrachloroethane	0.939	0.812	0.883	0.798	0.789	0.746
Trichloroethene	0.425	0.329	0.342	0.341	0.347	0.350
Toluene	1.729	1.419	1.522	1.489	1.484	1.431
Dichlorodifluoromethane	1503	2633	5304	13068	55700	135443
Trichlorofluoromethane	0.888	0.754	0.749	0.761	0.781	0.796
Tetrachloroethene	0.362	0.327	0.345	0.324	0.321	0.319
1,2-Dibromoethane	0.385	0.308	0.373	0.358	0.364	0.351
Chlorobenzene	1.224	0.910	1.008	0.984	0.965	0.948
1,3-Dichlorobenzene	1.771	1.441	1.502	1.497	1.508	1.462
1,4-Dichlorobenzene	2.196	1.462	1.507	1.543	1.491	1.488
1,2-Dichlorobenzene	1.694	1.345	1.445	1.362	1.340	1.326
Ethylbenzene	0.595	0.494	0.526	0.496	0.513	0.506
m,p-Xylenes	0.749	0.582	0.637	0.617	0.627	0.617
o-Xylene	0.671	0.590	0.652	0.604	0.617	0.595
Styrene	1.220	1.068	1.068	1.028	1.061	1.034
Carbon Disulfide	1.559	1.278	1.317	1.321	1.317	1.321
2,2-Dichloropropane	0.934	0.845	0.817	0.768	0.765	0.739
1,1-Dichloropropene	0.542	0.467	0.464	0.436	0.437	0.429

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF0.5: X051103 RF1: X051104 RF2: X051105
RF5: X051106 RF20: X051107 RF50: X051108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Dibromomethane	0.272	0.187	0.211	0.223	0.213	0.217
1,3-Dichloropropane	0.667	0.536	0.609	0.586	0.581	0.558
1,1,1,2-Tetrachloroethane	0.441	0.401	0.388	0.383	0.384	0.380
Isopropylbenzene	1.838	1.487	1.440	1.550	1.543	1.499
Bromobenzene	1.160	0.908	0.931	0.886	0.907	0.902
1,2,3-Trichloropropane	0.825	0.629	0.829	0.664	0.661	0.681
n-Propylbenzene	4.517	3.295	3.337	3.514	3.496	3.465
2-Chlorotoluene	2.730	2.379	2.191	2.204	2.100	2.070
1,3,5-Trimethylbenzene	2.835	2.374	2.552	2.616	2.533	2.515
4-Chlorotoluene	3.235	2.656	2.511	2.448	2.492	2.419
tert-Butylbenzene	2.511	2.130	2.115	2.215	2.151	2.088
1,2,4-Trimethylbenzene	3.200	2.288	2.506	2.550	2.590	2.573
sec-Butylbenzene	3.786	2.605	2.991	3.022	2.939	2.872
p-Isopropyltoluene	3.242	2.169	2.411	2.533	2.612	2.578
n-Butylbenzene	2.569	1.648	1.842	2.072	2.142	2.132
1,2-Dibromo-3-Chloropropane	114	128	532	1596	5237	12187
1,2,4-Trichlorobenzene	505	762	1924	5746	23261	54809
Hexachlorobutadiene	605	736	2177	5460	21311	41952
Naphthalene	0.460	0.409	0.406	0.433	0.467	0.465
1,2,3-Trichlorobenzene	385	431	1047	3164	11186	27245
Freon TF	0.351	0.375	0.391	0.378	0.379	0.386
Dibromofluoromethane	1793	3147	5198	14036	51294	118264
1,2-Dichloroethane-d4	2117	3902	7290	17135	62012	143586
Toluene-d8	5920	10982	18430	47142	176771	410250
4-Bromofluorobenzene	2708	6819	8380	19241	69563	152557

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF100: X051109 RF150: X051110 RF200: X051111

COMPOUND	RF100	RF150	RF200
Bromochloromethane	0.269	0.272	0.259
Vinyl Chloride	0.715	0.722	0.698
Chloromethane	352150	510038	668216
Bromomethane	166042	236806	301011
Chloroethane	162411	229270	289295
Methylene Chloride	224234	318789	395941
Acetone	157042	214208	
1,1-Dichloroethene	0.398	0.407	0.394
trans-1,2-Dichloroethene	0.457	0.461	0.444
Carbon Tetrachloride	0.489	0.496	0.491
1,1-Dichloroethane	1.046	1.051	1.004
Bromodichloromethane	0.466	0.477	0.465
1,2-Dichloropropane	0.399	0.395	0.384
cis-1,3-Dichloropropene	0.550	0.556	0.544
2-Butanone	0.253	0.253	0.241
Dibromochloromethane	0.410	0.407	0.403
cis-1,2-Dichloroethene	0.526	0.533	0.512
1,1,2-Trichloroethane	0.267	0.266	0.262
Chloroform	0.878	0.889	0.859
Benzene	1.256	1.263	1.238
trans-1,3-Dichloropropene	0.504	0.517	0.506
Bromoform	0.283	0.285	0.285
4-Methyl-2-Pentanone	0.441	0.443	0.435
1,1,1-Trichloroethane	0.796	0.813	0.790
2-Hexanone	0.303	0.300	0.298
1,2-Dichloroethane	0.527	0.530	0.518
1,1,2,2-Tetrachloroethane	0.749	0.756	0.761
Trichloroethene	0.367	0.367	0.360
Toluene	1.433	1.414	1.396
Dichlorodifluoromethane	264084	377623	499972
Trichlorofluoromethane	0.833	0.843	0.836
Tetrachloroethene	0.326	0.324	0.320
1,2-Dibromoethane	0.352	0.357	0.348
Chlorobenzene	0.963	0.964	0.949
1,3-Dichlorobenzene	1.500	1.522	1.508
1,4-Dichlorobenzene	1.506	1.517	1.512
1,2-Dichlorobenzene	1.337	1.360	1.327
Ethylbenzene	0.523	0.514	0.512
m,p-Xylenes	0.622	0.618	0.610
o-Xylene	0.603	0.605	0.588
Styrene	1.048	1.031	1.019
Carbon Disulfide	1.365	1.385	1.334
2,2-Dichloropropane	0.754	0.769	0.733
1,1-Dichloropropene	0.452	0.452	0.441

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF100: X051109 RF150: X051110 RF200: X051111

COMPOUND	RF100	RF150	RF200
Dibromomethane	0.222	0.224	0.218
1,3-Dichloropropane	0.557	0.557	0.550
1,1,1,2-Tetrachloroethane	0.387	0.387	0.385
Isopropylbenzene	1.568	1.560	1.547
Bromobenzene	0.907	0.911	0.925
1,2,3-Trichloropropane	0.669	0.656	0.658
n-Propylbenzene	3.577	3.585	3.566
2-Chlorotoluene	2.149	2.144	2.118
1,3,5-Trimethylbenzene	2.613	2.611	2.585
4-Chlorotoluene	2.476	2.464	2.454
tert-Butylbenzene	2.180	2.179	2.160
1,2,4-Trimethylbenzene	2.630	2.656	2.612
sec-Butylbenzene	3.026	3.020	2.996
p-Isopropyltoluene	2.679	2.702	2.709
n-Butylbenzene	2.216	2.237	2.212
1,2-Dibromo-3-Chloropropane	23938	35913	47270
1,2,4-Trichlorobenzene	103966	161556	221042
Hexachlorobutadiene	77175	122993	160116
Naphthalene	0.480	0.544	0.572
1,2,3-Trichlorobenzene	50765	82626	114644
Freon TF	0.410	0.412	0.396
Dibromofluoromethane	228909	320906	412124
1,2-Dichloroethane-d4	281127	402302	508534
Toluene-d8	778769	1109628	1416689
4-Bromofluorobenzene	294185	420723	537390

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Bromochloromethane	AVRG		0.29010501		10.972	15.000
Vinyl Chloride	AVRG		0.69311531		4.827	15.000
Chloromethane	LINR	1.254e-002	1.25307618		0.9996990	0.9900000
Bromomethane	LINR	-1.49e-002	2.76010828		0.9992442	0.9900000
Chloroethane	LINR	-8.42e-003	2.85056864		0.9990197	0.9900000
Methylene Chloride	LINR	-2.15e-002	2.07576331		0.9984246	0.9900000
Acetone	LINR	-5.26e-002	5.86673099		0.9980780	0.9900000
1,1-Dichloroethene	AVRG		0.39779340		6.695	15.000
trans-1,2-Dichloroethene	AVRG		0.45484162		6.601	15.000
Carbon Tetrachloride	AVRG		0.50236564		10.139	15.000
1,1-Dichloroethane	AVRG		1.08665862		8.445	15.000
Bromodichloromethane	AVRG		0.46672354		5.340	15.000
1,2-Dichloropropane	AVRG		0.40699172		7.156	15.000
cis-1,3-Dichloropropene	AVRG		0.54659701		4.308	15.000
2-Butanone	AVRG		0.22534364		14.170	15.000
Dibromochloromethane	AVRG		0.40468890		4.114	15.000
cis-1,2-Dichloroethene	AVRG		0.52746114		5.587	15.000
1,1,2-Trichloroethane	AVRG		0.27813289		8.790	15.000
Chloroform	AVRG		0.89352495		7.768	15.000
Benzene	AVRG		1.27806051		6.430	15.000
trans-1,3-Dichloropropene	AVRG		0.49569616		4.508	15.000
Bromoform	AVRG		0.28647071		5.980	15.000
4-Methyl-2-Pentanone	AVRG		0.45144990		7.411	15.000
1,1,1-Trichloroethane	AVRG		0.80070947		6.298	15.000
2-Hexanone	AVRG		0.30919632		11.650	15.000
1,2-Dichloroethane	AVRG		0.52059797		6.006	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.80353274		8.275	15.000
Trichloroethene	AVRG		0.35876630		7.774	15.000
Toluene	AVRG		1.47974156		6.910	15.000
Dichlorodifluoromethane	LINR	2.129e-002	1.67614322		0.9997226	0.9900000
Trichlorofluoromethane	AVRG		0.80446144		5.962	15.000
Tetrachloroethene	AVRG		0.32982532		4.351	15.000
1,2-Dibromoethane	AVRG		0.35522808		5.929	15.000
Chlorobenzene	AVRG		0.99065323		9.243	15.000
1,3-Dichlorobenzene	AVRG		1.52362325		6.309	15.000
1,4-Dichlorobenzene	AVRG		1.58040454		14.681	15.000
1,2-Dichlorobenzene	AVRG		1.39289493		8.511	15.000
Ethylbenzene	AVRG		0.51992575		5.830	15.000
m,p-Xylenes	AVRG		0.63108004		7.383	15.000
o-Xylene	AVRG		0.61400525		4.669	15.000
Styrene	AVRG		1.06414813		5.759	15.000
Carbon Disulfide	AVRG		1.35528961		6.080	15.000
2,2-Dichloropropane	AVRG		0.79166371		8.135	15.000
1,1-Dichloropropene	AVRG		0.45772621		7.432	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Dibromomethane	AVRG		0.22074683		10.081	15.000
1,3-Dichloropropane	AVRG		0.57818454		6.898	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.39300458		4.846	15.000
Isopropylbenzene	AVRG		1.55920520		7.226	15.000
Bromobenzene	AVRG		0.93740919		9.001	15.000
1,2,3-Trichloropropane	AVRG		0.69674447		10.773	15.000
n-Propylbenzene	AVRG		3.59467414		10.034	15.000
2-Chlorotoluene	AVRG		2.23175124		9.279	15.000
1,3,5-Trimethylbenzene	AVRG		2.58168968		4.708	15.000
4-Chlorotoluene	AVRG		2.57286118		10.008	15.000
tert-Butylbenzene	AVRG		2.19201247		5.722	15.000
1,2,4-Trimethylbenzene	AVRG		2.62277408		9.226	15.000
sec-Butylbenzene	AVRG		3.02845002		10.363	15.000
p-Isopropyltoluene	AVRG		2.62630864		10.952	15.000
n-Butylbenzene	AVRG		2.11900949		12.212	15.000
1,2-Dibromo-3-Chloropropane	LINR	2.938e-002	12.1217534		0.9986839	0.9900000
1,2,4-Trichlorobenzene	LINR	5.285e-002	2.62316086		0.9957908	0.9900000
Hexachlorobutadiene	LINR	1.932e-002	3.59227170		0.9969896	0.9900000
Naphthalene	AVRG		0.47073223		11.912	15.000
1,2,3-Trichlorobenzene	2ORDR	-8.18e-003	6.59831211	-2.0506170	0.9995281	0.9900000
Freon TF	AVRG		0.38639662		4.893	15.000
Dibromofluoromethane	LINR	-4.86e-003	2.01455990		0.9994974	0.9900000
1,2-Dichloroethane-d4	LINR	-7.35e-004	1.62396266		0.9990167	0.9900000
Toluene-d8	LINR	-9.31e-003	0.80376231		0.9999444	0.9900000
4-Bromofluorobenzene	LINR	-1.54e-002	2.12571618		0.9999166	0.9900000

FORM VI VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Lab File ID (Standard): X051128 Date Analyzed: 05/12/20

Instrument ID: VOA6 Time Analyzed: 0000

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	201789	4.18	298953	4.97	278465	7.67
	UPPER LIMIT	403578	4.68	597906	5.47	556930	8.17
	LOWER LIMIT	100895	3.68	149477	4.47	139233	7.17
	CLIENT SAMPLE NO.						
01	ICV	223155	4.18	318483	4.97	291498	7.67
02	VLCSW-200511	217066	4.18	320952	4.97	295567	7.67
03	VBLKW-200508	270263	4.18	377770	4.97	325496	7.67
04	HS20050292-01	269531	4.18	374562	4.97	322184	7.67
05	HS20050292-02	270639	4.18	375035	4.97	327042	7.67
06	HS20050292-03	270232	4.18	373745	4.97	326017	7.67
07	HS20050292-03	257388	4.18	353311	4.97	304795	7.67
08	HS20050292-03	249785	4.18	345641	4.97	300879	7.67
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Instrument ID: VOA6 Calibration Date: 05/11/20 Time: 1600

Lab File ID: X051108 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	0.2900000	0.2740139	0.2740139	0.1	5.51	20.00	AVRG
Vinyl Chloride	0.6930000	0.5811318	0.5811318	0.1	16.14	20.00	AVRG
Chloromethane	48.158365	50.000000	0.6502535	0.1	3.68	20.00	LINR
Bromomethane	47.954599	50.000000	0.3343096	0.1	4.09	20.00	LINR
Chloroethane	49.285913	50.000000	0.3108049	0.1	1.43	20.00	LINR
Methylene Chloride	50.097027	50.000000	0.4682317	0.1	-0.19	20.00	LINR
Acetone	111.54387	100.00000	0.1306786	0.1	-11.54	20.00	LINR
1,1-Dichloroethene	0.3980000	0.3476602	0.3476602	0.1	12.65	20.00	AVRG
trans-1,2-Dichloroethene	0.4550000	0.4332149	0.4332149	0.1	4.79	20.00	AVRG
Carbon Tetrachloride	0.5020000	0.4463277	0.4463277	0.1	11.09	20.00	AVRG
1,1-Dichloroethane	1.0870000	0.9772089	0.9772089	0.2	10.10	20.00	AVRG
Bromodichloromethane	0.4670000	0.4403334	0.4403334	0.2	5.71	20.00	AVRG
1,2-Dichloropropane	0.4070000	0.3613277	0.3613277	0.1	11.22	20.00	AVRG
cis-1,3-Dichloropropene	0.5470000	0.5112008	0.5112008	0.2	6.54	20.00	AVRG
2-Butanone	0.2250000	0.2106706	0.2106706	0.1	6.37	20.00	AVRG
Dibromochloromethane	0.4040000	0.3812508	0.3812508	0.1	5.63	20.00	AVRG
cis-1,2-Dichloroethene	0.5270000	0.5051960	0.5051960	0.1	4.14	20.00	AVRG
1,1,2-Trichloroethane	0.2780000	0.2480743	0.2480743	0.1	10.76	20.00	AVRG
Chloroform	0.8930000	0.8551408	0.8551408	0.2	4.24	20.00	AVRG
Benzene	1.2780000	1.1736427	1.1736427	0.5	8.16	20.00	AVRG
trans-1,3-Dichloropropene	0.4960000	0.4651333	0.4651333	0.1	6.22	20.00	AVRG
Bromoform	0.2860000	0.2719372	0.2719372	0.1	4.92	20.00	AVRG
4-Methyl-2-Pentanone	0.4510000	0.3708383	0.3708383	0.1	17.77	20.00	AVRG
1,1,1-Trichloroethane	0.8000000	0.7488168	0.7488168	0.1	6.40	20.00	AVRG
2-Hexanone	0.3090000	0.2477762	0.2477762	0.1	19.81	20.00	AVRG
1,2-Dichloroethane	0.5200000	0.5064542	0.5064542	0.1	2.60	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.8040000	0.6823172	0.6823172	0.3	15.13	20.00	AVRG
Trichloroethene	0.3590000	0.3345041	0.3345041	0.2	6.82	20.00	AVRG
Toluene	1.4800000	1.3432963	1.3432963	0.4	9.24	20.00	AVRG
Dichlorodifluoromethane	47.418633	50.000000	0.4904628	0.1	5.16	20.00	LINR
Trichlorofluoromethane	0.8040000	0.7262140	0.7262140	0.1	9.67	20.00	AVRG
Tetrachloroethene	0.3300000	0.2910312	0.2910312	0.2	11.81	20.00	AVRG
1,2-Dibromoethane	0.3550000	0.3331945	0.3331945	0.1	6.14	20.00	AVRG
Chlorobenzene	0.9900000	0.9073779	0.9073779	0.5	8.34	20.00	AVRG
1,3-Dichlorobenzene	1.5230000	1.4237995	1.4237995	0.6	6.51	20.00	AVRG
1,4-Dichlorobenzene	1.5800000	1.4182884	1.4182884	0.4	10.23	20.00	AVRG
1,2-Dichlorobenzene	1.3930000	1.2684635	1.2684635	0.4	8.94	20.00	AVRG
Ethylbenzene	0.5200000	0.4791446	0.4791446	0.1	7.86	20.00	AVRG
m,p-Xylenes	0.6310000	0.5768714	0.5768714	0.1	8.58	20.00	AVRG
o-Xylene	0.6140000	0.5674322	0.5674322	0.3	7.58	20.00	AVRG
Styrene	1.0640000	1.0078322	1.0078322	0.3	5.28	20.00	AVRG
Carbon Disulfide	1.3550000	1.2047411	1.2047411	0.1	11.09	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date: 05/11/20 Time: 1600

Lab File ID: X051108 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

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
2,2-Dichloropropane	0.7920000	0.6591737	0.6591737	0.1	16.77	20.00	AVRG
1,1-Dichloropropene	0.4580000	0.4009159	0.4009159	0.1	12.46	20.00	AVRG
Dibromomethane	0.2210000	0.2027041	0.2027041	0.1	8.28	20.00	AVRG
1,3-Dichloropropane	0.5780000	0.5260948	0.5260948	0.1	8.98	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3930000	0.3643941	0.3643941	0.1	7.28	20.00	AVRG
Isopropylbenzene	1.5590000	1.4174887	1.4174887	0.1	9.08	20.00	AVRG
Bromobenzene	0.9370000	0.8650076	0.8650076	0.1	7.68	20.00	AVRG
1,2,3-Trichloropropane	0.6970000	0.6304501	0.6304501	0.1	9.55	20.00	AVRG
n-Propylbenzene	3.5950000	3.2005296	3.2005296	0.1	10.97	20.00	AVRG
2-Chlorotoluene	2.2320000	1.9938431	1.9938431	0.1	10.67	20.00	AVRG
1,3,5-Trimethylbenzene	2.5820000	2.3809309	2.3809309	0.1	7.79	20.00	AVRG
4-Chlorotoluene	2.5730000	2.3244209	2.3244209	0.1	9.66	20.00	AVRG
tert-Butylbenzene	2.1920000	2.0074127	2.0074127	0.1	8.42	20.00	AVRG
1,2,4-Trimethylbenzene	2.6230000	2.4362998	2.4362998	0.1	7.12	20.00	AVRG
sec-Butylbenzene	3.0280000	2.6258216	2.6258216	0.1	13.28	20.00	AVRG
p-Isopropyltoluene	2.6260000	2.3847197	2.3847197	0.1	9.19	20.00	AVRG
n-Butylbenzene	2.1190000	1.8978874	1.8978874	0.5	10.43	20.00	AVRG
1,2-Dibromo-3-Chloropropane	46.748334	50.000000	7.15e-002	0.05	6.50	20.00	LINR
1,2,4-Trichlorobenzene	46.709340	50.000000	0.2939378	0.2	6.58	20.00	LINR
Hexachlorobutadiene	47.157282	50.000000	0.2343423	0.1	5.68	20.00	LINR
Naphthalene	0.4710000	0.4092612	0.4092612	0.2	13.11	20.00	AVRG
1,2,3-Trichlorobenzene	51.831780	50.000000	0.1473708	0.1	-3.66	20.00	2RDR
Freon TF	0.3860000	0.3345623	0.3345623	0.1	13.32	20.00	AVRG
Dibromofluoromethane	48.403502	50.000000	0.5082041	0.1	3.19	20.00	LINR
1,2-Dichloroethane-d4	47.574163	50.000000	0.6174767	0.1	4.85	20.00	LINR
Toluene-d8	50.055929	50.000000	1.2549441	0.1	-0.11	20.00	LINR
4-Bromofluorobenzene	48.915172	50.000000	0.4703930	0.1	2.17	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Instrument ID: VOA6 Calibration Date: 05/12/20 Time: 0000

Lab File ID: X051128 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Bromochloromethane	0.2900000	0.2740139	0.2740139	0.1	5.51	20.00	AVRG	
Vinyl Chloride	0.6930000	0.5811318	0.5811318	0.1	16.14	20.00	AVRG	
Chloromethane	41.368050	50.000000	0.6502535	0.1	17.26	20.00	LINR	
Bromomethane	45.389473	50.000000	0.3343096	0.1	9.22	20.00	LINR	
Chloroethane	43.877389	50.000000	0.3108049	0.1	12.24	20.00	LINR	
Methylene Chloride	47.524395	50.000000	0.4682317	0.1	4.95	20.00	LINR	
Acetone	74.035591	100.00000	0.1306786	0.1	25.96	20.00	LINR	<-
1,1-Dichloroethene	0.3980000	0.3476602	0.3476602	0.1	12.65	20.00	AVRG	
trans-1,2-Dichloroethene	0.4550000	0.4332149	0.4332149	0.1	4.79	20.00	AVRG	
Carbon Tetrachloride	0.5020000	0.4463277	0.4463277	0.1	11.09	20.00	AVRG	
1,1-Dichloroethane	1.0870000	0.9772089	0.9772089	0.2	10.10	20.00	AVRG	
Bromodichloromethane	0.4670000	0.4403334	0.4403334	0.2	5.71	20.00	AVRG	
1,2-Dichloropropane	0.4070000	0.3613277	0.3613277	0.1	11.22	20.00	AVRG	
cis-1,3-Dichloropropene	0.5470000	0.5112008	0.5112008	0.2	6.54	20.00	AVRG	
2-Butanone	0.2250000	0.2106706	0.2106706	0.1	6.37	20.00	AVRG	
Dibromochloromethane	0.4040000	0.3812508	0.3812508	0.1	5.63	20.00	AVRG	
cis-1,2-Dichloroethene	0.5270000	0.5051960	0.5051960	0.1	4.14	20.00	AVRG	
1,1,2-Trichloroethane	0.2780000	0.2480743	0.2480743	0.1	10.76	20.00	AVRG	
Chloroform	0.8930000	0.8551408	0.8551408	0.2	4.24	20.00	AVRG	
Benzene	1.2780000	1.1736427	1.1736427	0.5	8.16	20.00	AVRG	
trans-1,3-Dichloropropene	0.4960000	0.4651333	0.4651333	0.1	6.22	20.00	AVRG	
Bromoform	0.2860000	0.2719372	0.2719372	0.1	4.92	20.00	AVRG	
4-Methyl-2-Pentanone	0.4510000	0.3708383	0.3708383	0.1	17.77	20.00	AVRG	
1,1,1-Trichloroethane	0.8000000	0.7488168	0.7488168	0.1	6.40	20.00	AVRG	
2-Hexanone	0.3090000	0.2477762	0.2477762	0.1	19.81	20.00	AVRG	
1,2-Dichloroethane	0.5200000	0.5064542	0.5064542	0.1	2.60	20.00	AVRG	
1,1,2,2-Tetrachloroethane	0.8040000	0.6823172	0.6823172	0.3	15.13	20.00	AVRG	
Trichloroethene	0.3590000	0.3345041	0.3345041	0.2	6.82	20.00	AVRG	
Toluene	1.4800000	1.3432963	1.3432963	0.4	9.24	20.00	AVRG	
Dichlorodifluoromethane	42.169042	50.000000	0.4904628	0.1	15.66	20.00	LINR	
Trichlorofluoromethane	0.8040000	0.7262140	0.7262140	0.1	9.67	20.00	AVRG	
Tetrachloroethene	0.3300000	0.2910312	0.2910312	0.2	11.81	20.00	AVRG	
1,2-Dibromoethane	0.3550000	0.3331945	0.3331945	0.1	6.14	20.00	AVRG	
Chlorobenzene	0.9900000	0.9073779	0.9073779	0.5	8.34	20.00	AVRG	
1,3-Dichlorobenzene	1.5230000	1.4237995	1.4237995	0.6	6.51	20.00	AVRG	
1,4-Dichlorobenzene	1.5800000	1.4182884	1.4182884	0.4	10.23	20.00	AVRG	
1,2-Dichlorobenzene	1.3930000	1.2684635	1.2684635	0.4	8.94	20.00	AVRG	
Ethylbenzene	0.5200000	0.4791446	0.4791446	0.1	7.86	20.00	AVRG	
m,p-Xylenes	0.6310000	0.5768714	0.5768714	0.1	8.58	20.00	AVRG	
o-Xylene	0.6140000	0.5674322	0.5674322	0.3	7.58	20.00	AVRG	
Styrene	1.0640000	1.0078322	1.0078322	0.3	5.28	20.00	AVRG	
Carbon Disulfide	1.3550000	1.2047411	1.2047411	0.1	11.09	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005029

Instrument ID: VOA6 Calibration Date: 05/12/20 Time: 0000

Lab File ID: X051128 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

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
2,2-Dichloropropane	0.7920000	0.6591737	0.6591737	0.1	16.77	20.00	AVRG
1,1-Dichloropropene	0.4580000	0.4009159	0.4009159	0.1	12.46	20.00	AVRG
Dibromomethane	0.2210000	0.2027041	0.2027041	0.1	8.28	20.00	AVRG
1,3-Dichloropropane	0.5780000	0.5260948	0.5260948	0.1	8.98	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3930000	0.3643941	0.3643941	0.1	7.28	20.00	AVRG
Isopropylbenzene	1.5590000	1.4174887	1.4174887	0.1	9.08	20.00	AVRG
Bromobenzene	0.9370000	0.8650076	0.8650076	0.1	7.68	20.00	AVRG
1,2,3-Trichloropropane	0.6970000	0.6304501	0.6304501	0.1	9.55	20.00	AVRG
n-Propylbenzene	3.5950000	3.2005296	3.2005296	0.1	10.97	20.00	AVRG
2-Chlorotoluene	2.2320000	1.9938431	1.9938431	0.1	10.67	20.00	AVRG
1,3,5-Trimethylbenzene	2.5820000	2.3809309	2.3809309	0.1	7.79	20.00	AVRG
4-Chlorotoluene	2.5730000	2.3244209	2.3244209	0.1	9.66	20.00	AVRG
tert-Butylbenzene	2.1920000	2.0074127	2.0074127	0.1	8.42	20.00	AVRG
1,2,4-Trimethylbenzene	2.6230000	2.4362998	2.4362998	0.1	7.12	20.00	AVRG
sec-Butylbenzene	3.0280000	2.6258216	2.6258216	0.1	13.28	20.00	AVRG
p-Isopropyltoluene	2.6260000	2.3847197	2.3847197	0.1	9.19	20.00	AVRG
n-Butylbenzene	2.1190000	1.8978874	1.8978874	0.5	10.43	20.00	AVRG
1,2-Dibromo-3-Chloropropane	44.774192	50.000000	7.15e-002	0.05	10.45	20.00	LINR
1,2,4-Trichlorobenzene	41.194702	50.000000	0.2939378	0.2	17.61	20.00	LINR
Hexachlorobutadiene	43.057267	50.000000	0.2343423	0.1	13.88	20.00	LINR
Naphthalene	0.4710000	0.4092612	0.4092612	0.2	13.11	20.00	AVRG
1,2,3-Trichlorobenzene	45.984341	50.000000	0.1473708	0.1	8.03	20.00	2RDR
Freon TF	0.3860000	0.3345623	0.3345623	0.1	13.32	20.00	AVRG
Dibromofluoromethane	50.947427	50.000000	0.5082041	0.1	-1.89	20.00	LINR
1,2-Dichloroethane-d4	50.101193	50.000000	0.6174767	0.1	-0.20	20.00	LINR
Toluene-d8	49.968458	50.000000	1.2549441	0.1	0.06	20.00	LINR
4-Bromofluorobenzene	49.225078	50.000000	0.4703930	0.1	1.55	20.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050292

Lab File ID (Standard): X051128 Date Analyzed: 05/12/20

Instrument ID: VOA6 Time Analyzed: 0000

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	139356	9.66				
	UPPER LIMIT	278712	10.16				
	LOWER LIMIT	69678	9.16				
	CLIENT SAMPLE NO.						
01	ICV	148250	9.66				
02	VLCSW-200511	152035	9.66				
03	VBLKW-200508	155919	9.67				
04	HS20050292-01	155612	9.66				
05	HS20050292-02	155742	9.67				
06	HS20050292-03	154461	9.67				
07	HS20050292-03	148588	9.66				
08	HS20050292-03	144845	9.66				
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.

MSVOA06 -Logbook

Batch: 40533
Date: 05-11-2020
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-11-2020 12:48 pm	1.00	50 mL	50 mL	X051101.D	Liquid	Y	NA
	Auto find / Purged									
2	VSTD000.25	ICAL1	05-11-2020 01:12 pm	1.00	50 mL	50 mL	X051102.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	05-11-2020 02:00 pm	1.00	50 mL	50 mL	X051103.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	05-11-2020 02:24 pm	1.00	50 mL	50 mL	X051104.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	05-11-2020 02:48 pm	1.00	50 mL	50 mL	X051105.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	05-11-2020 03:12 pm	1.00	50 mL	50 mL	X051106.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	05-11-2020 03:36 pm	1.00	50 mL	50 mL	X051107.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	05-11-2020 04:00 pm	1.00	50 mL	50 mL	X051108.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	05-11-2020 04:24 pm	1.00	50 mL	50 mL	X051109.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	05-11-2020 04:47 pm	1.00	50 mL	50 mL	X051110.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	05-11-2020 05:11 pm	1.00	50 mL	50 mL	X051111.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	05-11-2020 05:35 pm	1.00	50 mL	50 mL	X051112.D	Liquid	Y	NA
13	BLANK	SAMP	05-11-2020 05:59 pm	1.00	50 mL	50 mL	X051113.D	Liquid	Y	NA
14	ICV	CCV	05-11-2020 06:23 pm	1.00	50 mL	50 mL	X051114.D	Liquid	Y	NA
	10 uL icv std/50 mL DI									
15	BLANK	SAMP	05-11-2020 06:47 pm	1.00	50 mL	50 mL	X051115.D	Liquid	Y	NA
16	VLCSW-200511	LCS	05-11-2020 07:11 pm	1.00	50 mL	50 mL	X051116.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
17	BLANK	SAMP	05-11-2020 07:35 pm	1.00	50 mL	50 mL	X051117.D	Liquid	Y	NA
18	BLANK	SAMP	05-11-2020 07:59 pm	1.00	50 mL	50 mL	X051118.D	Liquid	Y	NA
19	VBLKW-200511	MBLK	05-11-2020 08:24 pm	1.00	50 mL	50 mL	X051119.D	Liquid	Y	NA
20	HS20050202-17	SAMP	05-11-2020 08:48 pm	1.00	50 mL	50 mL	X051120.D	Liquid	Y	NA
	neat samples									
21	HS20050202-18	SAMP	05-11-2020 09:12 pm	1.00	50 mL	50 mL	X051121.D	Liquid	Y	NA
22	HS20050202-18	SAMP	05-11-2020 09:36 pm	5.00	10 mL	50 mL	X051122.D	Liquid	Y	NA
23	HS20050292-01	SAMP	05-11-2020 10:00 pm	1.00	50 mL	50 mL	X051123.D	Liquid	Y	NA
24	HS20050292-02	SAMP	05-11-2020 10:24 pm	1.00	50 mL	50 mL	X051124.D	Liquid	Y	NA
25	HS20050292-03	SAMP	05-11-2020 10:48 pm	1.00	50 mL	50 mL	X051125.D	Liquid	Y	<2
26	HS20050292-03MS	MS	05-11-2020 11:12 pm	1.00	50 mL	50 mL	X051126.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
27	HS20050292-03MSD	MSD	05-11-2020 11:36 pm	1.00	50 mL	50 mL	X051127.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
28	CCV-END	CCV	05-12-2020 12:00 am	1.00	50 mL	50 mL	X051128.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
29	HS20050337-02	SAMP	05-12-2020 12:24 am	1.00	50 mL	50 mL	X051129.D	Liquid	Y	<2

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-26-06
IS ID	31106-26-06
CAL STD ID	31106-29-01/02
BFB ID	31106-26-06
pH Paper	634-64-11

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

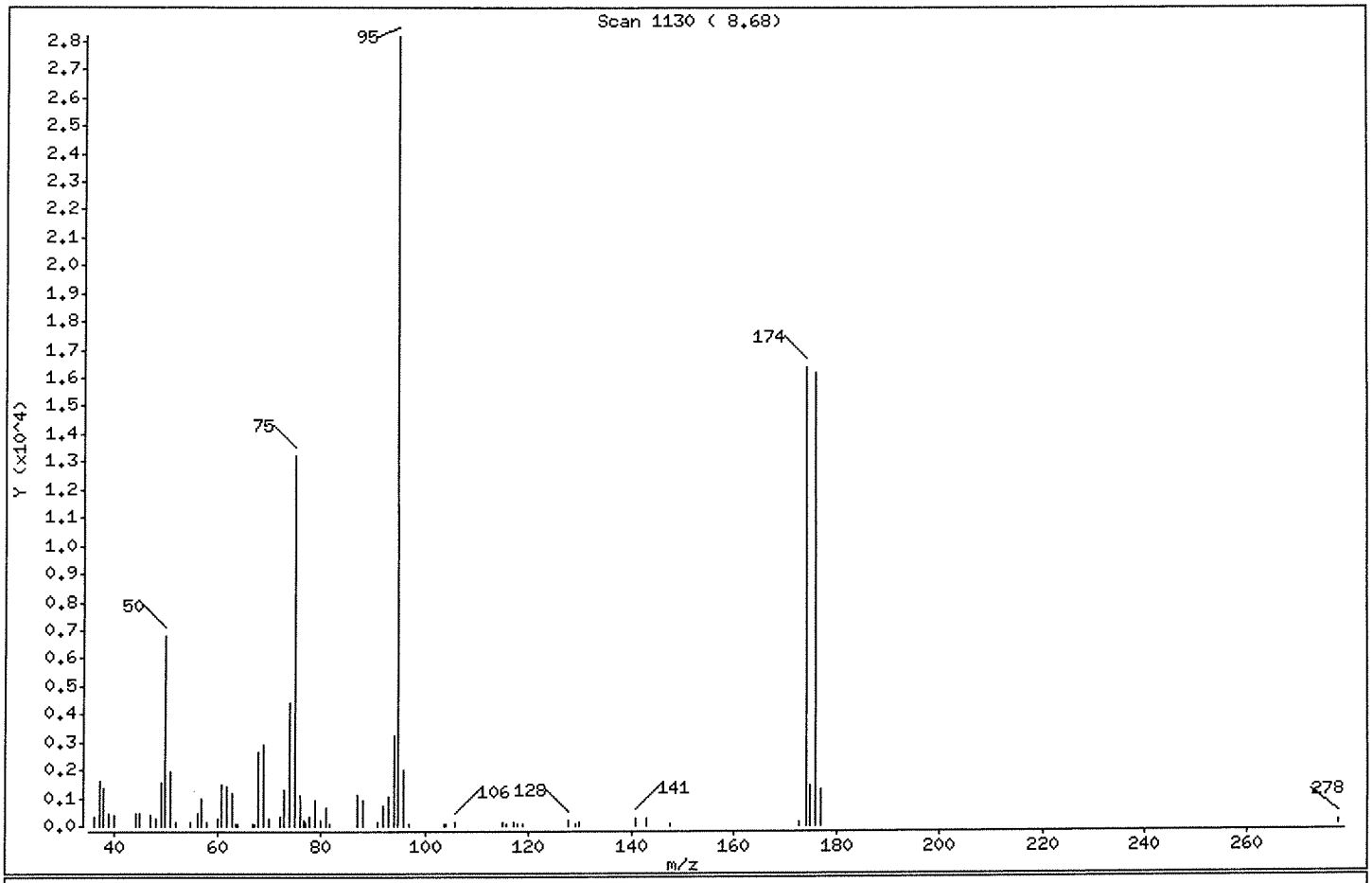
Volume Injected (uL): 2.0

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	24.23
75	30.00 - 60.00% of mass 95	46.94
96	5.00 - 9.00% of mass 95	7.07
173	Less than 2.00% of mass 174	0.40 (0.70)
174	Greater than 50.00% of mass 95	58.12
175	5.00 - 9.00% of mass 174	5.01 (8.63)
176	95.00 - 101.00% of mass 174	57.57 (99.06)
177	5.00 - 9.00% of mass 176	4.70 (8.16)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

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: X051101.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 69

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	344	61.00	1469	78.80	878	117.00	116
37.00	1597	62.00	1437	80.00	215	118.00	62
38.00	1339	63.00	1157	80.90	656	119.00	80
39.00	476	63.80	94	81.90	63	127.90	221
40.00	388	64.00	94	87.00	1132	129.00	87
44.10	480	66.70	60	88.00	930	130.00	133
45.00	427	67.10	88	91.10	98	141.00	245
47.00	412	68.00	2631	92.00	714	142.90	244
48.00	286	69.00	2930	93.00	1015	147.70	93
49.00	1548	70.00	291	94.00	3223	172.70	114
50.00	6829	72.00	332	95.00	28184	174.00	16380
51.00	1936	73.00	1275	96.00	1993	174.90	1413
52.10	99	74.00	4408	96.90	91	176.00	16226
55.00	155	75.00	13230	103.60	76	176.90	1324
56.10	426	76.00	1105	104.00	94	277.90	107
57.00	975	76.80	194	105.80	140		
58.00	122	77.10	149	114.90	135		
60.10	288	77.90	324	115.70	61		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

Client ID: BFB

Instrument: voa6.i

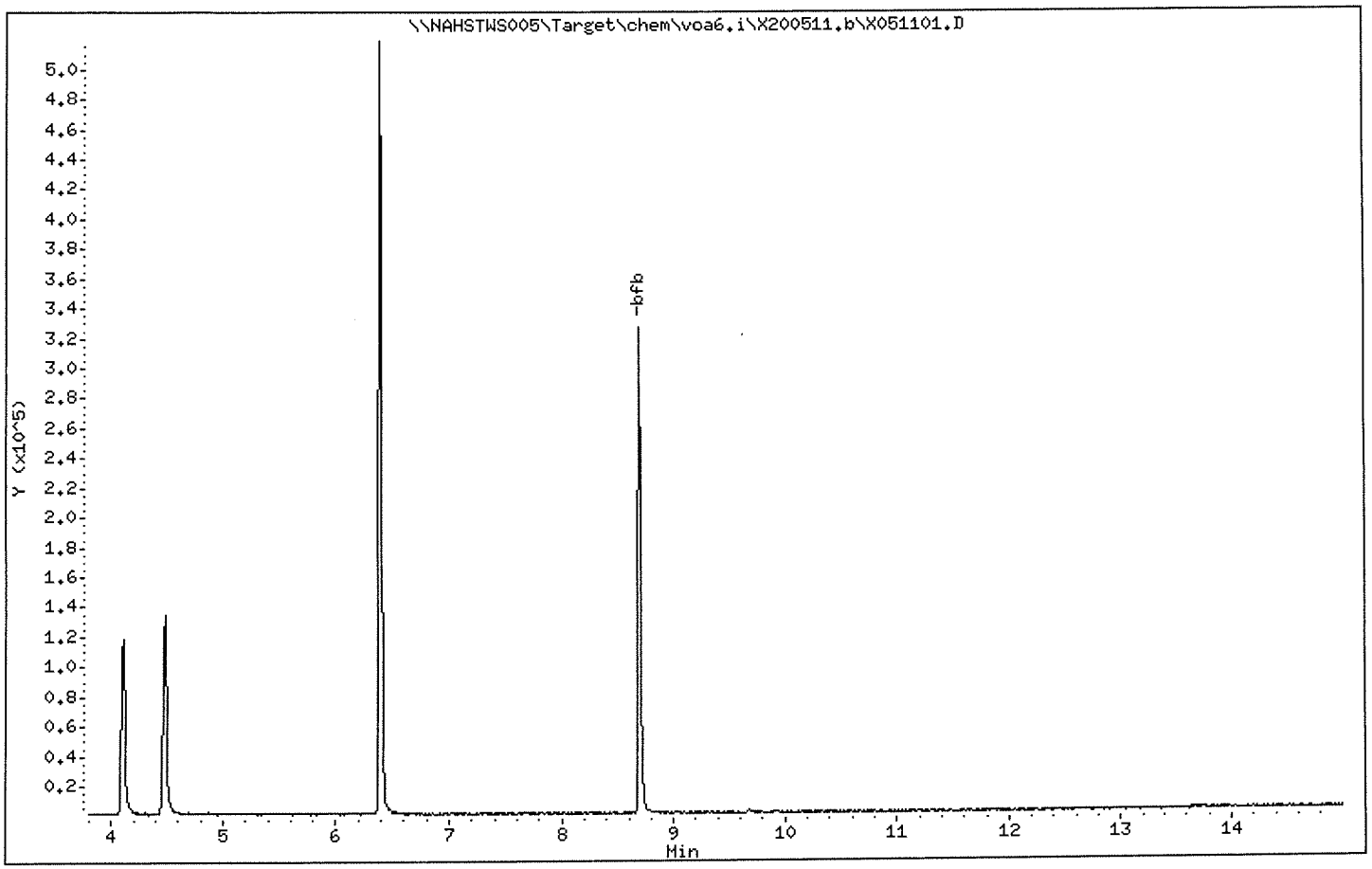
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 11-MAY-2020 14:00
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\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	264457	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	403047	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	360066	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	172614	50.0000	
$ 30 Dibromofluoromethane	113	4.118	4.118	(0.985)	1793	0.50000	0.43(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	2117	0.50000	0.61(TaM)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	5920	0.50000	0.19(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	2708	0.50000	0.02(aM)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1589	0.50000	0.56(a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	2455	0.50000	0.57(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1621	0.50000	0.58(aM)
138 Freon TF	101	1.911	1.911	(0.457)	928	0.50000	0.45(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	1197	0.50000	0.59(a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	3470	0.50000	0.60(Ta)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1219	0.50000	0.57(a)
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2183	0.50000	0.59(aM)
93 1,2,3-Trichlorobenzene	180	11.768	11.768	(1.218)	385	0.50000	0.32(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	1424	0.50000	0.59(aM)
90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.175)	505	0.50000	3.02(aM)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	5523	0.50000	0.60(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.104)	114	0.50000	1.86(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	1387	0.50000	0.54(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.006	10.006	(1.036)	2924	0.50000	0.60(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	2366	0.50000	0.56(a)
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	1947	0.50000	0.59(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	4894	0.50000	0.54(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	3057	0.50000	0.58(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	2403	0.50000	0.57(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	3791	0.50000	0.69(aM)
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	2471	0.50000	0.59(aM)
24 2-Butanone	43	3.609	3.609	(0.863)	996	1.00000	0.83(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.930)	4712	0.50000	0.61(a)
52 2-Hexanone	43	7.105	7.105	(0.926)	2689	1.00000	1.20(a)
77 4-Chlorotoluene	91	9.082	9.082	(0.940)	5584	0.50000	0.62(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	5597	0.50000	0.61(a)
45 4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	3621	1.00000	1.11(a)
37 Benzene	78	4.519	4.519	(0.909)	5977	0.50000	0.58(a)
74 Bromobenzene	156	8.817	8.817	(0.913)	2002	0.50000	0.61(a)
29 Bromochloromethane	128	3.817	3.817	(0.913)	960	0.50000	0.62(aM)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	2116	0.50000	0.56(aM)
66 Bromoform	173	8.415	8.415	(1.097)	1144	0.50000	0.55(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	8247	1.00000	1.15(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	2535	0.50000	0.62(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	4408	0.50000	0.61(a)
7 Chloroethane	64	1.403	1.403	(0.336)	1364	0.50000	0.31(aM)
28 Chloroform	83	3.917	3.917	(0.937)	2796	0.50000	0.59(aM)
3 Chloromethane	50	1.073	1.073	(0.257)	2464	0.50000	1.21(a)
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	1435	0.50000	0.51(a)
46 cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	2430	0.50000	0.55(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	1589	0.50000	0.54(a)
44 Dibromomethane	93	5.557	5.557	(1.118)	1096	0.50000	0.61(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1503	0.50000	1.54(aM)
61 Ethylbenzene	106	7.799	7.799	(1.017)	2144	0.50000	0.57(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	605	0.50000	1.59(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	6620	0.50000	0.58(a)
62 m,p-Xylenes	106	7.914	7.914	(1.032)	5392	1.00000	1.18(a)
87 n-Butylbenzene	91	9.998	9.998	(1.035)	4435	0.50000	0.60(a)
73 n-Propylbenzene	91	8.917	8.917	(0.923)	7797	0.50000	0.62(a)
92 Naphthalene	128	11.567	11.567	(1.197)	795	0.50000	0.48(a)
63 o-Xylene	106	8.244	8.244	(1.075)	2416	0.50000	0.54(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	6535	0.50000	0.62(a)
64 Styrene	104	8.272	8.272	(1.078)	4394	0.50000	0.57(a)
78 tert-Butylbenzene	119	9.339	9.339	(0.967)	4334	0.50000	0.57(aM)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1303	0.50000	0.54(a)
50 Toluene	91	6.460	6.460	(0.842)	6225	0.50000	0.58(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1384	0.50000	0.57(a)
51 trans-1,3-Dichloropropene	75	6.696	6.696	(1.347)	2163	0.50000	0.54(a)
38 Trichloroethene	130	5.221	5.221	(1.050)	1714	0.50000	0.59(a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	2348	0.50000	0.55(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	1998	0.50000	0.54(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D
Date : 11-MAY-2020 14:00
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

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 11-MAY-2020 14:24
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\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:00 Cal File: X051103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

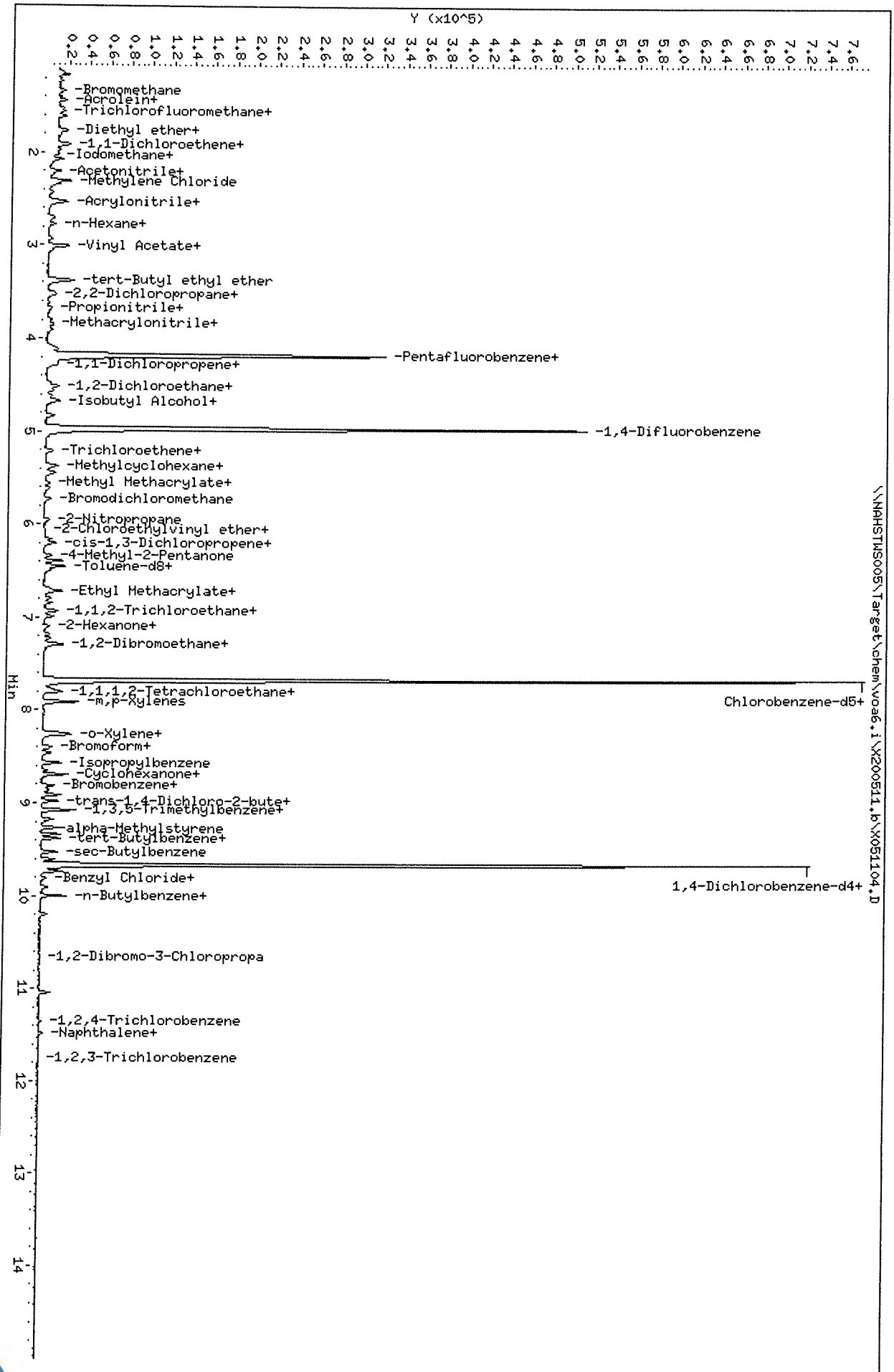
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	275272	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	406059	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	364006	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	178611	50.0000	
$	30 Dibromofluoromethane	113	4.111	4.111	(0.983)	3147	1.00000	0.90(a)
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	3902	1.00000	1.11
$	48 Toluene-d8	98	6.396	6.396	(0.834)	10982	1.00000	0.74(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	6819	1.00000	1.22(M)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2921	1.00000	1.02(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	4385	1.00000	0.99(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	2901	1.00000	1.01(aM)
	138 Freon TF	101	1.919	1.919	(0.459)	2064	1.00000	0.97(a)
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	1834	1.00000	0.90(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6103	1.00000	1.02
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	2222	1.00000	1.01(a)
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	3792	1.00000	1.02(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.753	(1.216)	431	1.00000	0.38(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	2246	1.00000	0.90(aM)
	90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	762	1.00000	3.20(aM)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	8175	1.00000	0.87(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	128	1.00000	1.90(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	2246	1.00000	0.86(a)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	4805	1.00000	0.96(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	3942	1.00000	0.93(a)
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	3276	1.00000	0.99(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	8480	1.00000	0.91(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	5149	1.00000	0.94(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	3905	1.00000	0.92(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	5222	1.00000	0.92(a)
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	4652	1.00000	1.06(a)
24	2-Butanone	43	3.616	3.616	(0.865)	2014	2.00000	1.62(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	8499	1.00000	1.06(a)
52	2-Hexanone	43	7.097	7.097	(0.925)	3544	2.00000	1.57(a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	9489	1.00000	1.03(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	7748	1.00000	0.82(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	5818	2.00000	1.77(a)
37	Benzene	78	4.519	4.519	(0.909)	10698	1.00000	1.03
74	Bromobenzene	156	8.809	8.809	(0.911)	3242	1.00000	0.96(a)
29	Bromochloromethane	128	3.810	3.810	(0.911)	1724	1.00000	1.07(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	3508	1.00000	0.92(aM)
66	Bromoform	173	8.415	8.415	(1.097)	1878	1.00000	0.90(Ta)
6	Bromomethane	94	1.338	1.338	(0.320)	2788	1.00000	0.65(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	14075	2.00000	1.88(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	4264	1.00000	1.04(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	6626	1.00000	0.91(a)
7	Chloroethane	64	1.403	1.403	(0.336)	2214	1.00000	0.72(aM)
28	Chloroform	83	3.917	3.917	(0.937)	4419	1.00000	0.89(a)
3	Chloromethane	50	1.073	1.073	(0.257)	4677	1.00000	1.69(a)
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	2598	1.00000	0.89(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	4354	1.00000	0.98(a)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	2769	1.00000	0.93(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	1516	1.00000	0.84(a)
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	2633	1.00000	1.86(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	3595	1.00000	0.94(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	736	1.00000	1.70(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	10828	1.00000	0.95(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	8477	2.00000	1.84(a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	3655	1.00000	0.30(aM)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	5888	1.00000	0.77(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	11772	1.00000	0.91(a)
92	Naphthalene	128	11.567	11.567	(1.196)	1462	1.00000	0.86(a)
63	o-Xylene	106	8.244	8.244	(1.075)	4297	1.00000	0.96(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	9307	1.00000	0.86(a)
64	Styrene	104	8.265	8.265	(1.078)	7774	1.00000	1.00
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	7608	1.00000	0.97(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	2384	1.00000	0.99(a)
50	Toluene	91	6.453	6.453	(0.841)	10333	1.00000	0.95(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	2248	1.00000	0.89(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	3756	1.00000	0.93(a)
38	Trichloroethene	130	5.221	5.221	(1.050)	2673	1.00000	0.91(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	4149	1.00000	0.93(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	3583	1.00000	0.93(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D
Date : 11-MAY-2020 14:24
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\X200511.b\X051105.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 11-MAY-2020 14:48
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\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:24 Cal File: X051104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

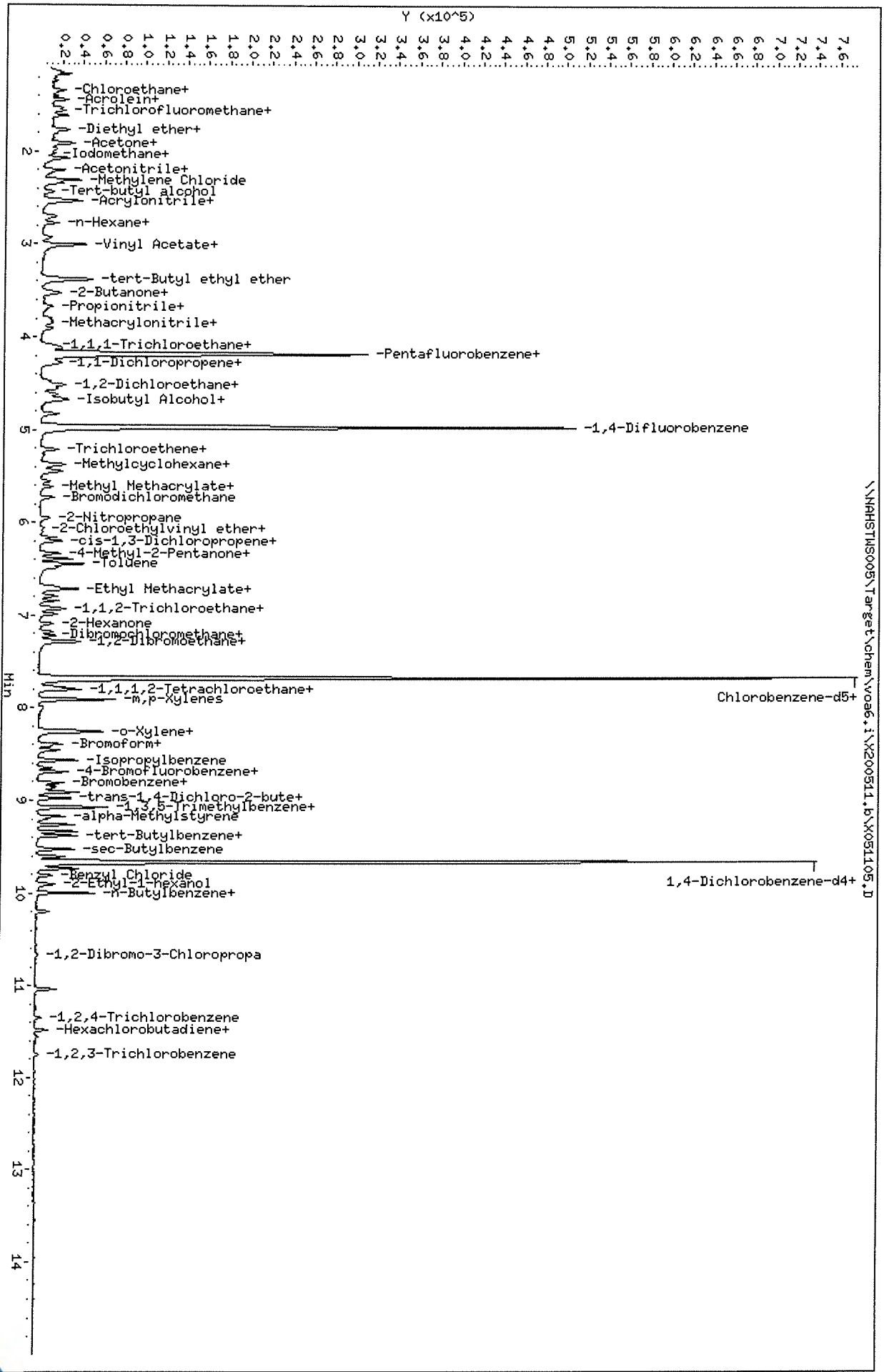
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	263591	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	396279	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	351963	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	178242	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	5198	2.00000	1.74
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	7290	2.00000	2.20
$	48 Toluene-d8	98	6.388	6.388	(0.833)	18430	2.00000	1.63
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8380	2.00000	1.75
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	5459	2.00000	1.97(a)
	31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	8079	2.00000	1.91
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6293	2.00000	2.19(aM)
	138 Freon TF	101	1.919	1.919	(0.459)	4120	2.00000	2.02(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4127	2.00000	2.10(a)
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	11643	2.00000	2.03
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3905	2.00000	1.86(a)
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	7360	2.00000	2.02(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	1047	2.00000	1.52(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	5909	2.00000	2.37(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	1924	2.00000	4.05(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	17865	2.00000	1.91(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.104)	532	2.00000	3.27(aM)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	5252	2.00000	2.10

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	10304	2.00000	2.07(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	7567	2.00000	1.83
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	6309	2.00000	1.95(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	18199	2.00000	1.97(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	10710	2.00000	1.97(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	8570	2.00000	2.10(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	10744	2.00000	1.90(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	8610	2.00000	2.06(a)
24 2-Butanone	43	3.595	3.595	(0.860)	3931	4.00000	3.30
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	15622	2.00000	1.96(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	9844	4.00000	4.52(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	17906	2.00000	1.95(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	17190	2.00000	1.83(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	14181	4.00000	4.46(a)
10 Acetone	43	1.969	1.969	(0.471)	5040	4.00000	2.97(a)
37 Benzene	78	4.519	4.519	(0.909)	19710	2.00000	1.94
74 Bromobenzene	156	8.810	8.810	(0.912)	6636	2.00000	1.98(a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	3004	2.00000	1.96(a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	7310	2.00000	1.97(a)
66 Bromoform	173	8.416	8.416	(1.097)	4311	2.00000	2.13(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	5327	2.00000	2.04(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	27764	4.00000	3.88(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	7736	2.00000	1.94(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	14195	2.00000	2.03
7 Chloroethane	64	1.403	1.403	(0.336)	3636	2.00000	1.54(a)
28 Chloroform	83	3.917	3.917	(0.937)	9385	2.00000	1.99
3 Chloromethane	50	1.074	1.074	(0.257)	8356	2.00000	2.61(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	6149	2.00000	2.21(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8237	2.00000	1.90(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	5789	2.00000	2.03(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	3352	2.00000	1.91(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	5304	2.00000	2.75(a)
61 Ethylbenzene	106	7.800	7.800	(1.017)	7402	2.00000	2.02
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	2177	2.00000	3.15(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	20273	2.00000	1.84(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	17933	4.00000	4.03
17 Methylene Chloride	84	2.306	2.306	(0.551)	6641	2.00000	1.54(aM)
87 n-Butylbenzene	91	9.999	9.999	(1.035)	13137	2.00000	1.73(a)
73 n-Propylbenzene	91	8.917	8.917	(0.923)	23793	2.00000	1.85(a)
92 Naphthalene	128	11.553	11.553	(1.196)	2896	2.00000	1.72(a)
63 o-Xylene	106	8.244	8.244	(1.075)	9179	2.00000	2.12
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	21323	2.00000	1.97(a)
64 Styrene	104	8.265	8.265	(1.078)	15041	2.00000	2.00
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	15079	2.00000	1.92(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4860	2.00000	2.09
50 Toluene	91	6.453	6.453	(0.841)	21432	2.00000	2.05
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4704	2.00000	1.96(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	7614	2.00000	1.93(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	5425	2.00000	1.90
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	7899	2.00000	1.86(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	7135	2.00000	1.95(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200511,b\X051105,D
Date : 11-MAY-2020 14:48
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\X200511.b\X051106.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 11-MAY-2020 15:12
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\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:48 Cal File: X051105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

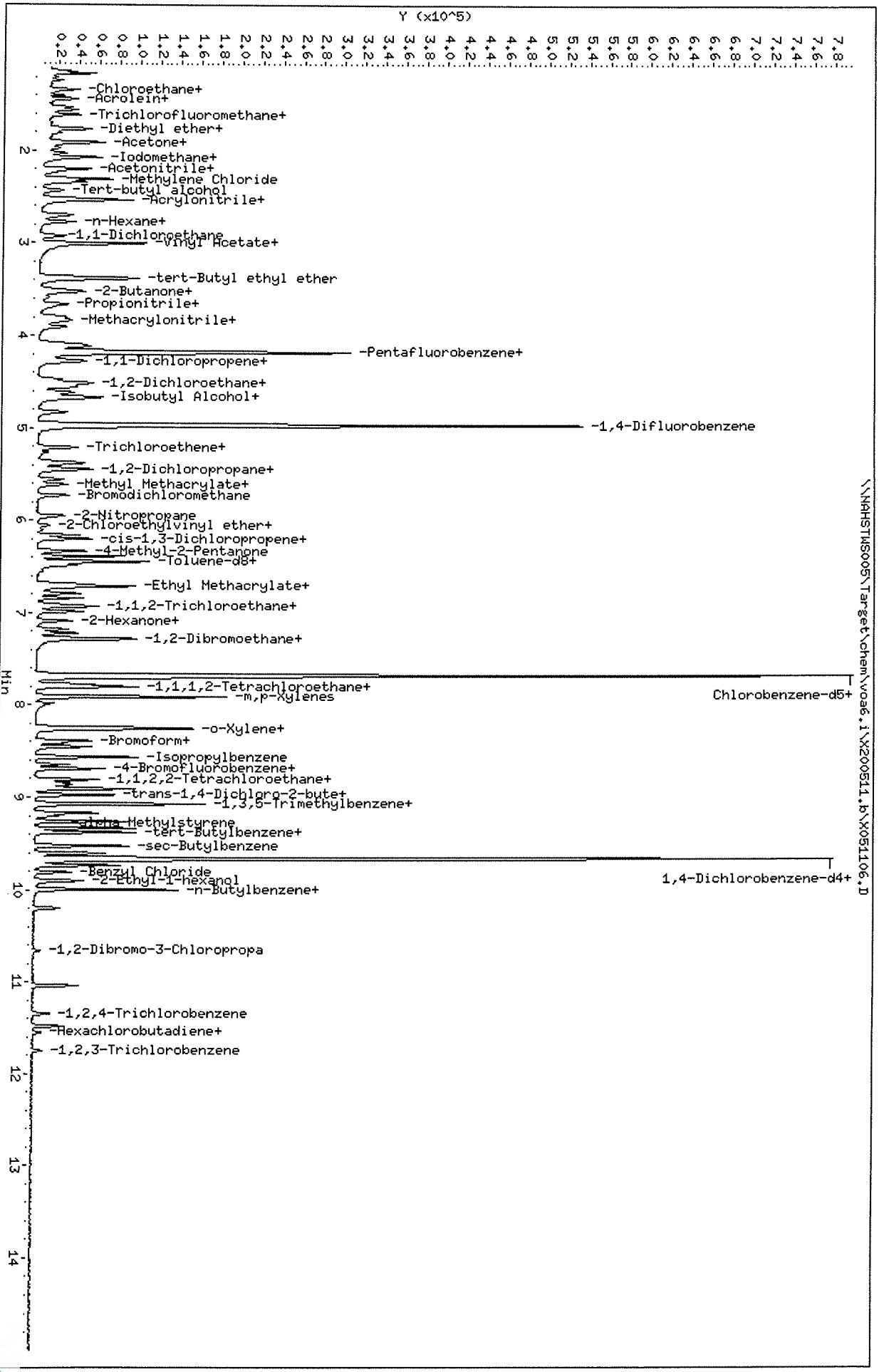
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	260790	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	393985	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	352401	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	175544	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.983)	14036	5.00000	5.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	17135	5.00000	5.29
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	47142	5.00000	4.91
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	19241	5.00000	5.03
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	13494	5.00000	4.87(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	20093	5.00000	4.81
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	14006	5.00000	4.96(a)
138 Freon TF	101	1.911	1.911	(0.457)	9855	5.00000	4.88(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	10314	5.00000	5.26
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	28324	5.00000	4.99
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	9809	5.00000	4.72(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	17168	5.00000	4.75(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	3164	5.00000	5.50
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	11655	5.00000	4.76(aM)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	5746	5.00000	6.93
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	44767	5.00000	4.86(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	1596	5.00000	6.97
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	12610	5.00000	5.03

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	23909	5.00000	4.88(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	20100	5.00000	4.89
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	15911	5.00000	4.96(a)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	45927	5.00000	5.06
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	26279	5.00000	4.91(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	20663	5.00000	5.07
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	27091	5.00000	4.88(a)
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	20032	5.00000	4.85(a)
24 2-Butanone	43	3.588	3.588	(0.858)	11452	10.0000	9.74
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	38693	5.00000	4.93(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	21406	10.0000	9.82
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	42965	5.00000	4.75(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	44464	5.00000	4.82(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	32131	10.0000	10.09
10 Acetone	43	1.976	1.976	(0.473)	9390	10.0000	7.93
37 Benzene	78	4.519	4.519	(0.909)	47662	5.00000	4.73
74 Bromobenzene	156	8.809	8.809	(0.911)	15558	5.00000	4.72(a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	7793	5.00000	5.15
39 Bromodichloromethane	83	5.729	5.729	(1.153)	18153	5.00000	4.93(a)
66 Bromoform	173	8.416	8.416	(1.097)	10062	5.00000	4.98(a)
6 Bromomethane	94	1.338	1.338	(0.320)	11539	5.00000	5.35(M)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	68909	10.0000	9.74
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	18629	5.00000	4.70(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	34696	5.00000	4.96
7 Chloroethane	64	1.403	1.403	(0.336)	10011	5.00000	5.05
28 Chloroform	83	3.910	3.910	(0.935)	24061	5.00000	5.16
3 Chloromethane	50	1.073	1.073	(0.257)	19497	5.00000	5.31
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	13752	5.00000	4.99(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	21020	5.00000	4.88(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	13999	5.00000	4.90(a)
44 Dibromomethane	93	5.557	5.557	(1.118)	8792	5.00000	5.05
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	13068	5.00000	5.26
61 Ethylbenzene	106	7.800	7.800	(1.017)	17464	5.00000	4.76
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	5460	5.00000	6.55
67 Isopropylbenzene	105	8.566	8.566	(1.117)	54621	5.00000	4.97(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	43516	10.0000	9.78
17 Methylene Chloride	84	2.305	2.305	(0.551)	14433	5.00000	4.67(aM)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	36372	5.00000	4.88(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	61681	5.00000	4.88(a)
92 Naphthalene	128	11.546	11.546	(1.194)	7604	5.00000	4.60(a)
63 o-Xylene	106	8.244	8.244	(1.075)	21272	5.00000	4.91
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	53044	5.00000	4.98(a)
64 Styrene	104	8.265	8.265	(1.078)	36239	5.00000	4.83
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	38878	5.00000	5.05
56 Tetrachloroethene	164	6.933	6.933	(0.904)	11417	5.00000	4.91
50 Toluene	91	6.446	6.446	(0.840)	52487	5.00000	5.03
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	11735	5.00000	4.94(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	19122	5.00000	4.89(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	13453	5.00000	4.75
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	19847	5.00000	4.73(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	17119	5.00000	4.73(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Date : 11-MAY-2020 15:12
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 11-MAY-2020 15:36
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 15:12 Cal File: X051106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

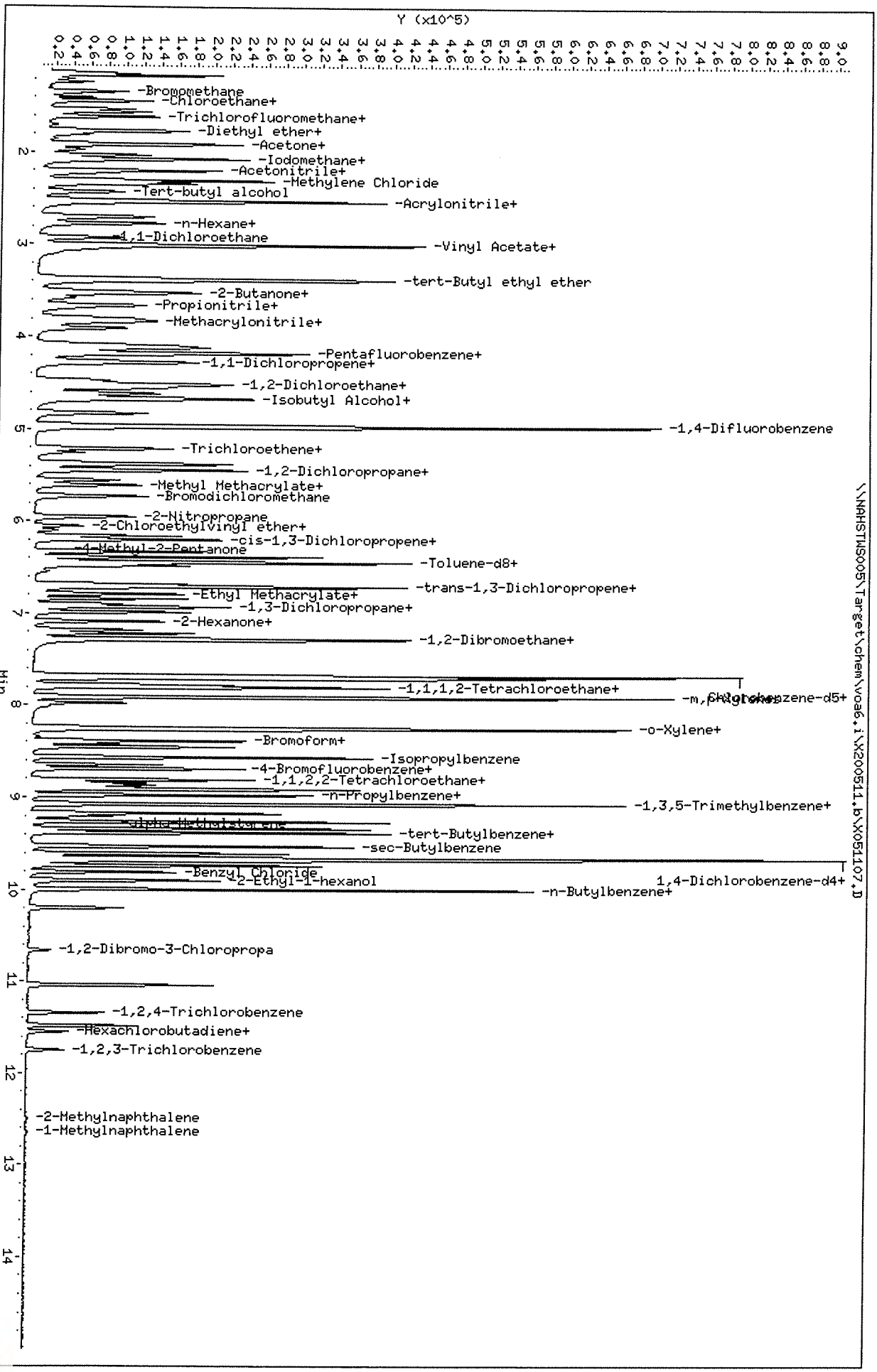
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	255700	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	378254	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	339256	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	171130	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	51294	20.0000	19.96
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	62012	20.0000	19.65
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	176771	20.0000	20.47
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	69563	20.0000	21.02
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	52095	20.0000	19.53
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	79732	20.0000	19.47
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	53986	20.0000	19.63
138 Freon TF	101	1.919	1.919	(0.459)	38765	20.0000	19.61
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	36817	20.0000	19.50
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	107343	20.0000	19.31
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	39440	20.0000	19.38
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	66167	20.0000	19.10
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	11186	20.0000	20.71
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	45232	20.0000	18.96(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	23261	20.0000	20.47
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	177262	20.0000	19.74
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	5237	20.0000	20.01
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	49329	20.0000	20.46

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.991	9.991	(1.034)	91741	20.0000	19.24
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	79106	20.0000	20.08
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	60696	20.0000	19.71
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	173374	20.0000	19.62
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	103242	20.0000	19.79
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	78846	20.0000	20.09
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	102094	20.0000	18.87
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	78288	20.0000	19.33
24 2-Butanone	43	3.580	3.580	(0.856)	49330	40.0000	42.80
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	143786	20.0000	18.82
52 2-Hexanone	43	7.090	7.090	(0.924)	83306	40.0000	39.70
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	170619	20.0000	19.37
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	178794	20.0000	19.89
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	122401	40.0000	39.95
10 Acetone	43	1.969	1.969	(0.471)	35665	40.0000	38.28
37 Benzene	78	4.512	4.512	(0.908)	190323	20.0000	19.68
74 Bromobenzene	156	8.809	8.809	(0.912)	62061	20.0000	19.34
29 Bromochloromethane	128	3.795	3.795	(0.908)	28180	20.0000	18.99
39 Bromodichloromethane	83	5.729	5.729	(1.153)	69054	20.0000	19.55
66 Bromoform	173	8.415	8.415	(1.097)	38468	20.0000	19.79
6 Bromomethane	94	1.338	1.338	(0.320)	40170	20.0000	20.93
19 Carbon Disulfide	76	2.069	2.069	(0.495)	269383	40.0000	38.86
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	69941	20.0000	18.40
59 Chlorobenzene	112	7.699	7.699	(1.004)	130918	20.0000	19.47
7 Chloroethane	64	1.403	1.403	(0.336)	35750	20.0000	19.50
28 Chloroform	83	3.910	3.910	(0.935)	90107	20.0000	19.71
3 Chloromethane	50	1.073	1.073	(0.257)	77009	20.0000	19.49
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	54813	20.0000	20.32
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	81116	20.0000	19.61
55 Dibromochloromethane	129	7.176	7.176	(0.936)	53715	20.0000	19.56
44 Dibromomethane	93	5.557	5.557	(1.118)	32219	20.0000	19.29
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	55700	20.0000	19.32
61 Ethylbenzene	106	7.799	7.799	(1.017)	69660	20.0000	19.74
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	21311	20.0000	23.33
67 Isopropylbenzene	105	8.566	8.566	(1.117)	209344	20.0000	19.78
62 m,p-Xylenes	106	7.907	7.907	(1.031)	170236	40.0000	39.75
17 Methylene Chloride	84	2.305	2.305	(0.551)	52520	20.0000	20.24
87 n-Butylbenzene	91	9.998	9.998	(1.035)	146592	20.0000	20.21
73 n-Propylbenzene	91	8.917	8.917	(0.923)	239282	20.0000	19.44
92 Naphthalene	128	11.546	11.546	(1.195)	31970	20.0000	19.84
63 o-Xylene	106	8.244	8.244	(1.075)	83788	20.0000	20.11
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	201174	20.0000	19.40
64 Styrene	104	8.258	8.258	(1.077)	143940	20.0000	19.93
78 tert-Butylbenzene	119	9.339	9.339	(0.967)	147263	20.0000	19.62
56 Tetrachloroethene	164	6.933	6.933	(0.904)	43566	20.0000	19.46
50 Toluene	91	6.446	6.446	(0.840)	201457	20.0000	20.06
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	46791	20.0000	20.11
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	73152	20.0000	19.50
38 Trichloroethene	130	5.206	5.206	(1.048)	52492	20.0000	19.34
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	79846	20.0000	19.40
5 Vinyl Chloride	62	1.138	1.138	(0.272)	69422	20.0000	19.58

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D
Date : 11-MAY-2020 15:36
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\X200511.b\X051108.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-MAY-2020 16:00
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\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 15:36 Cal File: X051107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

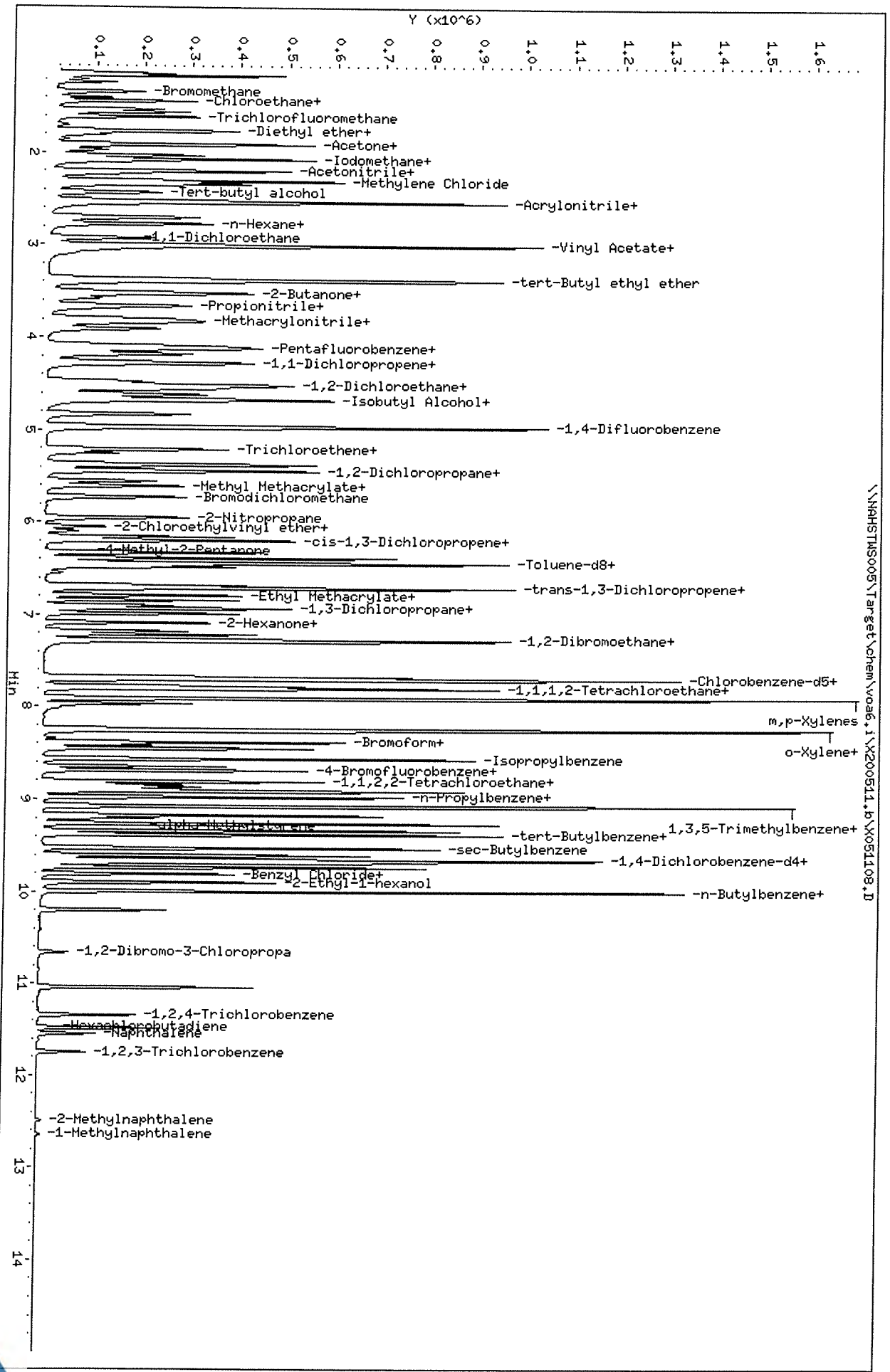
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	244879	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	357125	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	326341	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	163130	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118264	50.0000	48.40
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	143586	50.0000	47.57
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	410250	50.0000	50.05
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	152557	50.0000	48.91
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	124113	50.0000	48.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	187573	50.0000	47.83
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	121679	50.0000	46.41
138 Freon TF	101	1.911	1.911	(0.457)	94407	50.0000	49.88
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	87053	50.0000	47.95
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	249560	50.0000	46.89
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	94156	50.0000	48.32
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	153095	50.0000	46.82
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	27245	50.0000	51.83
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	111062	50.0000	48.85 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	54809	50.0000	46.70
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	419671	50.0000	49.04
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	12187	50.0000	46.74
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	114686	50.0000	49.46

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	216357	50.0000	47.60
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	188212	50.0000	50.61
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	141074	50.0000	48.53
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	410269	50.0000	48.70
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	238547	50.0000	47.98
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	182269	50.0000	48.29
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	242693	50.0000	47.06
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	180990	50.0000	46.68
24 2-Butanone	43	3.573	3.573	(0.854)	128765	100.000	116.67
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	337693	50.0000	46.37
52 2-Hexanone	43	7.083	7.083	(0.923)	198319	100.000	98.27
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	394561	50.0000	47.00
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	420632	50.0000	49.08
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	280968	100.000	95.35
10 Acetone	43	1.969	1.969	(0.471)	95313	100.000	111.54
37 Benzene	78	4.512	4.512	(0.908)	440626	50.0000	48.26
74 Bromobenzene	156	8.809	8.809	(0.911)	147210	50.0000	48.13
29 Bromochloromethane	128	3.795	3.795	(0.908)	67372	50.0000	47.41
39 Bromodichloromethane	83	5.729	5.729	(1.153)	163351	50.0000	49.00
66 Bromoform	173	8.415	8.415	(1.097)	89604	50.0000	47.92
6 Bromomethane	94	1.338	1.338	(0.320)	86417	50.0000	47.95
19 Carbon Disulfide	76	2.069	2.069	(0.495)	646964	100.000	97.46
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	167086	50.0000	46.56
59 Chlorobenzene	112	7.699	7.699	(1.004)	309412	50.0000	47.85
7 Chloroethane	64	1.403	1.403	(0.336)	85402	50.0000	49.28
28 Chloroform	83	3.910	3.910	(0.935)	210954	50.0000	48.20
3 Chloromethane	50	1.073	1.073	(0.257)	185773	50.0000	48.15
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	126004	50.0000	48.77
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	193147	50.0000	49.47
55 Dibromochloromethane	129	7.176	7.176	(0.936)	129345	50.0000	48.96
44 Dibromomethane	93	5.557	5.557	(1.118)	77674	50.0000	49.26
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	135443	50.0000	47.41
61 Ethylbenzene	106	7.799	7.799	(1.017)	165225	50.0000	48.68
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	41952	50.0000	47.15
67 Isopropylbenzene	105	8.566	8.566	(1.117)	489328	50.0000	48.08
62 m,p-Xylenes	106	7.907	7.907	(1.031)	402602	100.000	97.74
17 Methylene Chloride	84	2.305	2.305	(0.551)	120730	50.0000	50.09
87 n-Butylbenzene	91	9.998	9.998	(1.034)	347792	50.0000	50.30
73 n-Propylbenzene	91	8.917	8.917	(0.922)	565315	50.0000	48.20
92 Naphthalene	128	11.546	11.546	(1.194)	75806	50.0000	49.35
63 o-Xylene	106	8.244	8.244	(1.075)	194330	50.0000	48.49
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	468460	50.0000	47.41
64 Styrene	104	8.258	8.258	(1.077)	337378	50.0000	48.57
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	340560	50.0000	47.61
56 Tetrachloroethene	164	6.933	6.933	(0.904)	104173	50.0000	48.39
50 Toluene	91	6.446	6.446	(0.840)	467021	50.0000	48.35
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	109110	50.0000	48.98
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	173577	50.0000	49.02
38 Trichloroethene	130	5.206	5.206	(1.048)	124926	50.0000	48.75
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	194926	50.0000	49.47
5 Vinyl Chloride	62	1.138	1.138	(0.272)	167564	50.0000	49.36

QC Flag Legend

M - Compound response manually integrated.



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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

\\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 11-MAY-2020 16:24
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

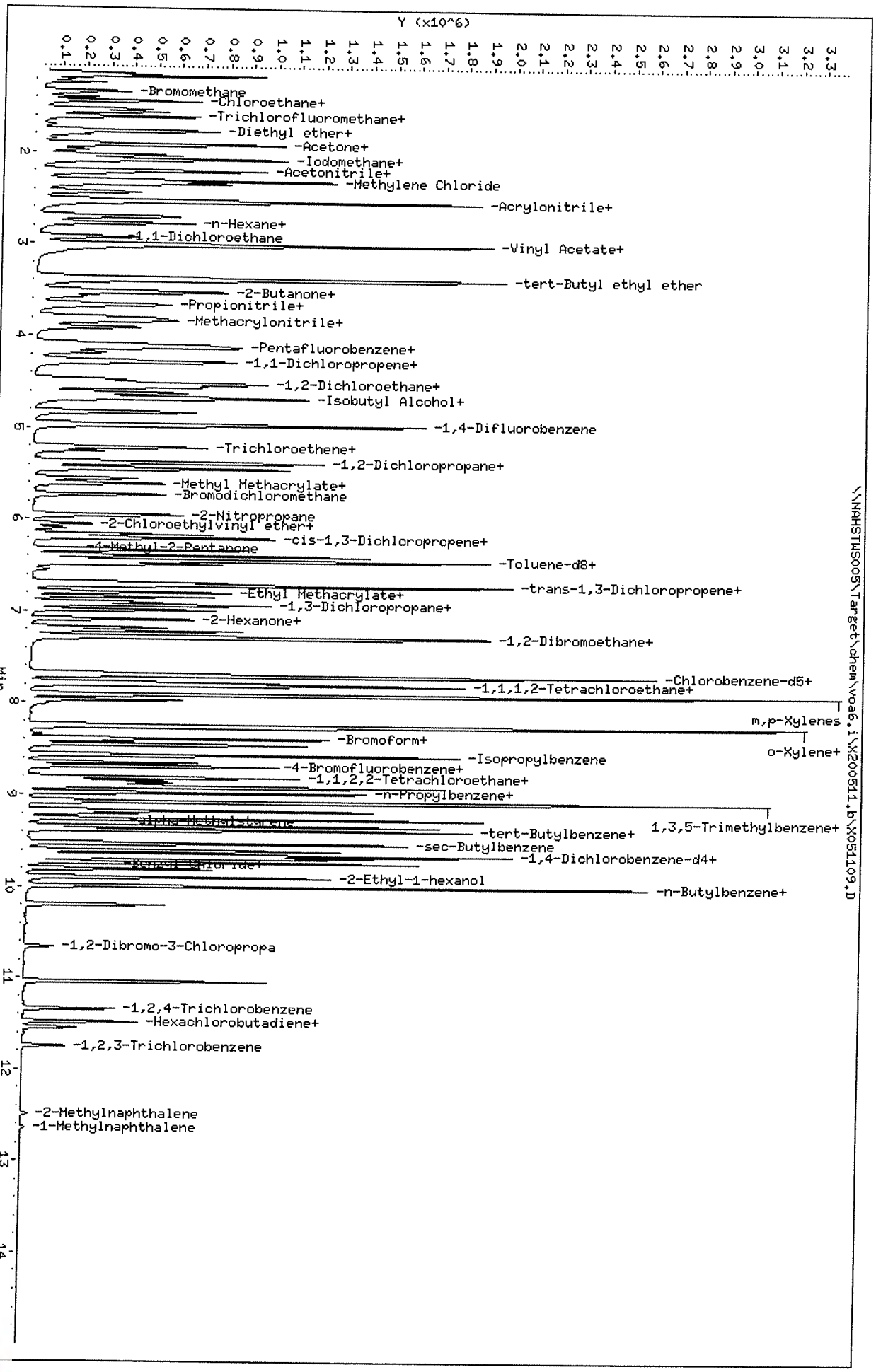
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	226332	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	331288	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	309250	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	155032	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	228909	100.000	101.63
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	281127	100.000	100.81
$	48 Toluene-d8	98	6.388	6.388	(0.833)	778769	100.000	100.73
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	294185	100.000	100.33
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	239360	100.000	98.47
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	360299	100.000	99.40
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	232257	100.000	93.22
	138 Freon TF	101	1.912	1.912	(0.457)	185402	100.000	105.99
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	165216	100.000	96.04
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	473292	100.000	96.21
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	180100	100.000	100.01
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	299678	100.000	98.81
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	50765	100.000	96.62
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	207372	100.000	95.98(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	103966	100.000	90.59
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	815497	100.000	100.27
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	23938	100.000	95.05
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	217918	100.000	99.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.991	9.991	(1.033)	414523	100.000	95.97
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	349387	100.000	101.29(A)
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	264442	100.000	98.06
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	810286	100.000	101.22
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	465093	100.000	98.44
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	344709	100.000	96.39
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	467125	100.000	95.32
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	341084	100.000	95.17
24 2-Butanone	43	3.573	3.573	(0.854)	229095	200.000	224.59(A)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	666346	100.000	96.29
52 2-Hexanone	43	7.090	7.090	(0.924)	374858	200.000	196.01
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	767875	100.000	96.25
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	830752	100.000	102.01
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	545954	200.000	195.52
10 Acetone	43	1.969	1.969	(0.471)	157042	200.000	200.90
37 Benzene	78	4.512	4.512	(0.908)	832105	100.000	98.26
74 Bromobenzene	156	8.810	8.810	(0.911)	281193	100.000	96.74
29 Bromochloromethane	128	3.795	3.795	(0.908)	121892	100.000	92.82
39 Bromodichloromethane	83	5.729	5.729	(1.153)	308906	100.000	99.89
66 Bromoform	173	8.416	8.416	(1.097)	175012	100.000	98.77
6 Bromomethane	94	1.331	1.331	(0.318)	166042	100.000	100.49
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1236060	200.000	201.47(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	324110	100.000	97.37
59 Chlorobenzene	112	7.699	7.699	(1.004)	595488	100.000	97.18
7 Chloroethane	64	1.396	1.396	(0.334)	162411	100.000	101.85
28 Chloroform	83	3.910	3.910	(0.935)	397623	100.000	98.30
3 Chloromethane	50	1.073	1.073	(0.257)	352150	100.000	98.11
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	238323	100.000	99.81
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	364351	100.000	100.60
55 Dibromochloromethane	129	7.176	7.176	(0.936)	253688	100.000	101.35
44 Dibromomethane	93	5.558	5.558	(1.118)	146927	100.000	100.45
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	264084	100.000	98.85
61 Ethylbenzene	106	7.800	7.800	(1.017)	323615	100.000	100.63(A)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	77175	100.000	90.37
67 Isopropylbenzene	105	8.566	8.566	(1.117)	969801	100.000	100.56
62 m,p-Xylenes	106	7.907	7.907	(1.031)	769824	200.000	197.22
17 Methylene Chloride	84	2.306	2.306	(0.551)	224234	100.000	101.75
87 n-Butylbenzene	91	9.999	9.999	(1.034)	687209	100.000	104.59
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1109073	100.000	99.50
92 Naphthalene	128	11.546	11.546	(1.194)	148845	100.000	101.97
63 o-Xylene	106	8.244	8.244	(1.075)	372835	100.000	98.17
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	938229	100.000	99.91
64 Styrene	104	8.258	8.258	(1.077)	648150	100.000	98.47
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	675938	100.000	99.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	201864	100.000	98.95
50 Toluene	91	6.446	6.446	(0.840)	886141	100.000	96.82
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	207011	100.000	100.54
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	333810	100.000	101.63
38 Trichloroethene	130	5.207	5.207	(1.048)	243052	100.000	102.24(A)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	376917	100.000	103.50
5 Vinyl Chloride	62	1.138	1.138	(0.272)	323682	100.000	103.16

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D
Date : 11-MAY-2020 16:24
Client ID: VSTD100
Sample Info: WSTD100;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\X200511.b\X051110.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 11-MAY-2020 16:47
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\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:24 Cal File: X051109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

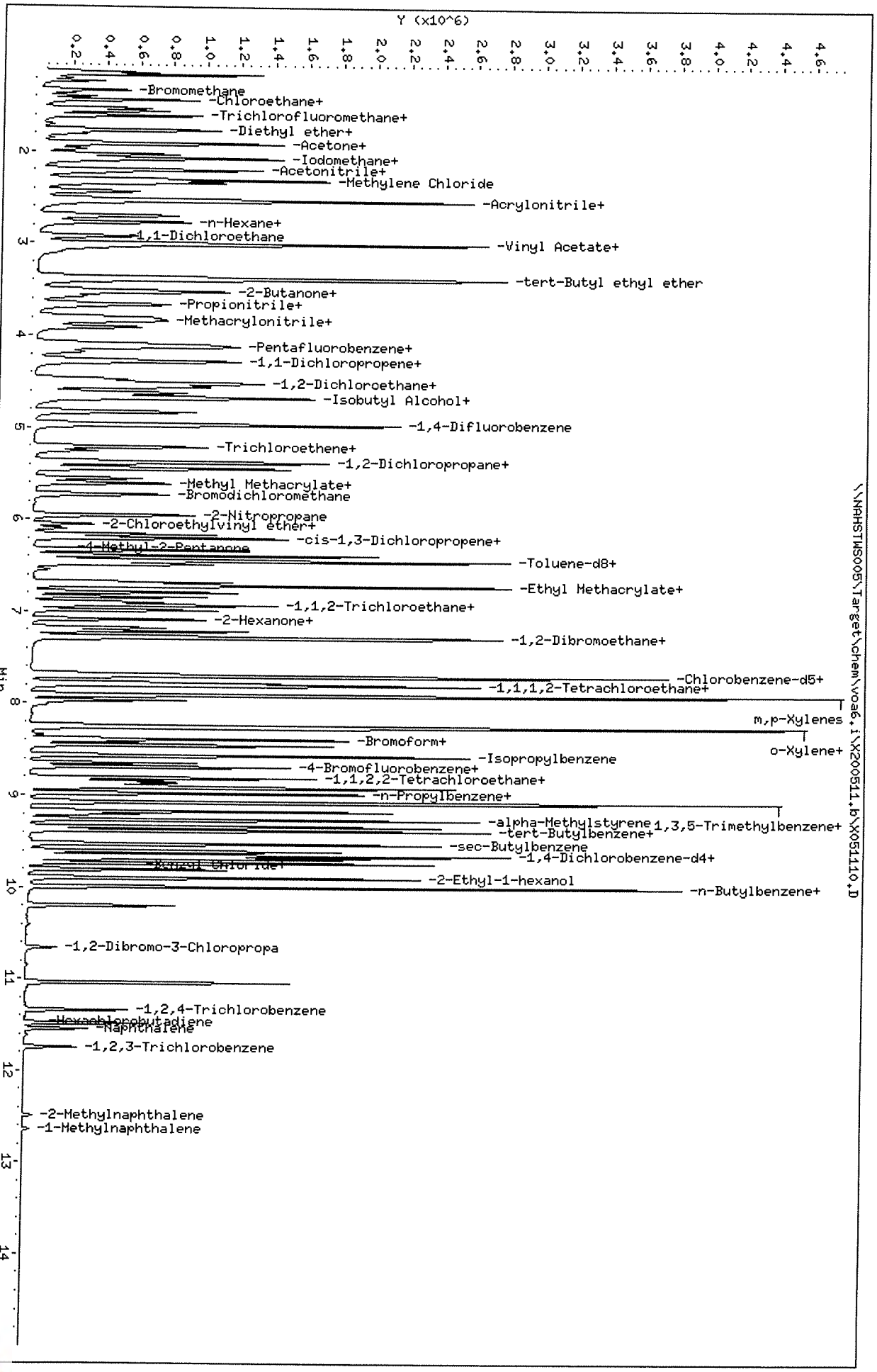
		QUANT SIG					AMOUNTS CAL-AMT	AMOUNTS ON-COL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/l)	(ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	210896	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	312188	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	295010	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	147624	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	320906	150.000	153.02
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	402302	150.000	154.85
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1109628	150.000	150.69
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	420723	150.000	150.80
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	342668	150.000	147.77
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	514515	150.000	152.34(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	334626	150.000	141.04
	138 Freon TF	101	1.911	1.911	(0.457)	260990	150.000	160.13
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	235212	150.000	143.33
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	664765	150.000	145.03(A)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	257690	150.000	153.58
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	423104	150.000	148.04
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	82626	150.000	152.12
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	290589	150.000	141.25(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	161556	150.000	146.17
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1176422	150.000	151.92
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	35913	150.000	148.91
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	315920	150.000	150.73(A)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	602146	150.000	146.41
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	496703	150.000	152.80(A)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	369792	150.000	145.52
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1156269	150.000	151.69
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	674171	150.000	149.86
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	493264	150.000	144.59
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	672004	150.000	144.01
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	486844	150.000	145.79
24 2-Butanone	43	3.573	3.573	(0.854)	320319	300.000	337.00(A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	949403	150.000	144.08
52 2-Hexanone	43	7.090	7.090	(0.924)	531716	300.000	291.45
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	1091030	150.000	143.62
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1196736	150.000	154.33
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	784939	300.000	294.68
10 Acetone	43	1.969	1.969	(0.471)	214208	300.000	295.31
37 Benzene	78	4.512	4.512	(0.908)	1182839	150.000	148.22(A)
74 Bromobenzene	156	8.809	8.809	(0.911)	403596	150.000	145.82
29 Bromochloromethane	128	3.795	3.795	(0.908)	172062	150.000	140.61
39 Bromodichloromethane	83	5.729	5.729	(1.153)	446504	150.000	153.22
66 Bromoform	173	8.415	8.415	(1.097)	252342	150.000	149.29
6 Bromomethane	94	1.331	1.331	(0.318)	236806	150.000	154.21
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1753146	300.000	306.68(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	464237	150.000	148.00
59 Chlorobenzene	112	7.699	7.699	(1.004)	852770	150.000	145.89(A)
7 Chloroethane	64	1.396	1.396	(0.334)	229270	150.000	154.52
28 Chloroform	83	3.910	3.910	(0.935)	562576	150.000	149.27(A)
3 Chloromethane	50	1.073	1.073	(0.257)	510038	150.000	152.15
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	337533	150.000	151.71(A)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	521162	150.000	152.70
55 Dibromochloromethane	129	7.176	7.176	(0.936)	360158	150.000	150.83
44 Dibromomethane	93	5.557	5.557	(1.118)	209387	150.000	151.91
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	377623	150.000	151.12
61 Ethylbenzene	106	7.799	7.799	(1.017)	454714	150.000	148.22(A)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	122993	150.000	150.61
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1380555	150.000	150.06
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1094132	300.000	293.84(A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	318789	150.000	155.81
87 n-Butylbenzene	91	9.998	9.998	(1.034)	990914	150.000	158.38
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1587708	150.000	149.59
92 Naphthalene	128	11.546	11.546	(1.194)	240798	150.000	173.25
63 o-Xylene	106	8.244	8.244	(1.075)	535459	150.000	147.80(A)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1337568	150.000	149.59
64 Styrene	104	8.265	8.265	(1.078)	912591	150.000	145.34(A)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	965175	150.000	149.13
56 Tetrachloroethene	164	6.933	6.933	(0.904)	286458	150.000	147.20(A)
50 Toluene	91	6.446	6.446	(0.840)	1251009	150.000	143.28(A)
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	291868	150.000	152.13
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	484238	150.000	156.45
38 Trichloroethene	130	5.206	5.206	(1.048)	343427	150.000	153.31(A)
8 Trichlorofluoromethane	101	1.553	1.553	(0.371)	533118	150.000	157.11
5 Vinyl Chloride	62	1.138	1.138	(0.272)	457160	150.000	156.37

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D
Date : 11-MAY-2020 16:47
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

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 11-MAY-2020 17:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:47 Cal File: X051110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

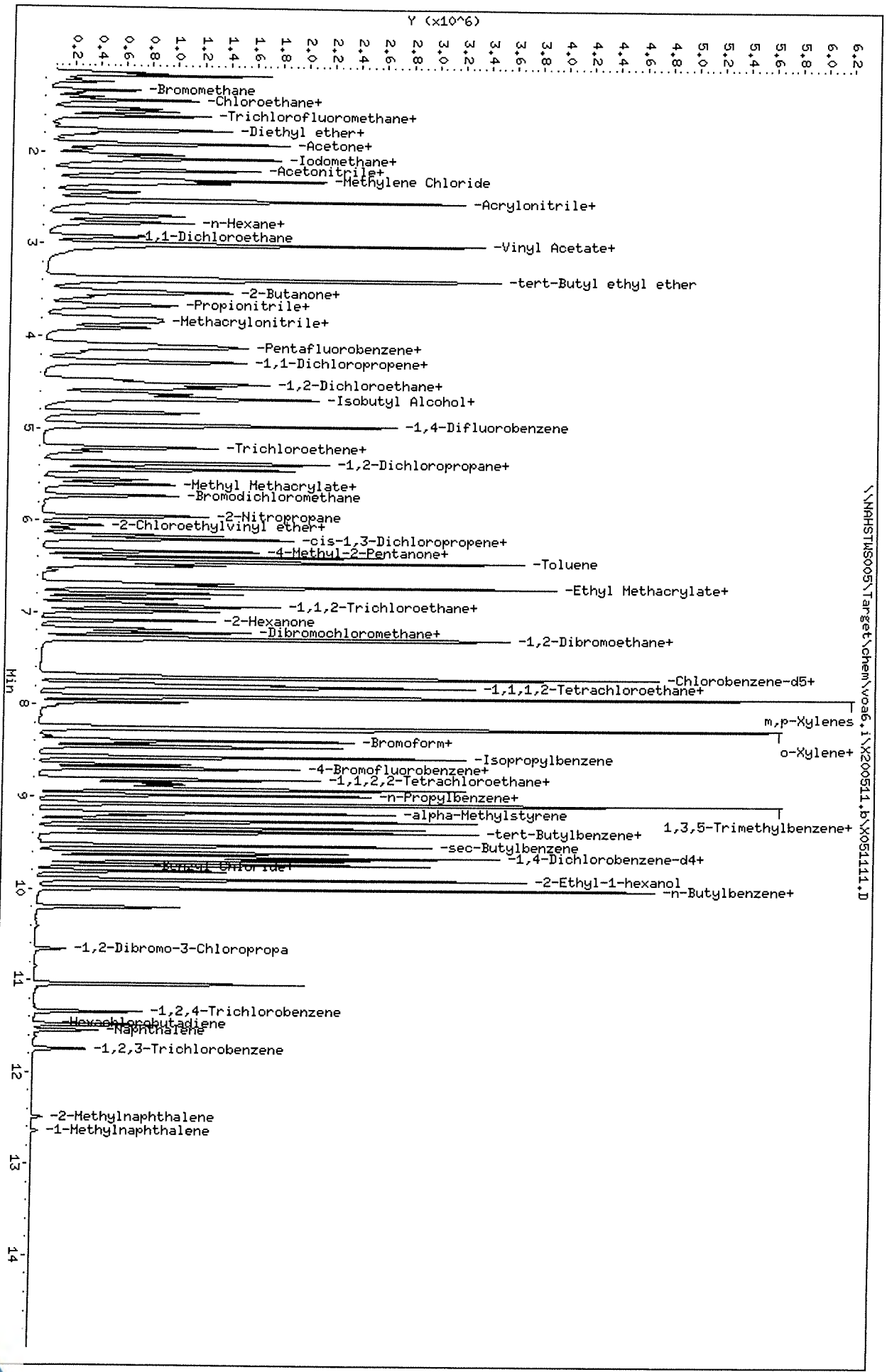
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	210247	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	305929	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	285371	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	141643	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	412124	200.000	197.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	508534	200.000	196.36
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1416689	200.000	199.04
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	537390	200.000	199.37
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	439976	200.000	196.15
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	664524	200.000	197.36(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	431093	200.000	189.38
138 Freon TF	101	1.911	1.911	(0.457)	333443	200.000	205.22(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	299144	200.000	188.44
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	844374	200.000	184.79(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	331210	200.000	198.00
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	539478	200.000	192.62
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	114644	200.000	199.45
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	372645	200.000	188.79(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	221042	200.000	207.32(A)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1480057	200.000	199.20
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	47270	200.000	203.73(A)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	397489	200.000	196.05(A)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	751691	200.000	190.50
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	633747	200.000	198.95(A)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	470477	200.000	188.93
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1464802	200.000	200.28(A)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	854514	200.000	197.97
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	628497	200.000	190.45
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	856803	200.000	191.37
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	616758	200.000	185.27
24 2-Butanone	43	3.573	3.573	(0.854)	404738	400.000	427.13(A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	1200031	200.000	189.81
52 2-Hexanone	43	7.090	7.090	(0.924)	681249	400.000	386.03
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	1390472	200.000	190.77
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1535054	200.000	206.32(A)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	992720	400.000	385.28
10 Acetone	43	1.969	1.969	(0.471)	258020	400.000	357.35
37 Benzene	78	4.512	4.512	(0.908)	1515661	200.000	193.82(A)
74 Bromobenzene	156	8.810	8.810	(0.911)	524098	200.000	197.35
29 Bromochloromethane	128	3.795	3.795	(0.908)	217972	200.000	178.68
39 Bromodichloromethane	83	5.729	5.729	(1.153)	568861	200.000	199.20
66 Bromoform	173	8.416	8.416	(1.097)	324965	200.000	198.75
6 Bromomethane	94	1.324	1.324	(0.317)	301011	200.000	196.83
19 Carbon Disulfide	76	2.069	2.069	(0.495)	2243154	400.000	393.61(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	601378	200.000	195.64
59 Chlorobenzene	112	7.699	7.699	(1.004)	1083798	200.000	191.68(A)
7 Chloroethane	64	1.396	1.396	(0.334)	289295	200.000	195.69
28 Chloroform	83	3.910	3.910	(0.935)	722440	200.000	192.28(A)
3 Chloromethane	50	1.073	1.073	(0.257)	668216	200.000	199.75
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	430307	200.000	194.01(A)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	665512	200.000	198.99
55 Dibromochloromethane	129	7.176	7.176	(0.936)	459803	200.000	199.07
44 Dibromomethane	93	5.557	5.557	(1.118)	266444	200.000	197.26
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	499972	200.000	200.36(A)
61 Ethylbenzene	106	7.800	7.800	(1.017)	584558	200.000	196.99(A)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	160116	200.000	204.00(A)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1765878	200.000	198.43
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1392396	400.000	386.57(A)
17 Methylene Chloride	84	2.298	2.298	(0.550)	395941	200.000	194.38
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1253039	200.000	208.74(A)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	2020256	200.000	198.39
92 Naphthalene	128	11.546	11.546	(1.194)	324019	200.000	242.98(A)
63 o-Xylene	106	8.244	8.244	(1.075)	671719	200.000	191.67(A)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1697221	200.000	197.83
64 Styrene	104	8.265	8.265	(1.078)	1162998	200.000	191.48(A)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1223524	200.000	197.03
56 Tetrachloroethene	164	6.933	6.933	(0.904)	364813	200.000	193.79(A)
50 Toluene	91	6.446	6.446	(0.840)	1593362	200.000	188.66(A)
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	373493	200.000	195.28
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	619261	200.000	204.17(A)
38 Trichloroethene	130	5.206	5.206	(1.048)	441183	200.000	200.98(A)
8 Trichlorofluoromethane	101	1.553	1.553	(0.371)	703498	200.000	207.96(A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	586952	200.000	201.38(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D
Date : 11-MAY-2020 17:11
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\X200511.b\X051114.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 11-MAY-2020 18:23
Operator : PC Inst ID: voa6.i
Smp Info : ICV;ICV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

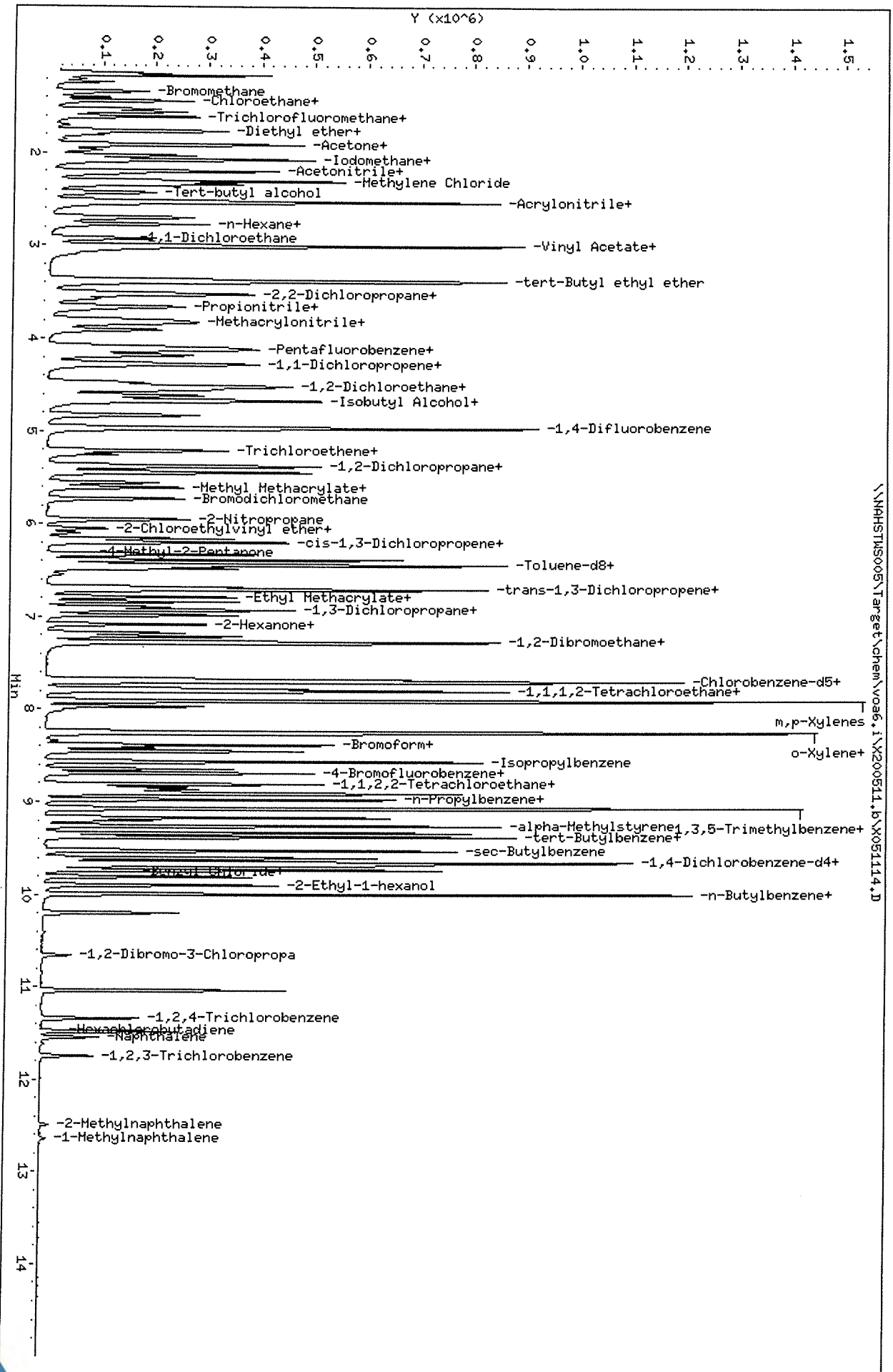
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	223155	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	318483	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	291498	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	148250	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	108653	48.8010	48.80
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	131529	47.8219	47.82
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	373137	50.9781	50.97
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	139766	50.1904	50.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	112251	48.9922	48.99
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	169785	47.5103	47.51
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	109996	46.1688	46.16
138 Freon TF	101	1.911	1.911	(0.457)	84460	48.9758	48.97
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	77614	47.8655	47.86
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	219255	45.2085	45.20
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	84626	47.6661	47.66
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	139963	48.0055	48.00
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	26202	54.6983	54.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96248	46.5901	46.59(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	50727	47.5210	47.52
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	387802	49.8683	49.86
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	10984	46.3748	46.37
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	104018	50.2268	50.22

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	200012	48.4298	48.42
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	164095	49.4853	49.48
42 1,2-Dichloropropane	63	5.436	5.443	(1.094)	123226	47.5336	47.53
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	380301	49.6820	49.68
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	220872	48.8921	48.89
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	162939	48.3385	48.33
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	223856	47.7723	47.77
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	167781	47.4860	47.48
24 2-Butanone	43	3.573	3.573	(0.854)	108411	107.793	107.79(H)
76 2-Chlorotoluene	91	8.974	8.981	(0.929)	309354	46.7504	46.75
52 2-Hexanone	43	7.090	7.090	(0.924)	170807	94.7558	94.75
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	360081	47.2019	47.20
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	391936	50.3321	50.33
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	244532	92.9096	92.90
10 Acetone	43	1.969	1.969	(0.471)	75065	96.0427	96.04
37 Benzene	78	4.512	4.512	(0.908)	390116	47.9210	47.92
74 Bromobenzene	156	8.809	8.810	(0.912)	134325	48.3285	48.32
29 Bromochloromethane	128	3.795	3.795	(0.908)	61420	47.4371	47.43
39 Bromodichloromethane	83	5.729	5.729	(1.153)	144777	48.6994	48.69
66 Bromoform	173	8.415	8.416	(1.097)	83698	50.1152	50.11
6 Bromomethane	94	1.338	1.324	(0.320)	83523	50.9059	50.90
19 Carbon Disulfide	76	2.069	2.069	(0.495)	577912	95.5417	95.54
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	151724	47.4153	47.41
59 Chlorobenzene	112	7.699	7.699	(1.004)	282458	48.9065	48.90
7 Chloroethane	64	1.403	1.396	(0.336)	70901	44.8631	44.86
28 Chloroform	83	3.910	3.910	(0.935)	192179	48.1906	48.19
3 Chloromethane	50	1.073	1.073	(0.257)	154639	44.0442	44.04
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	112778	47.9068	47.90
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	172729	49.6114	49.61
55 Dibromochloromethane	129	7.176	7.176	(0.936)	117363	49.7444	49.74
44 Dibromomethane	93	5.557	5.557	(1.118)	70080	49.8406	49.84
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	122199	46.9573	46.95
61 Ethylbenzene	106	7.799	7.800	(1.017)	147940	48.8066	48.80
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	40239	49.7181	49.71
67 Isopropylbenzene	105	8.566	8.566	(1.117)	450333	49.5410	49.54
62 m,p-Xylenes	106	7.907	7.907	(1.031)	360956	98.1080	98.10
17 Methylene Chloride	84	2.305	2.298	(0.551)	104805	47.6717	47.67
87 n-Butylbenzene	91	9.999	9.999	(1.035)	318734	50.7307	50.73
73 n-Propylbenzene	91	8.917	8.917	(0.923)	511675	48.0076	48.00
92 Naphthalene	128	11.546	11.546	(1.195)	74280	53.2198	53.21
63 o-Xylene	106	8.244	8.244	(1.075)	175723	49.0898	49.08
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	435579	48.5089	48.50
64 Styrene	104	8.258	8.265	(1.077)	306849	49.4603	49.46
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	315264	48.5073	48.50
56 Tetrachloroethene	164	6.933	6.933	(0.904)	94634	49.2150	49.21
50 Toluene	91	6.446	6.446	(0.840)	420170	48.7050	48.70
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	97294	47.9280	47.92
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	157780	49.9712	49.97
38 Trichloroethene	130	5.206	5.206	(1.048)	112860	49.3869	49.38
8 Trichlorofluoromethane	101	1.560	1.553	(0.373)	174748	48.6710	48.67
5 Vinyl Chloride	62	1.138	1.138	(0.272)	143744	46.4673	46.46

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200511,b\X051114,D
Date : 11-MAY-2020 18:23
Client ID: ICV
Sample Info: ICV;ICV;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051116.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051116.D
Lab Smp Id: VLCSW-200511 Client Smp ID: VLCSW-200511
Inj Date : 11-MAY-2020 19:11
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200511;VLCSW-200511;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 17 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

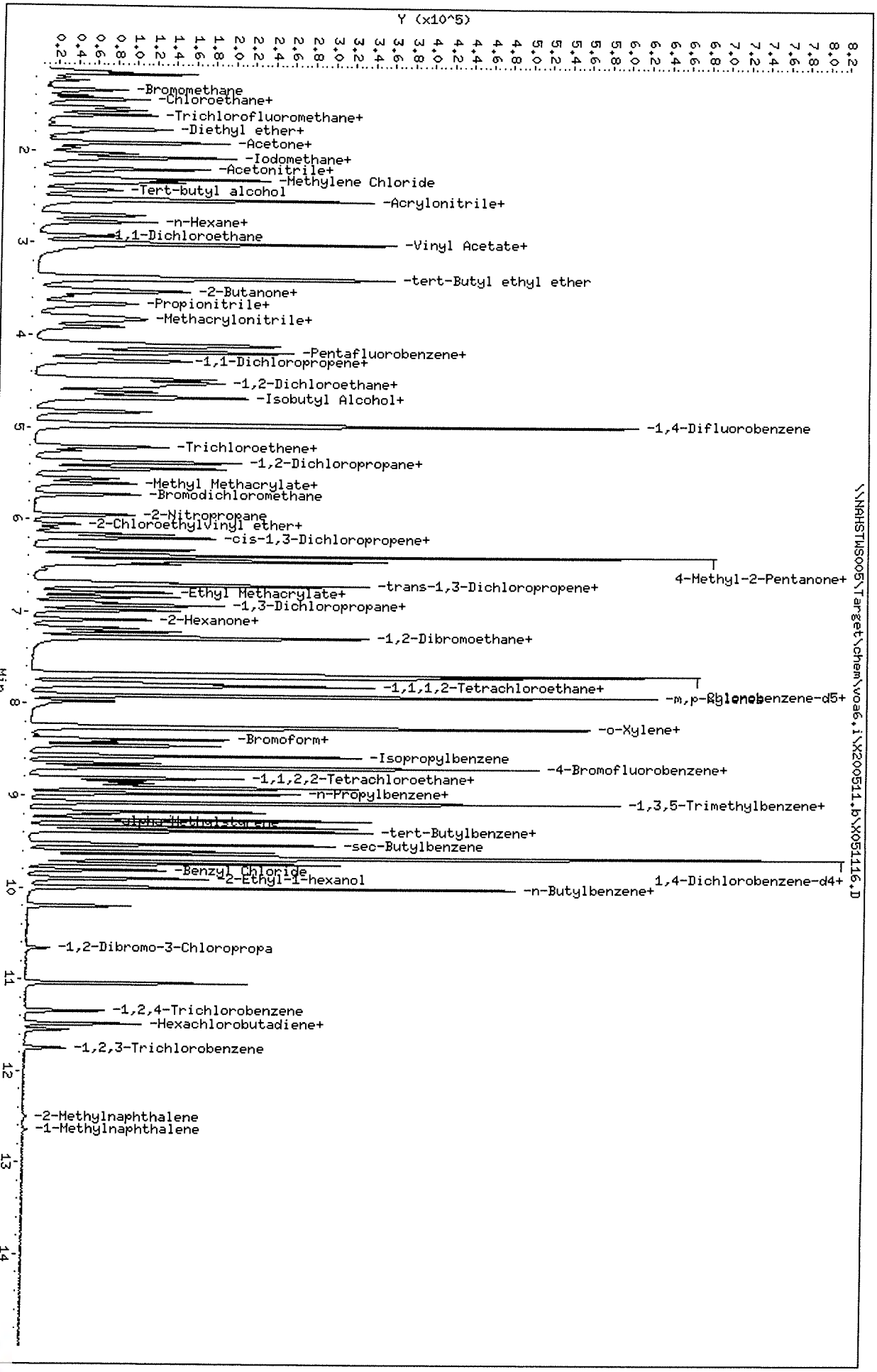
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	217066	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	320952	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	295567	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	152035	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	111790	51.6324	51.63
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	138520	51.7796	51.77
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	378759	51.0343	51.03
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	141525	50.1213	50.12
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	46138	19.8598	19.85
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	69070	19.8698	19.86
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	46911	19.1998	19.19
138 Freon TF	101	1.919	1.911	(0.459)	33150	19.7619	19.76
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	32352	19.6772	19.67
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	90430	19.1689	19.16
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	33464	19.3775	19.37
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	55094	18.7512	18.75
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	11721	24.4164	24.41
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	39351	18.5741	18.57(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	22415	21.9794	21.97
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	156385	19.6092	19.60
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	4564	19.6636	19.66
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	42870	20.4155	20.41

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.991	9.999	(1.034)	82166	19.3999	19.39
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	68319	20.4441	20.44
42	1,2-Dichloropropane	63	5.436	5.443	(1.094)	49833	19.0749	19.07
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	153742	19.5846	19.58
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	88534	19.1099	19.10
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	67558	19.7663	19.76
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	90924	18.9207	18.92
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	69216	20.1393	20.13
24	2-Butanone	43	3.580	3.573	(0.856)	40083	40.9726	40.97
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	124813	18.3925	18.39
52	2-Hexanone	43	7.090	7.090	(0.924)	69412	37.9764	37.97
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	145834	18.6410	18.64
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	157717	19.7496	19.74
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	100295	37.5823	37.58
10	Acetone	43	1.969	1.969	(0.471)	28711	36.1692	36.16
37	Benzene	78	4.512	4.512	(0.908)	156192	19.0387	19.03
74	Bromobenzene	156	8.810	8.810	(0.912)	55251	19.3837	19.38
29	Bromochloromethane	128	3.795	3.795	(0.908)	24729	19.6349	19.63
39	Bromodichloromethane	83	5.729	5.729	(1.153)	59008	19.6961	19.69
66	Bromoform	173	8.416	8.416	(1.097)	34004	20.0800	20.08
6	Bromomethane	94	1.338	1.324	(0.320)	36687	22.5777	22.57
19	Carbon Disulfide	76	2.069	2.069	(0.495)	231871	39.4087	39.40
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	60345	18.7133	18.71
59	Chlorobenzene	112	7.699	7.699	(1.004)	115858	19.7842	19.78
7	Chloroethane	64	1.403	1.396	(0.336)	30245	19.4381	19.43
28	Chloroform	83	3.910	3.910	(0.935)	77981	20.1030	20.10
3	Chloromethane	50	1.073	1.073	(0.257)	62235	18.5907	18.59
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	46018	20.0963	20.09
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	69501	19.8086	19.80
55	Dibromochloromethane	129	7.176	7.176	(0.936)	49013	20.4882	20.48
44	Dibromomethane	93	5.557	5.557	(1.118)	28301	19.9727	19.97
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	48545	19.8075	19.80
61	Ethylbenzene	106	7.800	7.800	(1.017)	60054	19.5396	19.53
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	19819	24.3803	24.38
67	Isopropylbenzene	105	8.566	8.566	(1.117)	184504	20.0178	20.01
62	m,p-Xylenes	106	7.907	7.907	(1.031)	145378	38.9698	38.96
17	Methylene Chloride	84	2.305	2.298	(0.551)	44909	20.4003	20.40
87	n-Butylbenzene	91	9.999	9.999	(1.035)	128604	19.9594	19.95
73	n-Propylbenzene	91	8.917	8.917	(0.923)	208770	19.1001	19.10
92	Naphthalene	128	11.546	11.546	(1.195)	29798	20.8180	20.81
63	o-Xylene	106	8.244	8.244	(1.075)	70546	19.4363	19.43
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	176741	19.1930	19.19
64	Styrene	104	8.258	8.265	(1.077)	124394	19.7748	19.77
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	128678	19.3058	19.30
56	Tetrachloroethene	164	6.933	6.933	(0.904)	38781	19.8907	19.89
50	Toluene	91	6.446	6.446	(0.840)	171997	19.6630	19.66
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	39922	20.2176	20.21
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	63144	19.8448	19.84
38	Trichloroethene	130	5.206	5.206	(1.048)	45742	19.8625	19.86
8	Trichlorofluoromethane	101	1.561	1.553	(0.373)	68294	19.5549	19.55
5	Vinyl Chloride	62	1.138	1.138	(0.272)	57430	19.0859	19.08

QC Flag Legend

M - Compound response manually integrated.



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Date : 11-MAY-2020 19:11
Client ID: VLCSW-200511
Sample Info: VLCSW-200511;VLCSW-200511;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051119.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051119.D
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Inj Date : 11-MAY-2020 20:24
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 20 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	270263	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	377770	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	325496	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	155919	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	122921	45.5701	45.57
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	150227	45.0976	45.09
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	429927	52.6166	52.61
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	152804	49.1248	49.12

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051119.D

Date : 11-MAY-2020 20:24

Client ID: VBLKW-200508

Instrument: voa6.i

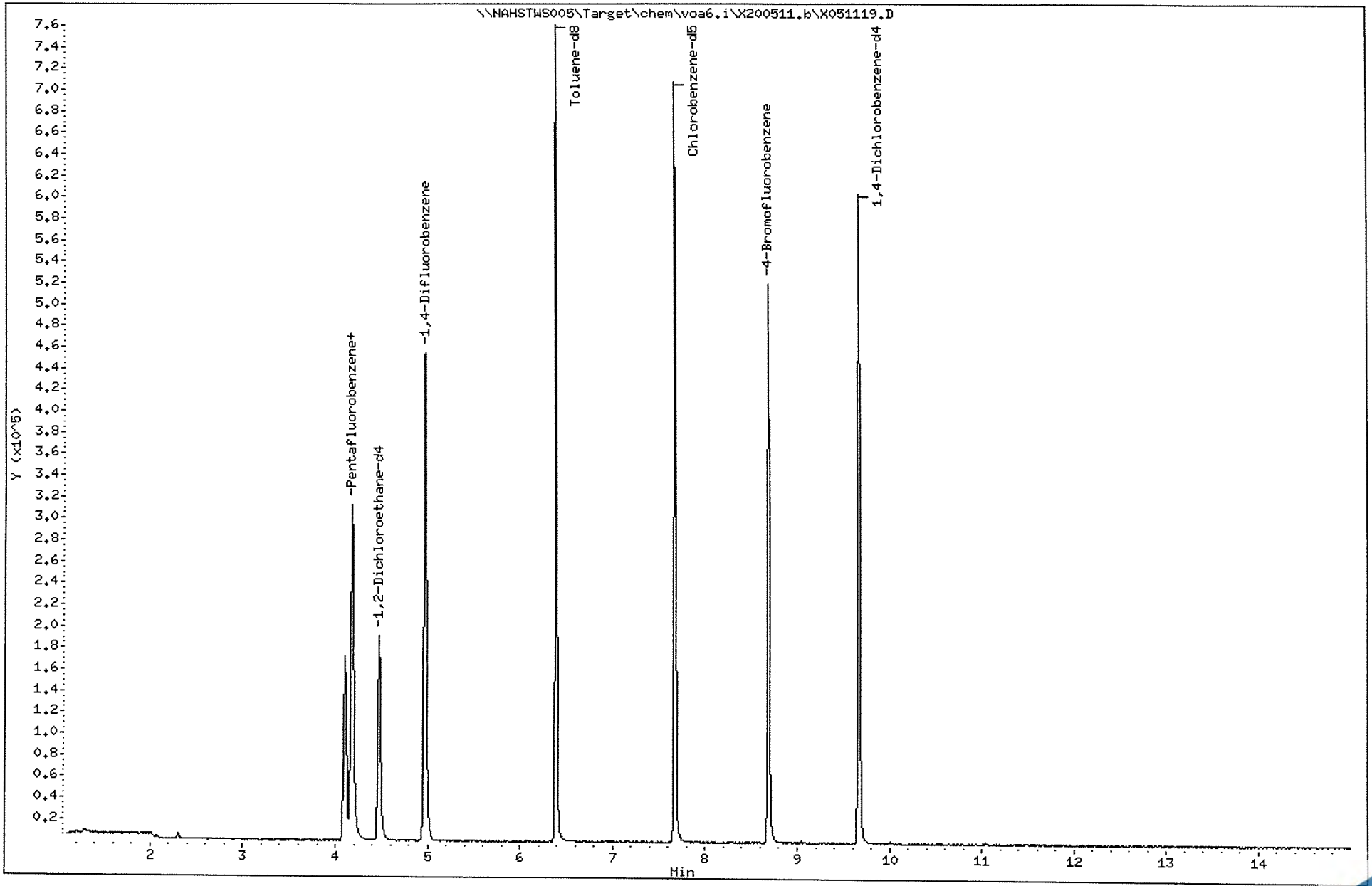
Sample Info: VBLKW-200511;VBLKW-200508;3;;BLANK

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D
Lab Smp Id: HS20050292-01 Client Smp ID: HS20050292-01
Inj Date : 11-MAY-2020 22:00
Operator : PC Inst ID: voa6.i
Smp Info : HS20050292-01;HS20050292-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

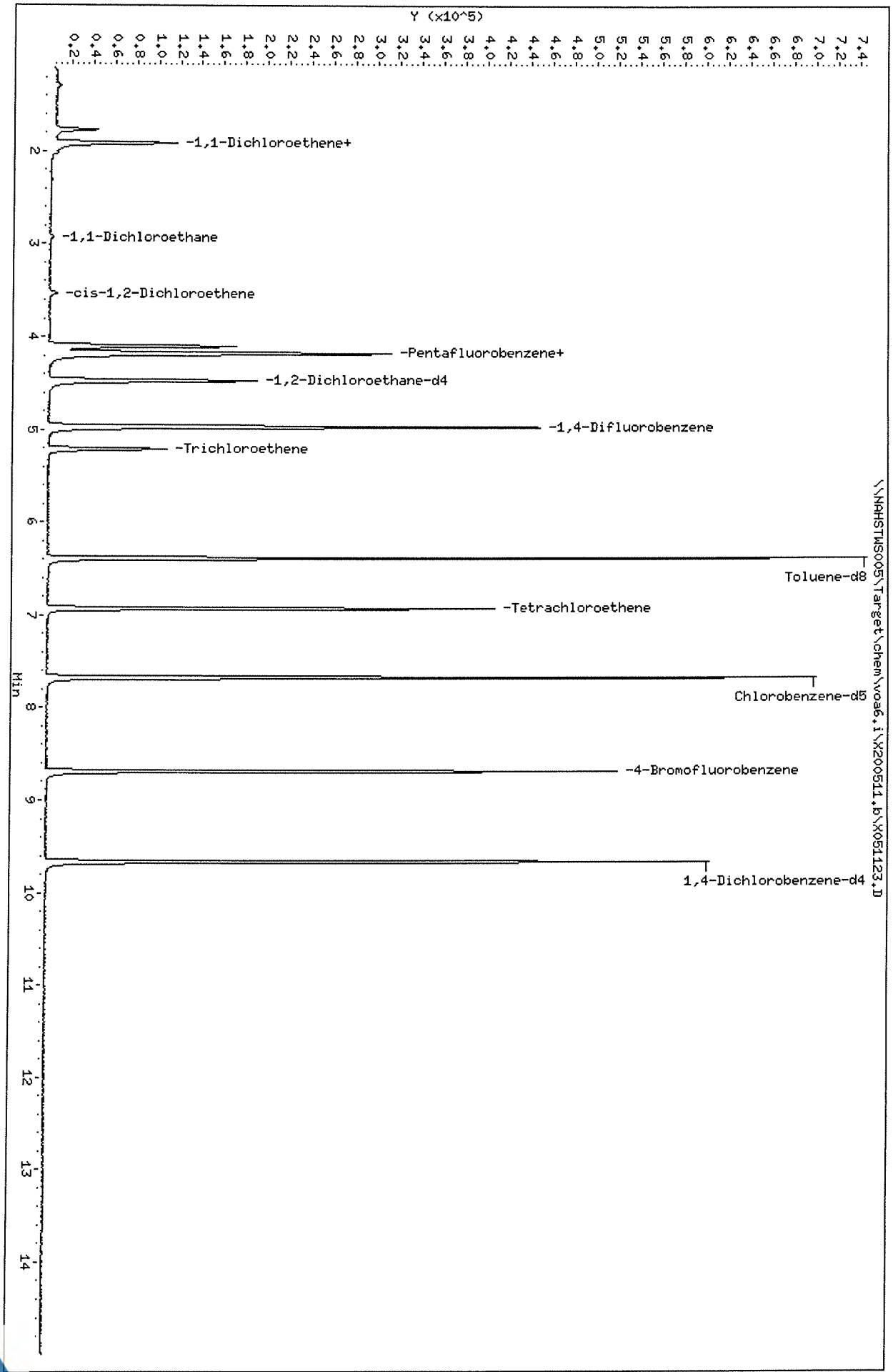
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	269531	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	374562	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	322184	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	155612	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124353	46.2297	46.22
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	148830	44.7993	44.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	430317	53.2109	53.21
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	154823	50.3038	50.30
138 Freon TF	101	1.911	1.911	(0.457)	38706	18.5826	18.58
22 1,1-Dichloroethane	63	2.929	2.921	(0.700)	3792	0.64735	0.64(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7643	3.56425	3.56(a)
27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	3445	1.21160	1.21(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	84773	39.8878	39.88
38 Trichloroethene	130	5.206	5.206	(1.048)	36494	13.5786	13.57

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D
Date : 11-MAY-2020 22:00
Client ID: HS20050292-01
Sample Info: HS20050292-01;HS20050292-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D

Date : 11-MAY-2020 22:00

Client ID: HS20050292-01

Instrument: voa6.i

Sample Info: HS20050292-01;HS20050292-01;;;

Purge Volume: 5.0

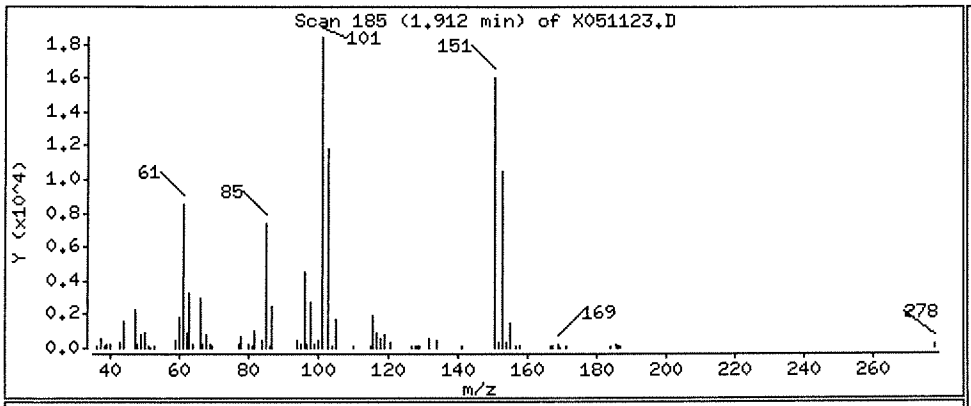
Operator: PC

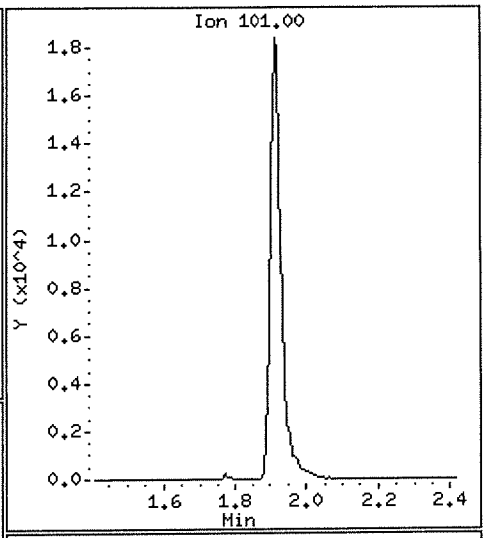
Column phase: DB624

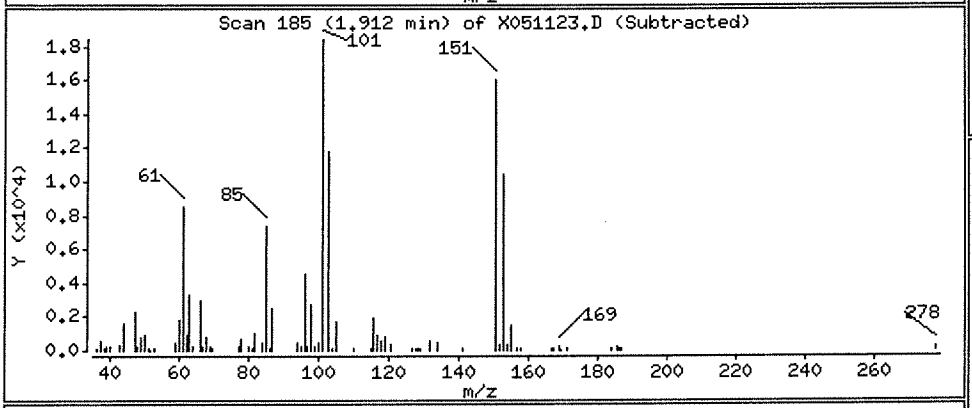
Column diameter: 0.18

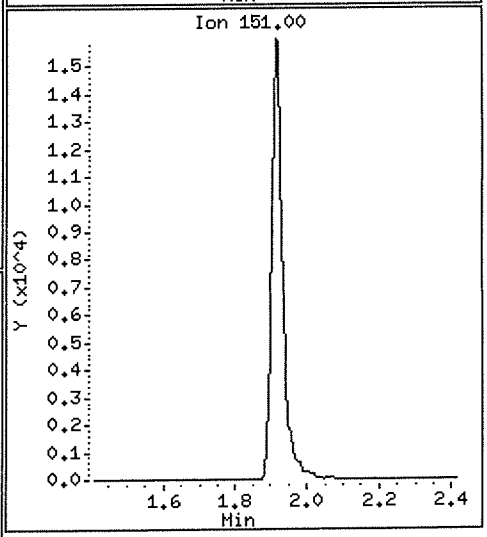
138 Freon TF

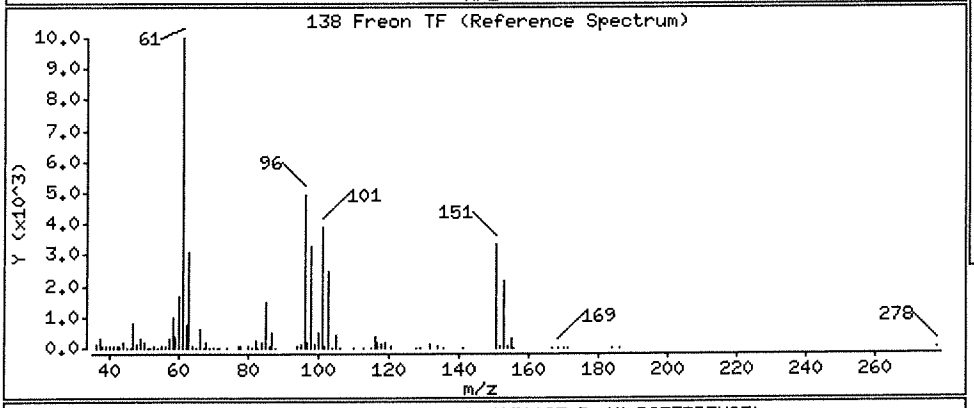
Concentration: 18.58 ug/l

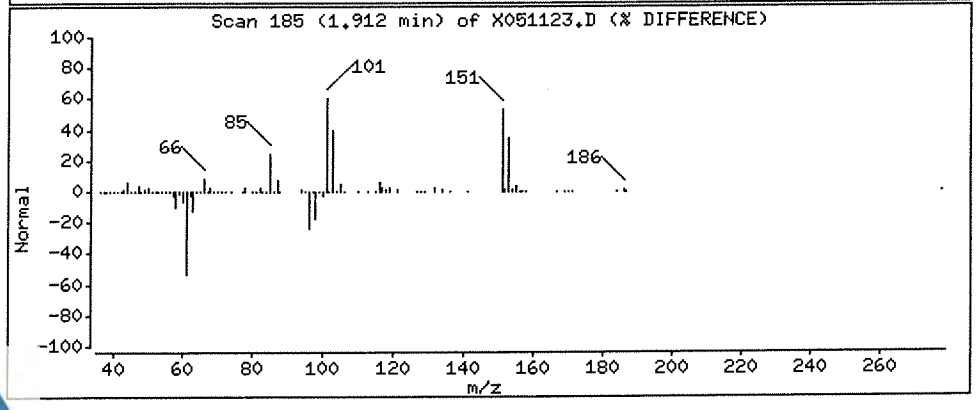












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D

Date : 11-MAY-2020 22:00

Client ID: HS20050292-01

Instrument: voa6.i

Sample Info: HS20050292-01;HS20050292-01;;;

Purge Volume: 5.0

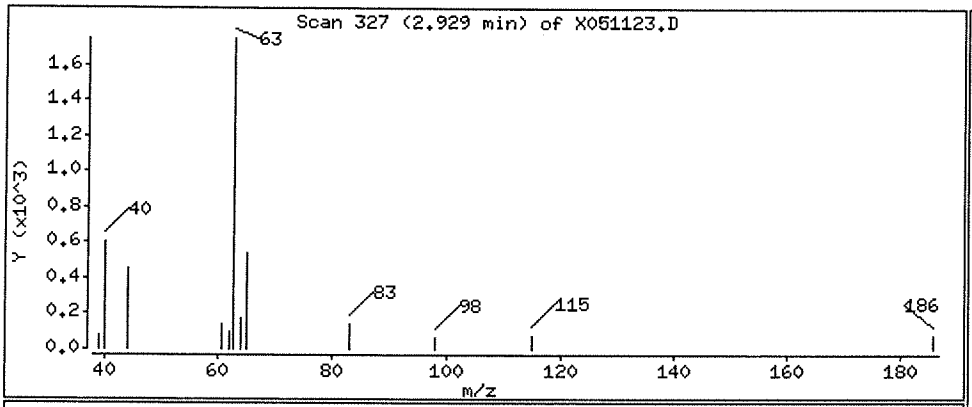
Operator: PC

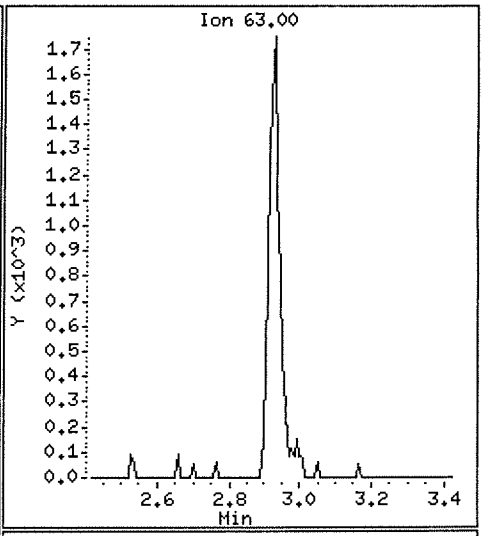
Column phase: DB624

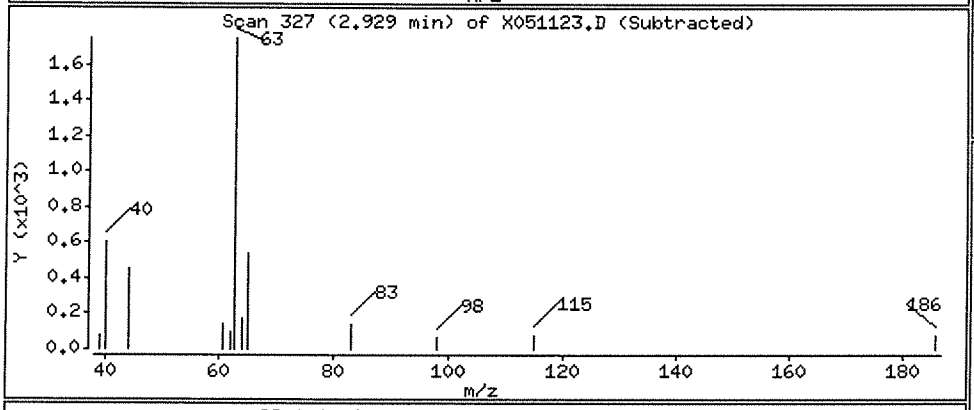
Column diameter: 0.18

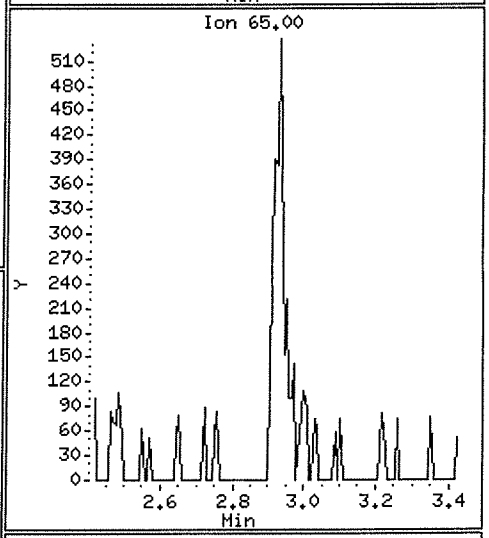
22 1,1-Dichloroethane

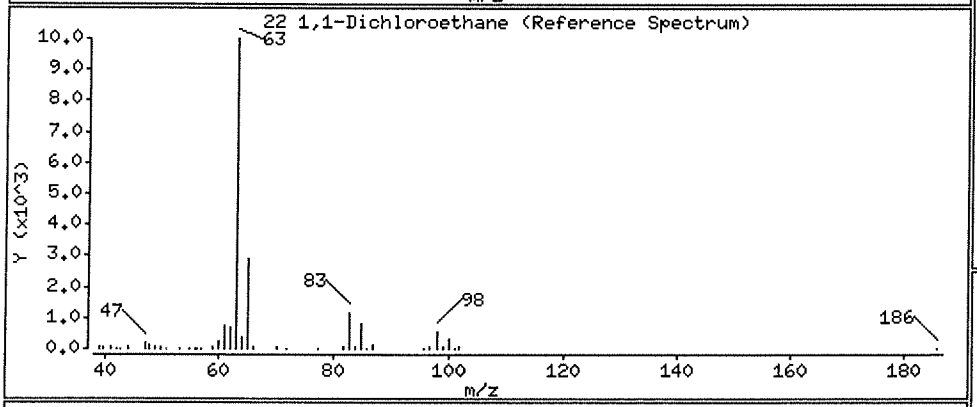
Concentration: 0.64 ug/l

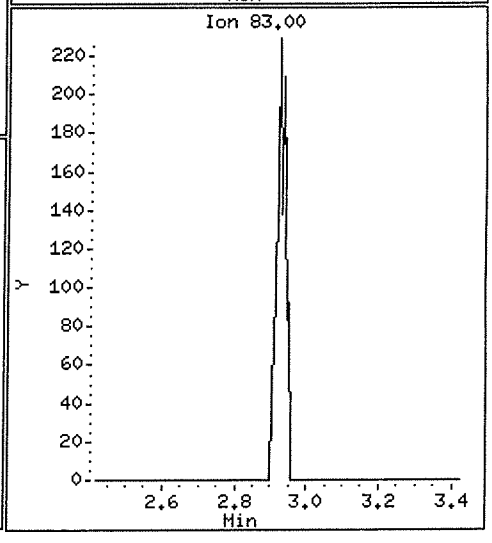


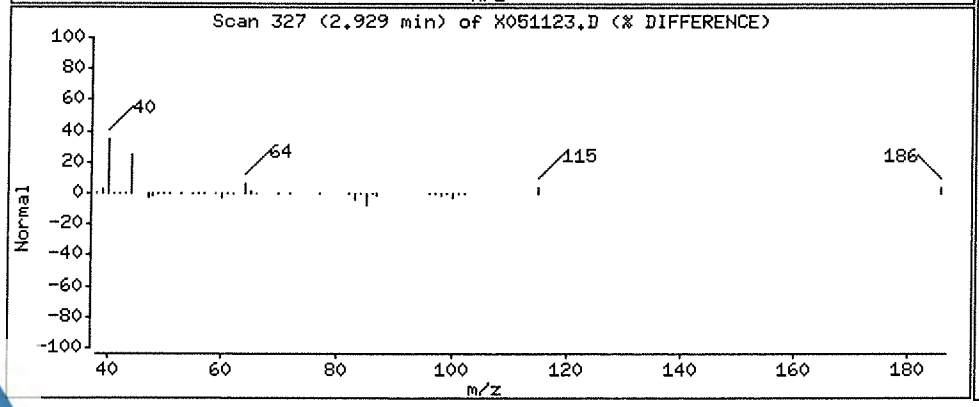












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D

Date : 11-MAY-2020 22:00

Client ID: HS20050292-01

Instrument: voa6.i

Sample Info: HS20050292-01;HS20050292-01;;;

Purge Volume: 5.0

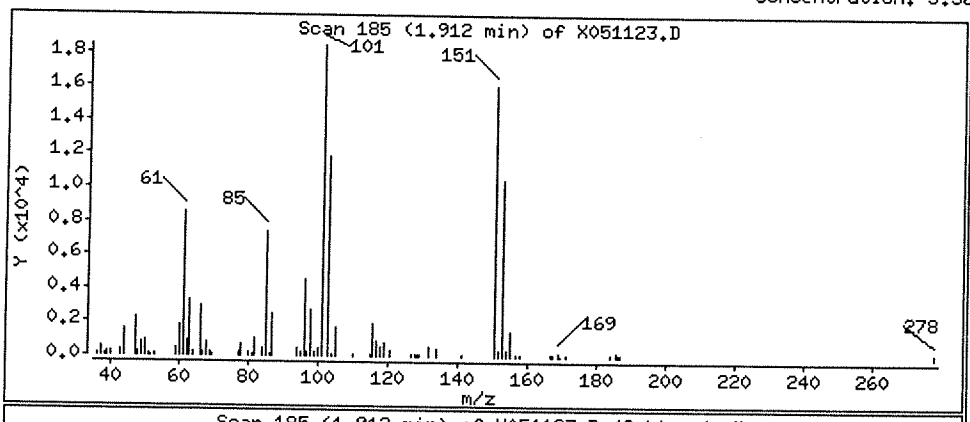
Operator: PC

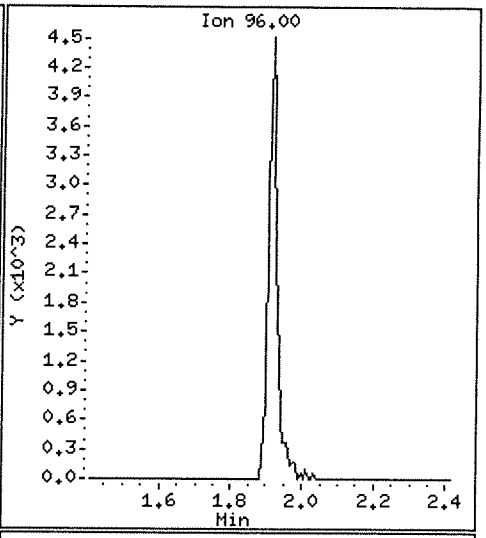
Column phase: DB624

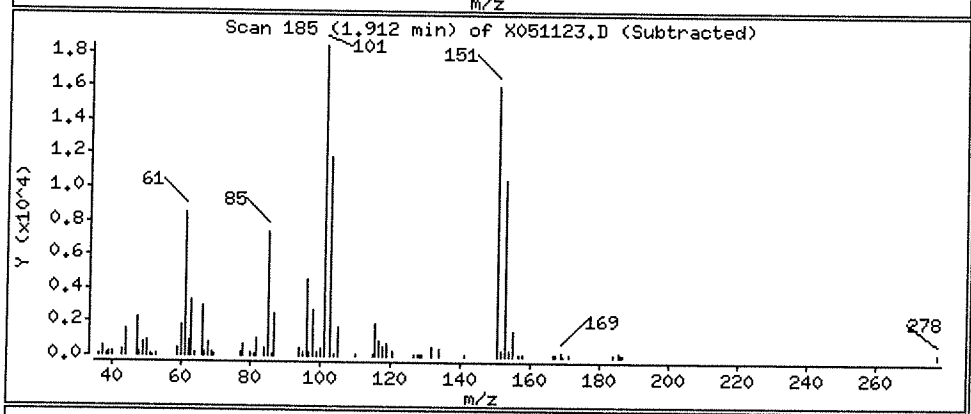
Column diameter: 0.18

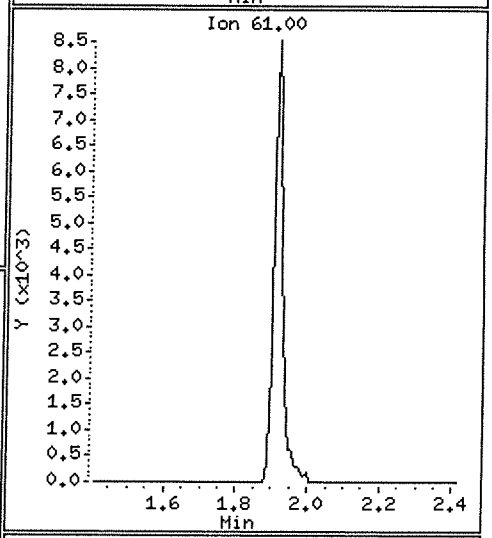
11 1,1-Dichloroethene

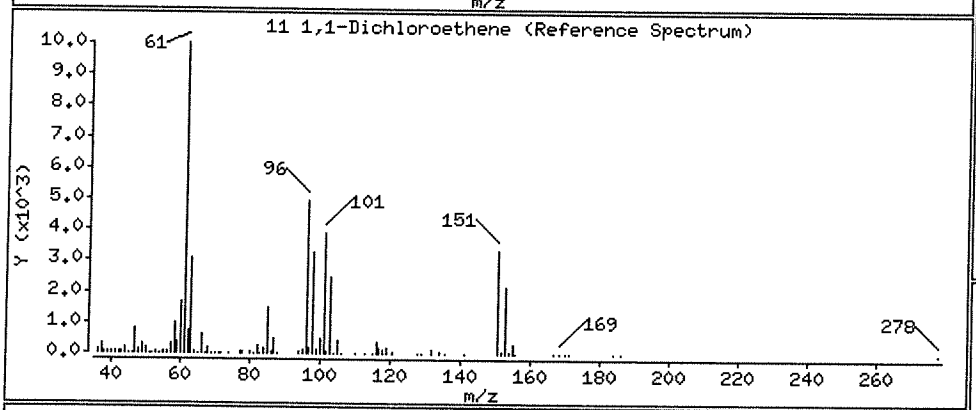
Concentration: 3.56 ug/l

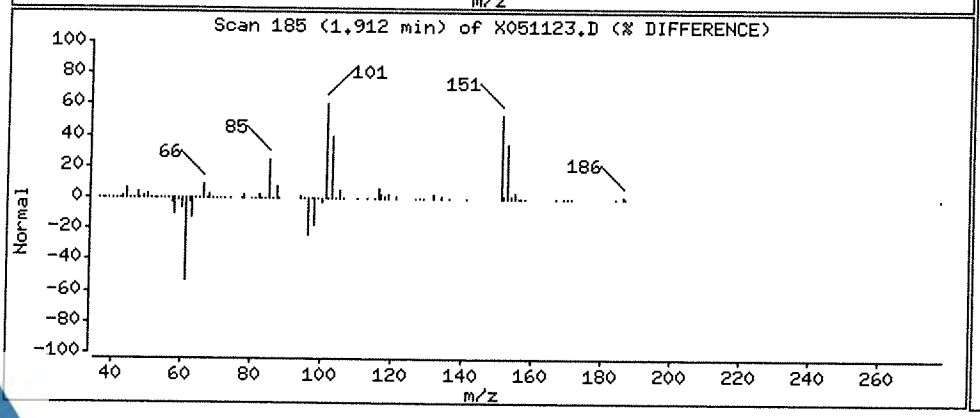


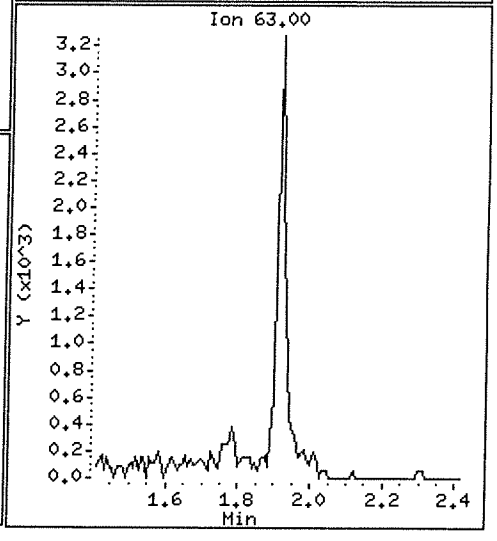












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D

Date : 11-MAY-2020 22:00

Client ID: HS20050292-01

Instrument: voa6.i

Sample Info: HS20050292-01;HS20050292-01;;;

Purge Volume: 5.0

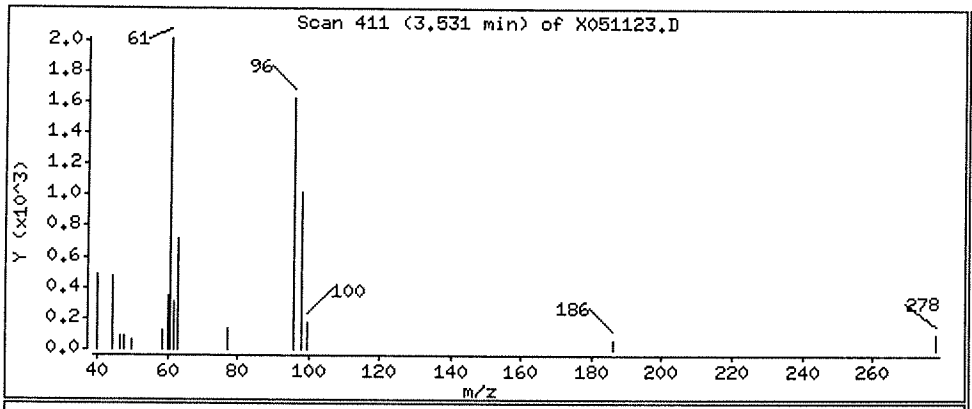
Operator: PC

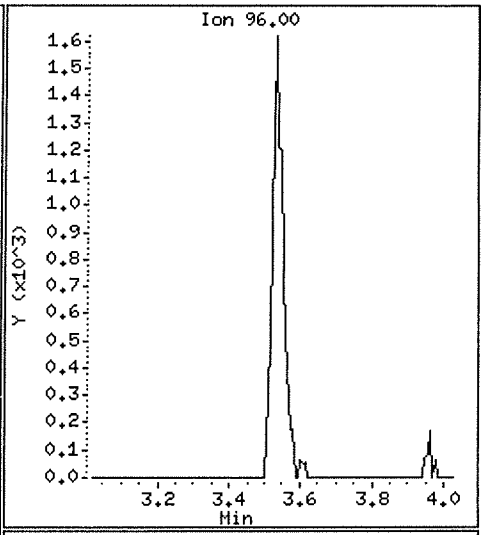
Column phase: DB624

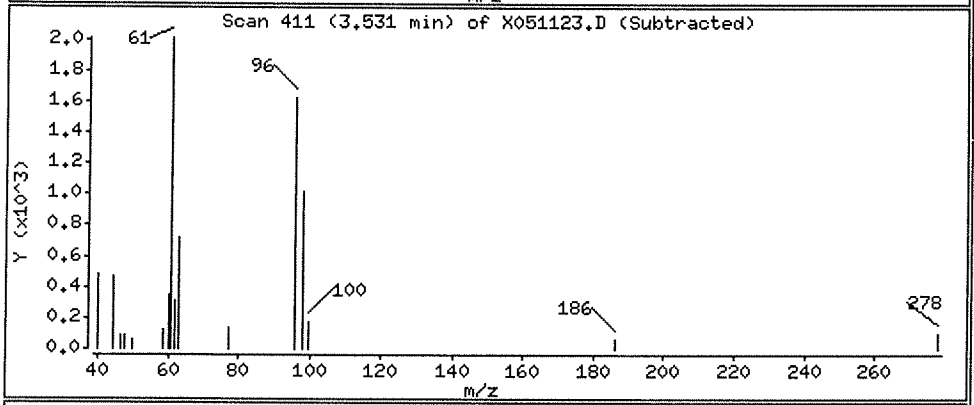
Column diameter: 0.18

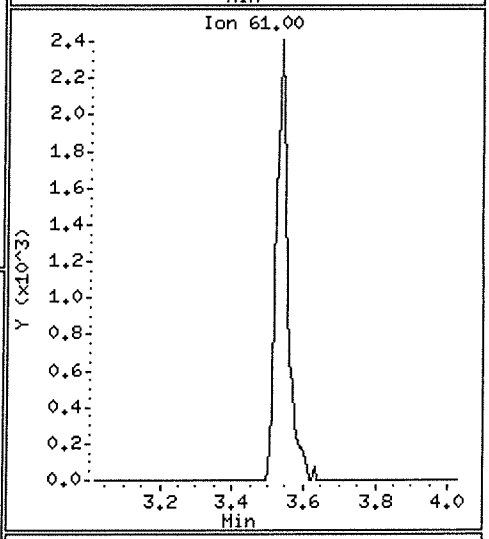
27 cis-1,2-Dichloroethene

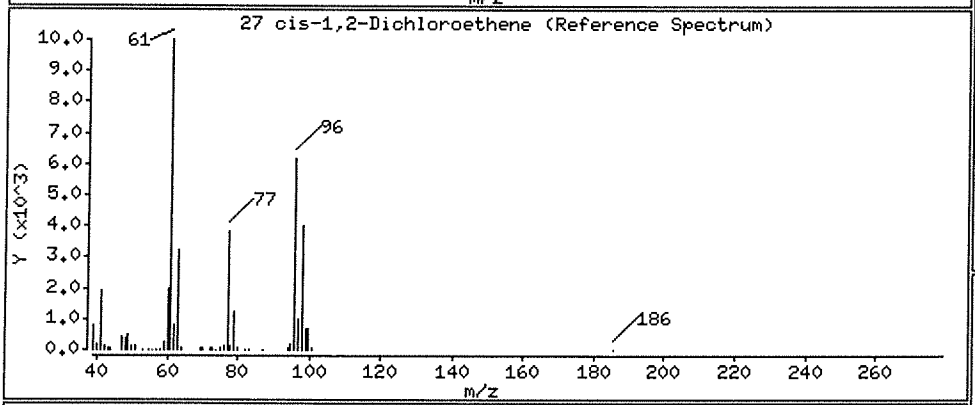
Concentration: 1.21 ug/l

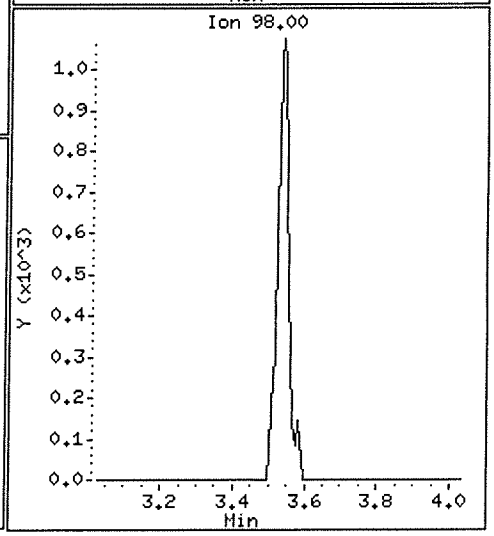


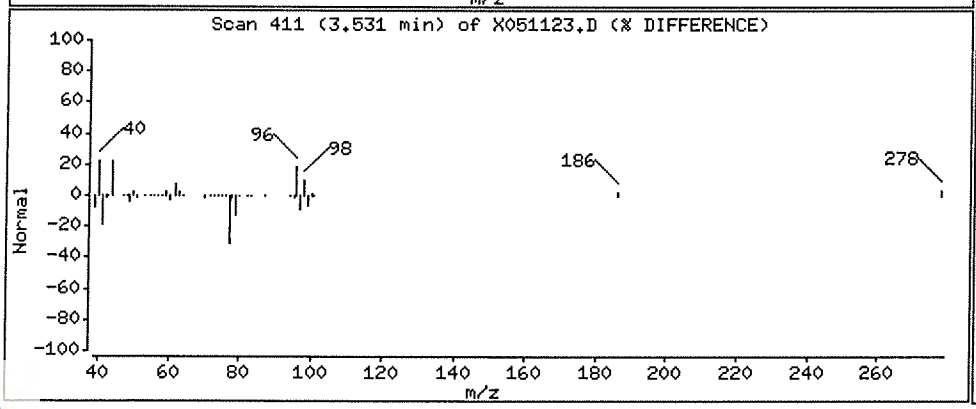












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D

Date : 11-MAY-2020 22:00

Client ID: HS20050292-01

Instrument: voa6.i

Sample Info: HS20050292-01;HS20050292-01;;;

Purge Volume: 5.0

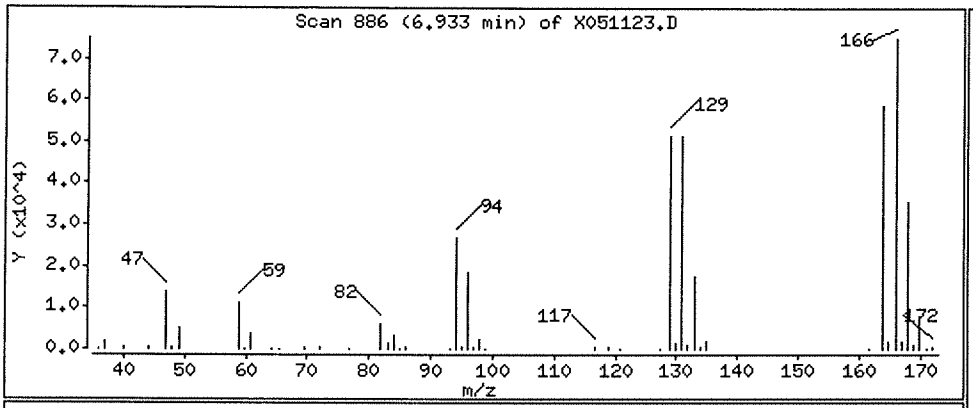
Operator: PC

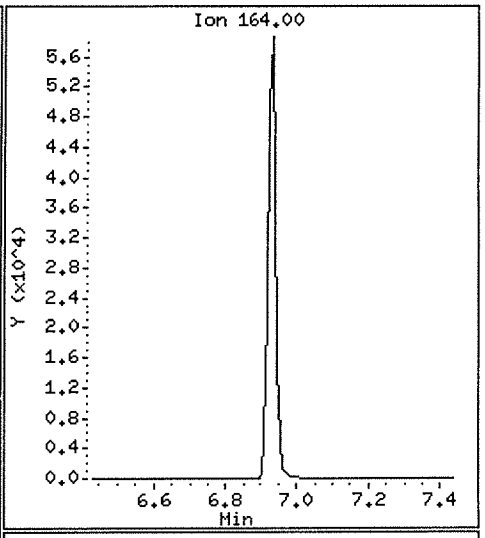
Column phase: DB624

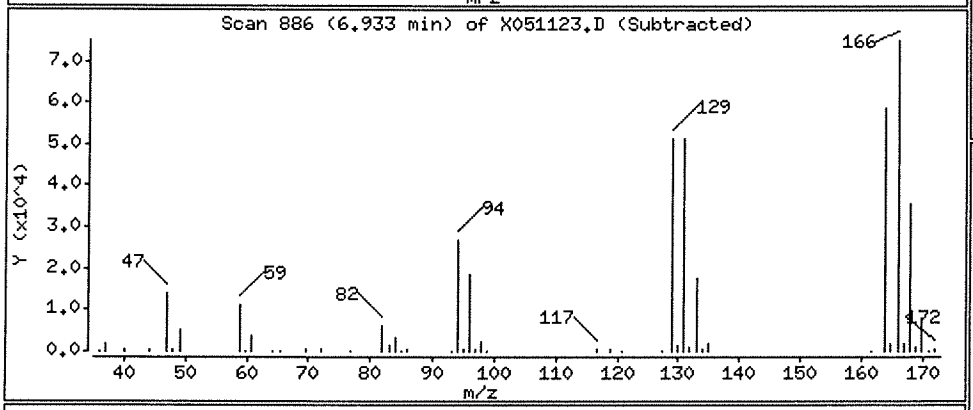
Column diameter: 0.18

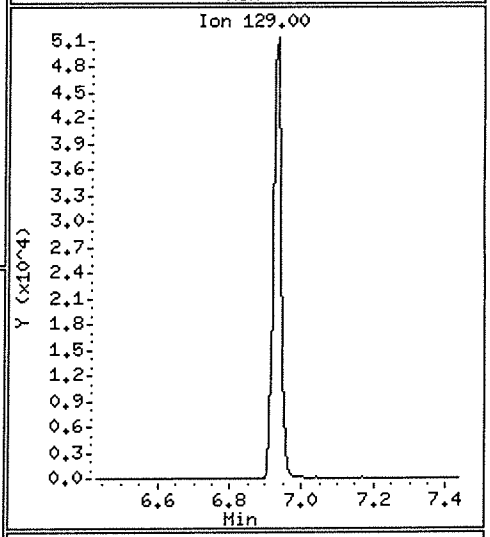
56 Tetrachloroethene

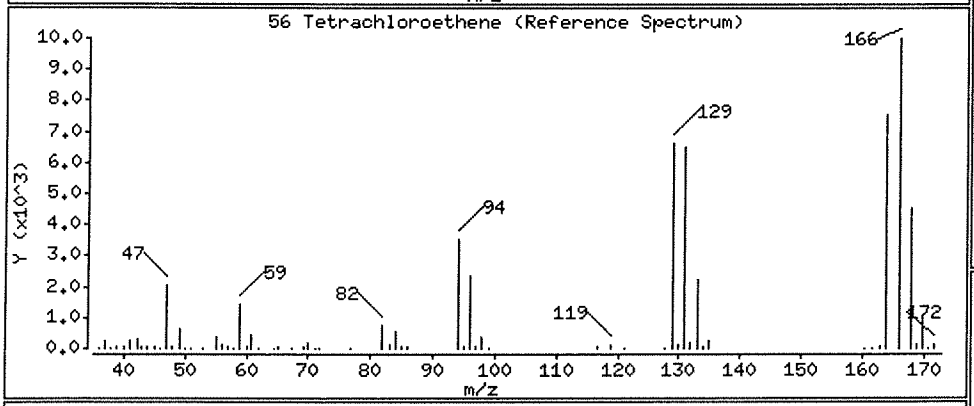
Concentration: 39.88 ug/l

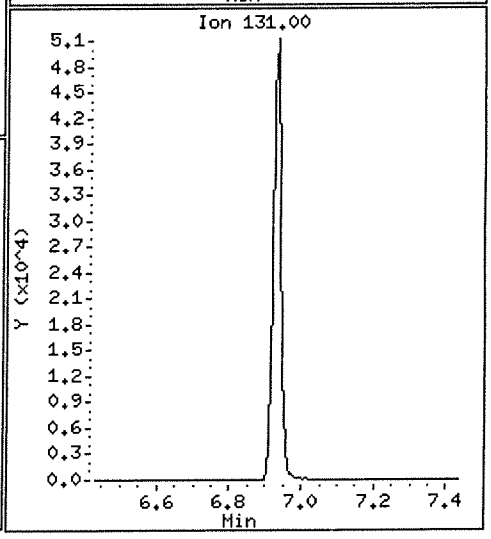


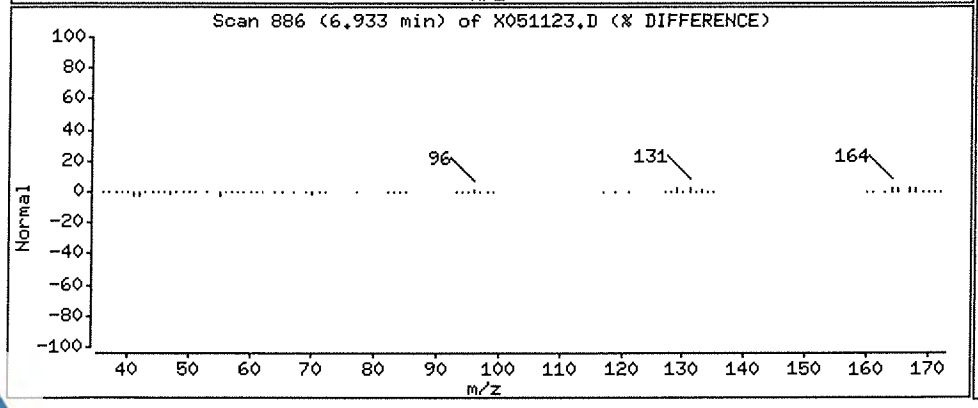












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051123.D

Date : 11-MAY-2020 22:00

Client ID: HS20050292-01

Instrument: voa6.i

Sample Info: HS20050292-01;HS20050292-01;;;

Purge Volume: 5.0

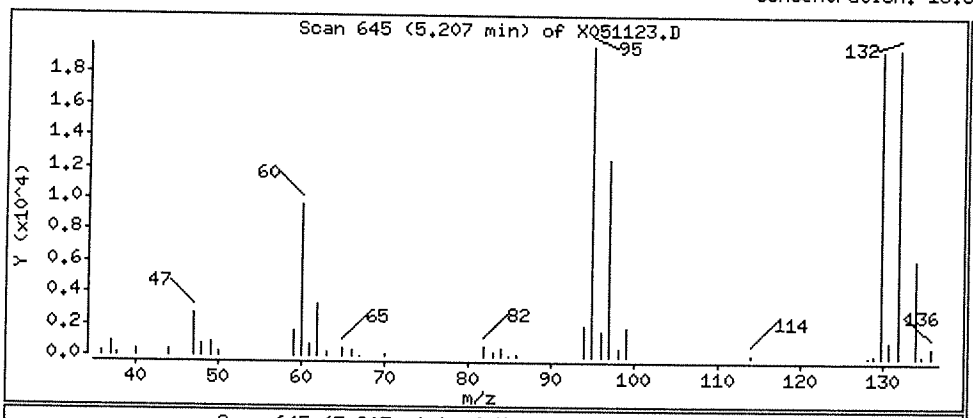
Operator: PC

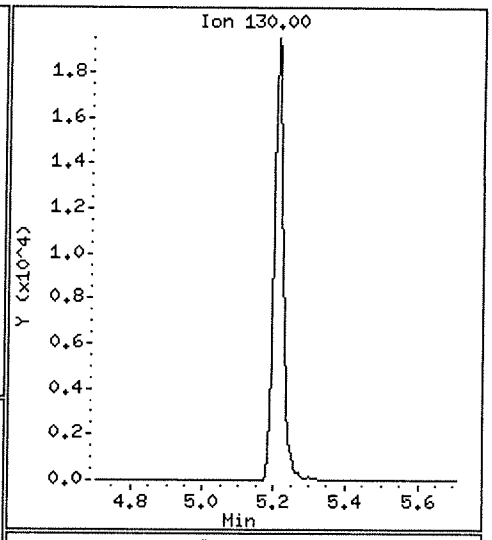
Column phase: DB624

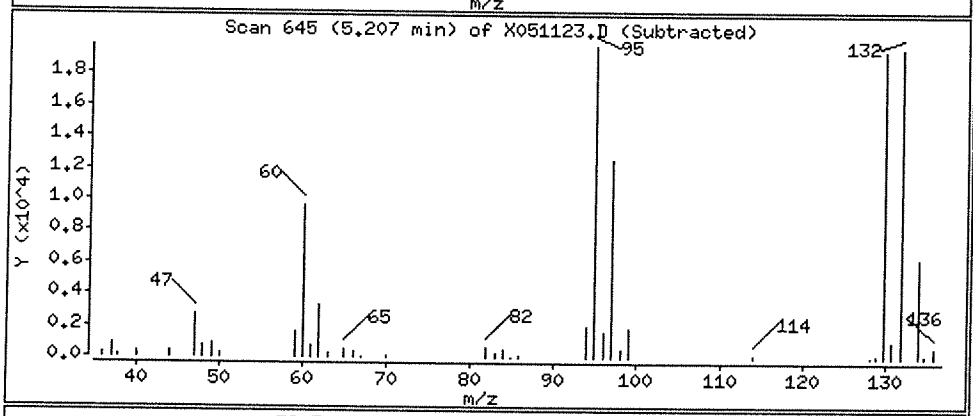
Column diameter: 0.18

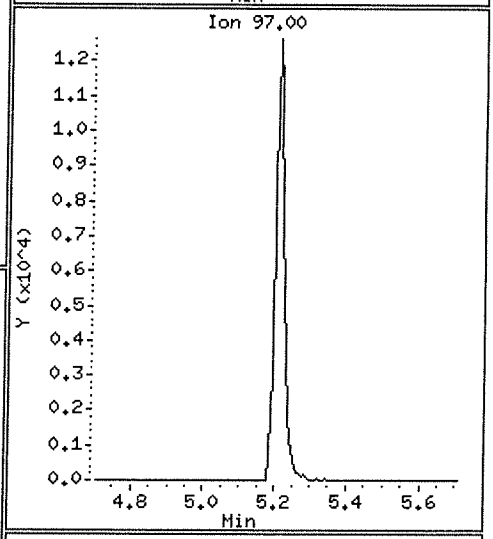
38 Trichloroethene

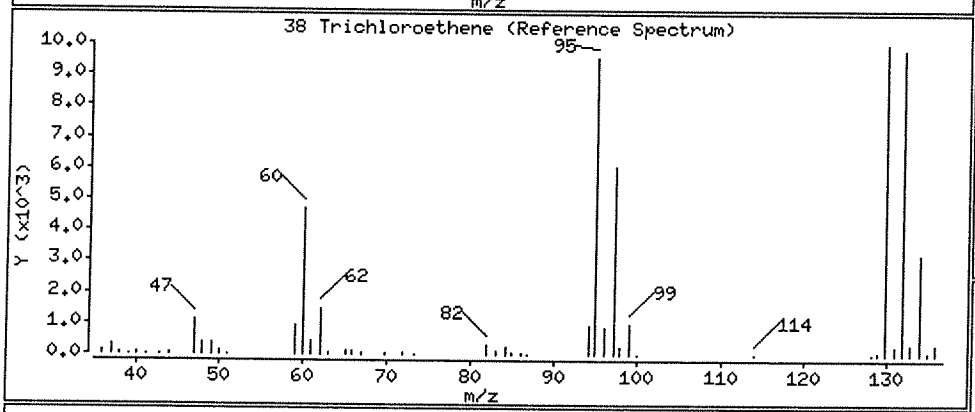
Concentration: 13.57 ug/l

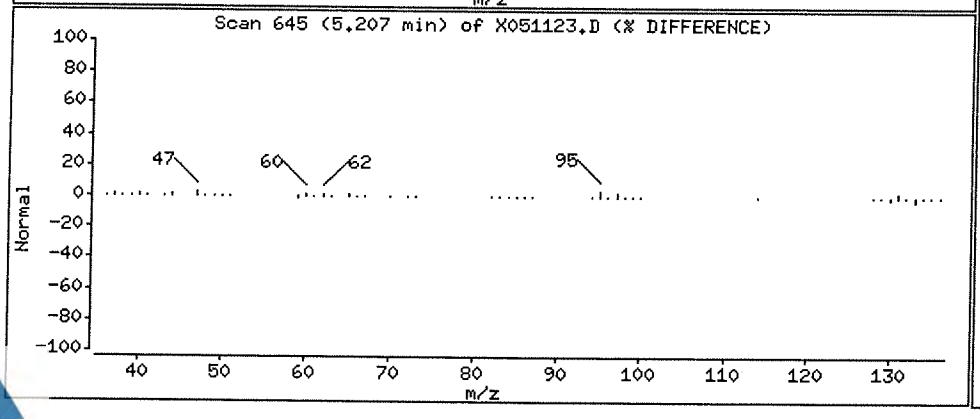


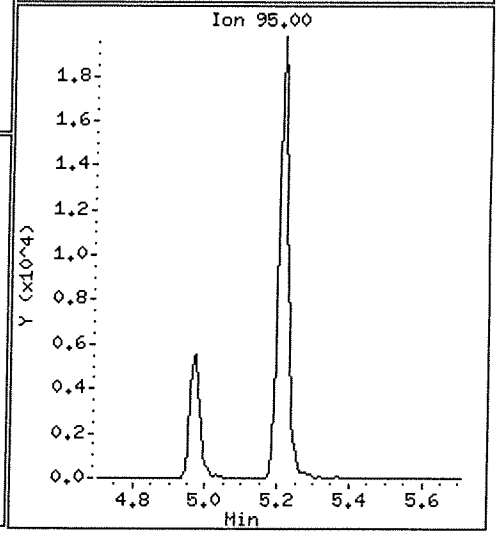












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D
Lab Smp Id: HS20050292-02 Client Smp ID: HS20050292-02
Inj Date : 11-MAY-2020 22:24
Operator : PC Inst ID: voa6.i
Smp Info : HS20050292-02;HS20050292-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

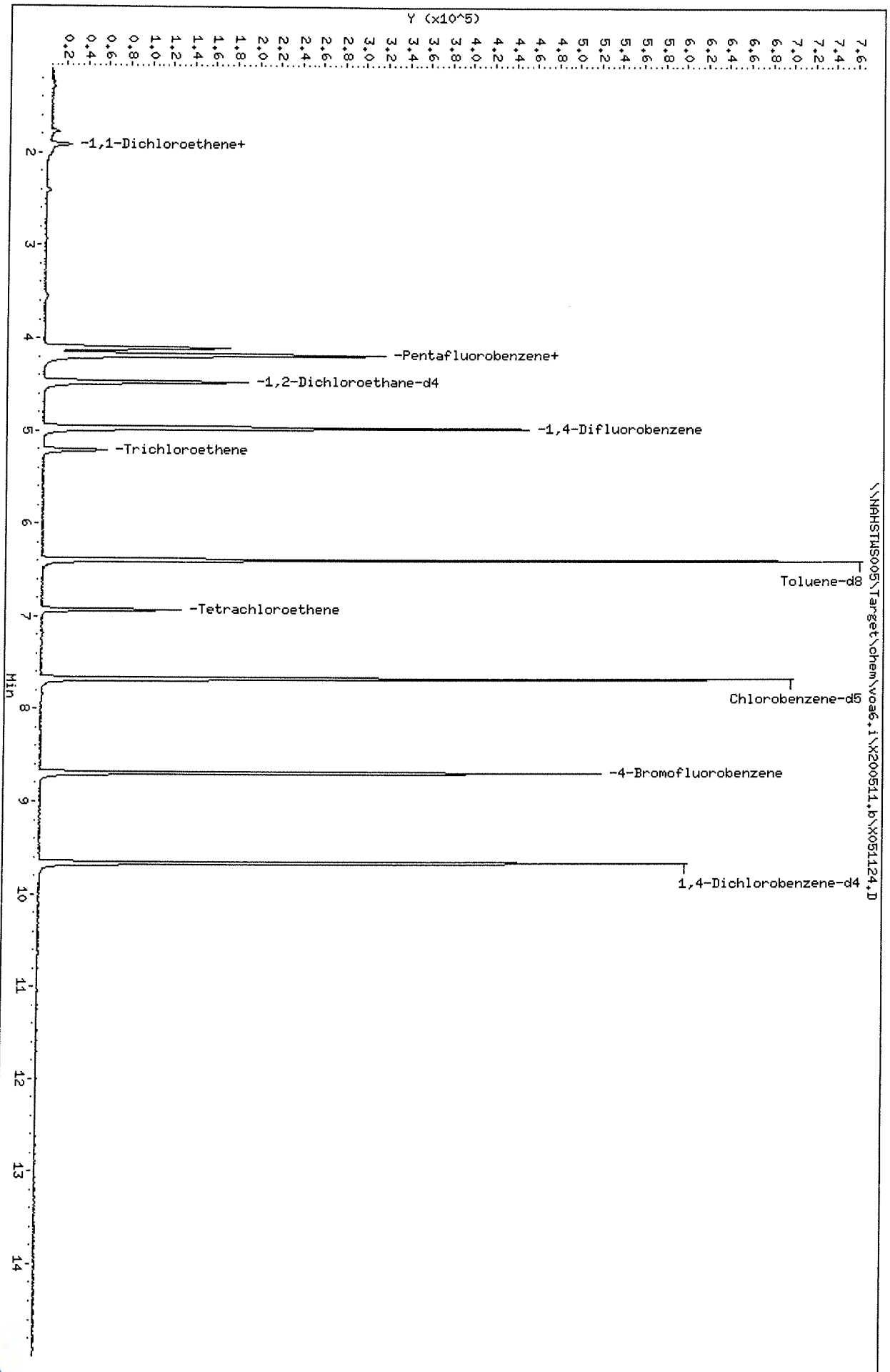
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	270639	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	375035	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	327042	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	155742	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	122376	45.3037	45.30
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	148187	44.4229	44.42
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	436574	53.1824	53.18
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	156752	50.1720	50.17
138 Freon TF	101	1.919	1.911	(0.459)	5852	2.79802	2.79(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	1871	0.86895	0.86(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	27641	12.8126	12.81
38 Trichloroethene	130	5.207	5.206	(1.048)	20690	7.68860	7.68

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D
Date : 11-MAY-2020 22:24
Client ID: HS20050292-02
Sample Info: HS20050292-02;HS20050292-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D

Date : 11-MAY-2020 22:24

Client ID: HS20050292-02

Instrument: voa6.i

Sample Info: HS20050292-02;HS20050292-02;;;

Purge Volume: 5.0

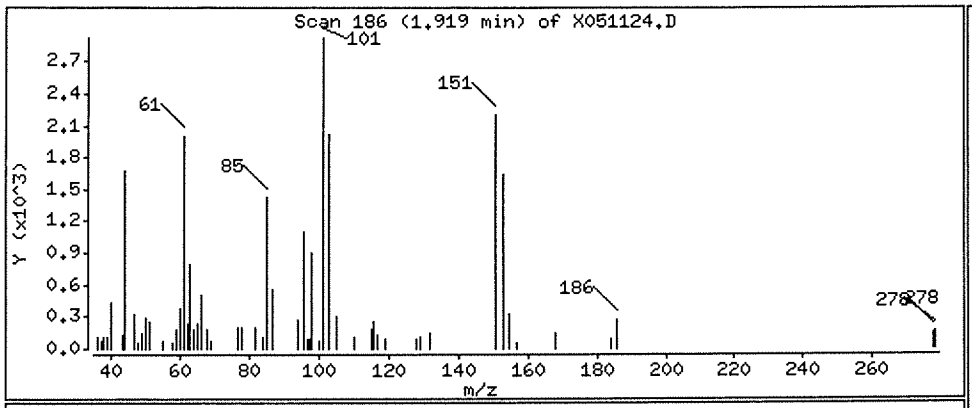
Operator: PC

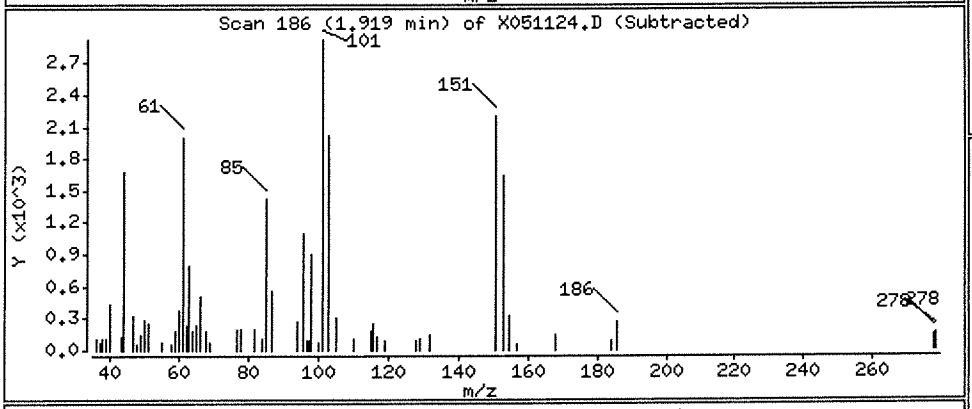
Column phase: DB624

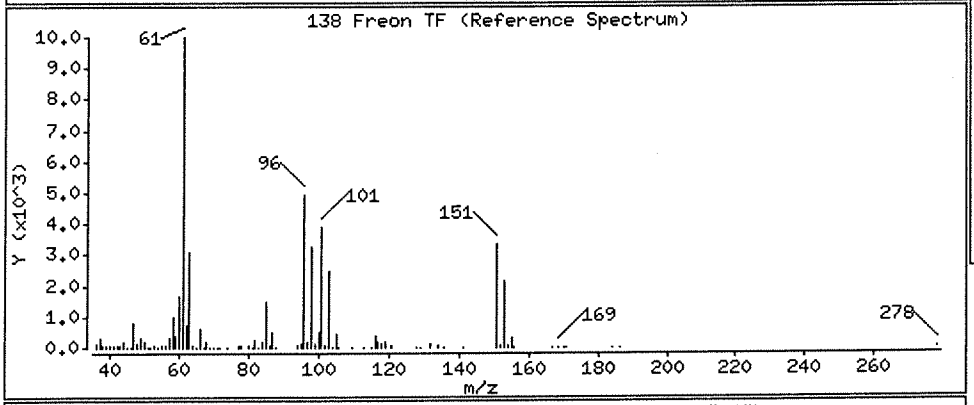
Column diameter: 0.18

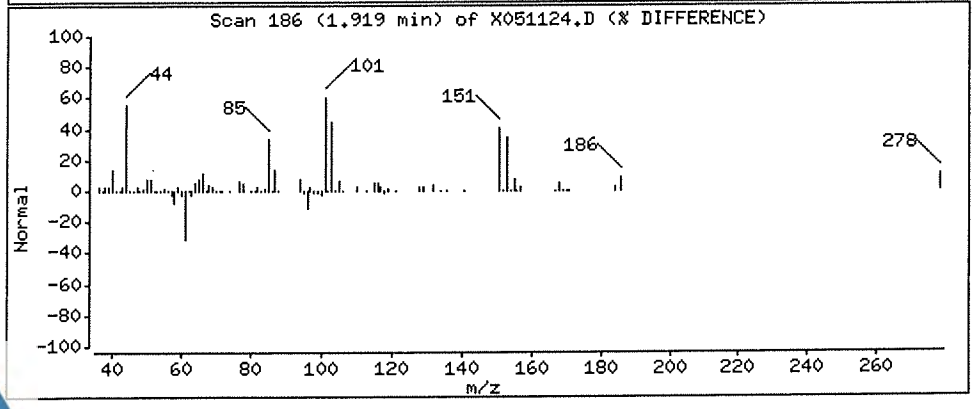
138 Freon TF

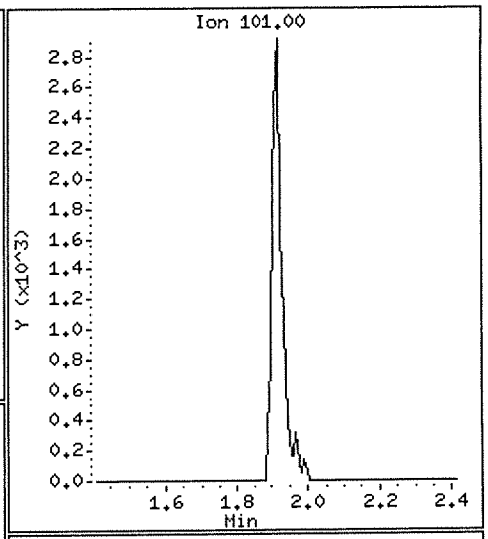
Concentration: 2.79 ug/l

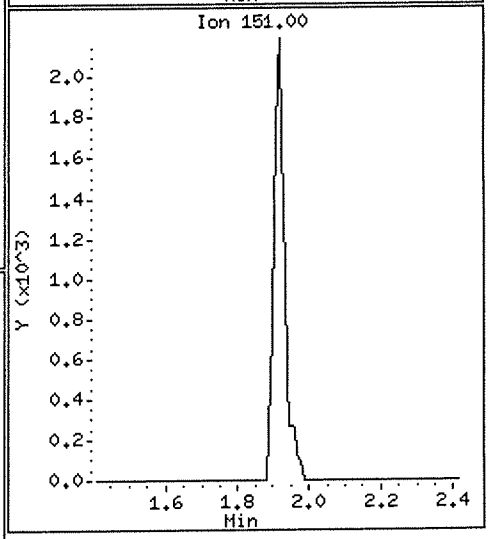












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D

Date : 11-MAY-2020 22:24

Client ID: HS20050292-02

Instrument: voa6.i

Sample Info: HS20050292-02;HS20050292-02;;;

Purge Volume: 5.0

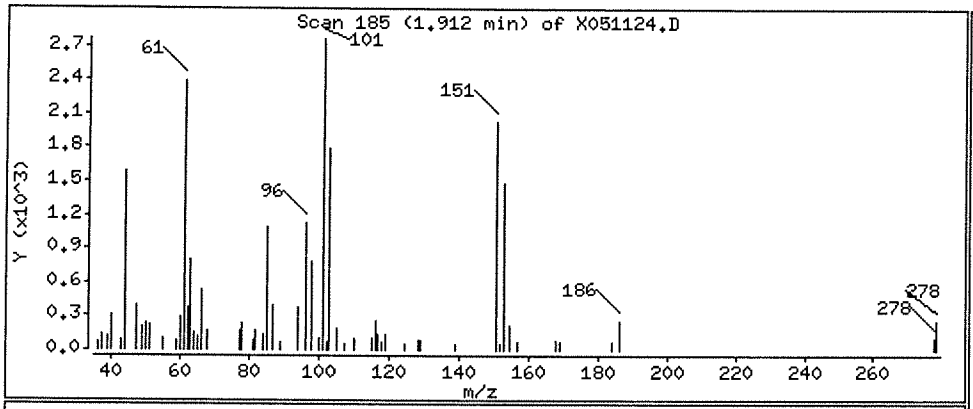
Operator: PC

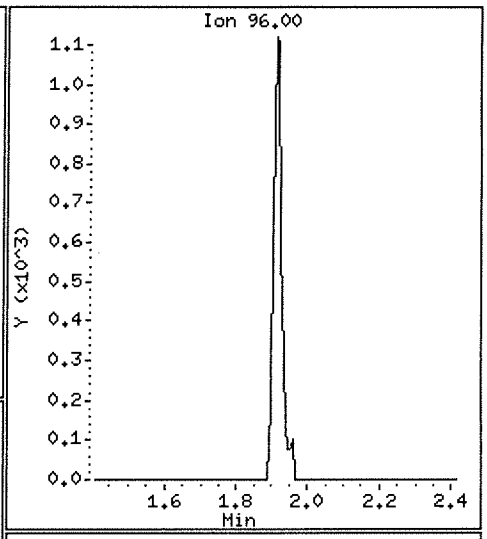
Column phase: DB624

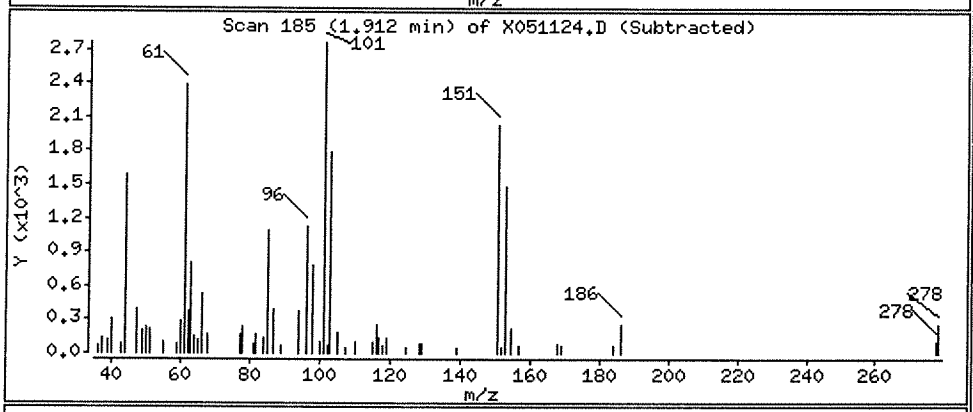
Column diameter: 0.18

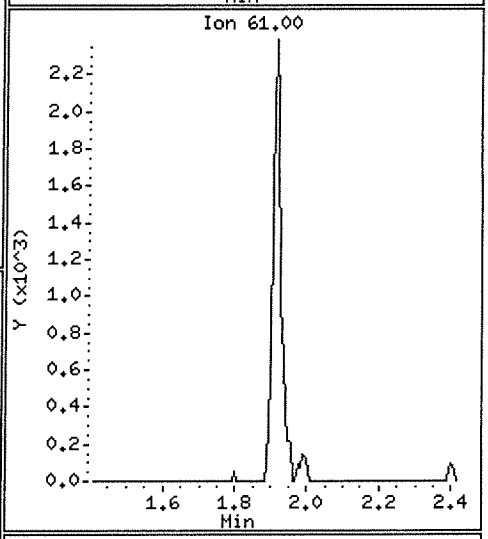
11 1,1-Dichloroethene

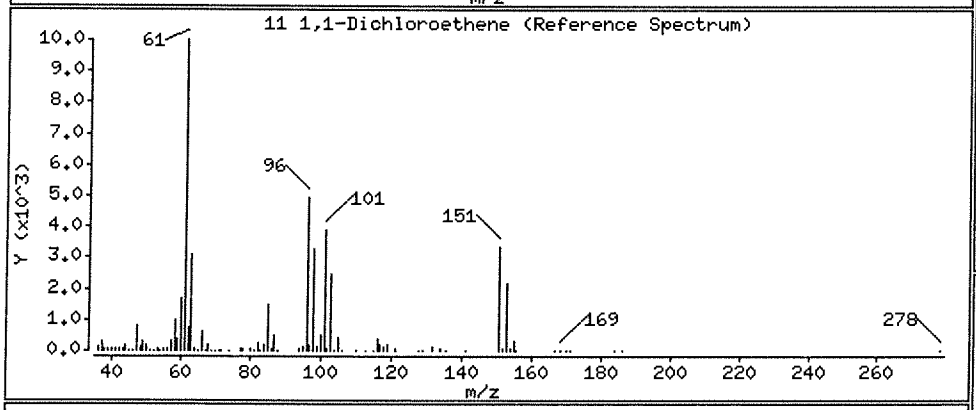
Concentration: 0.86 ug/l

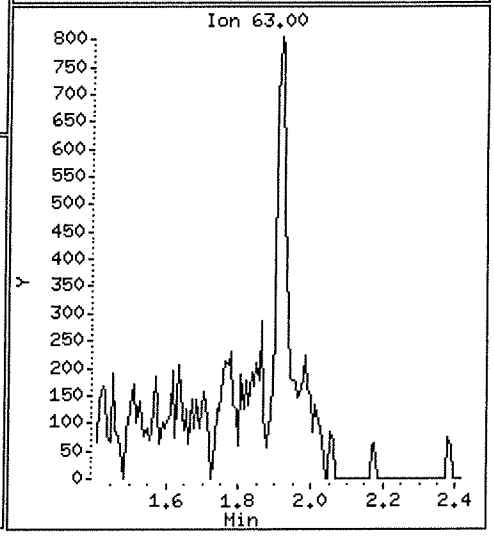


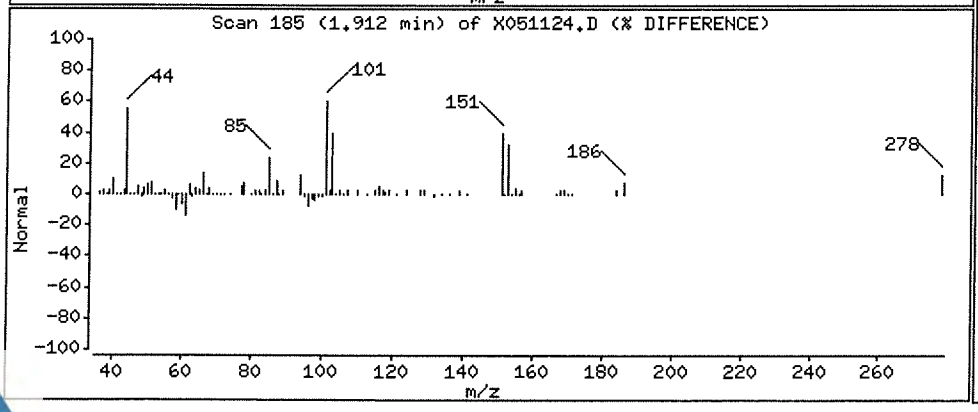












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D

Date : 11-MAY-2020 22:24

Client ID: HS20050292-02

Instrument: voa6.i

Sample Info: HS20050292-02;HS20050292-02;;;

Purge Volume: 5.0

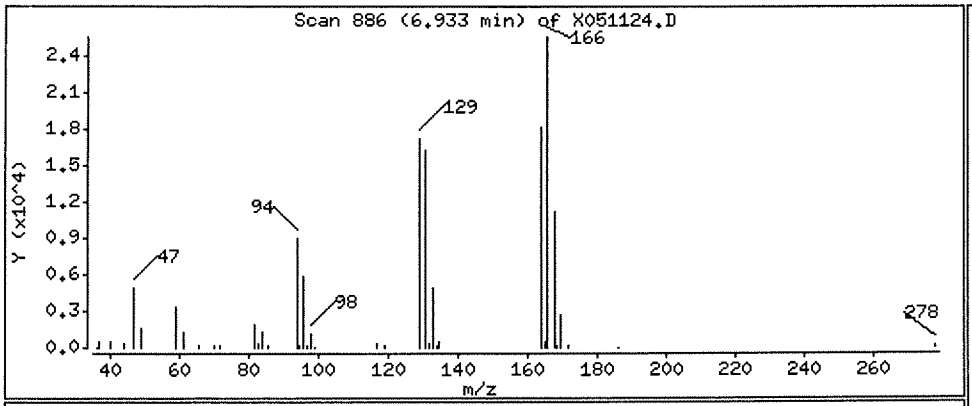
Operator: PC

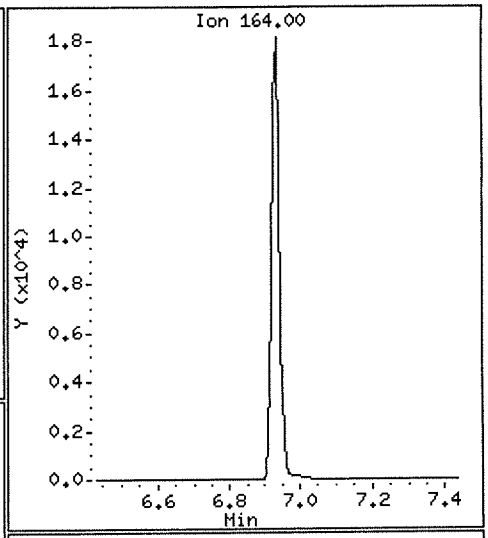
Column phase: DB624

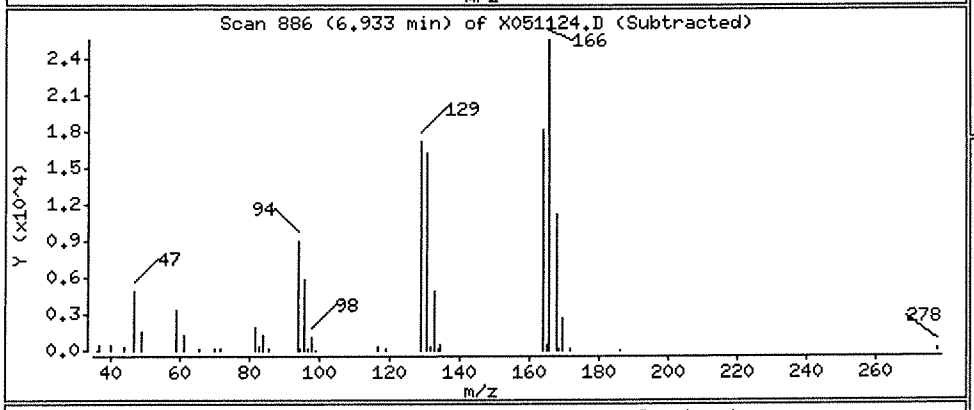
Column diameter: 0.18

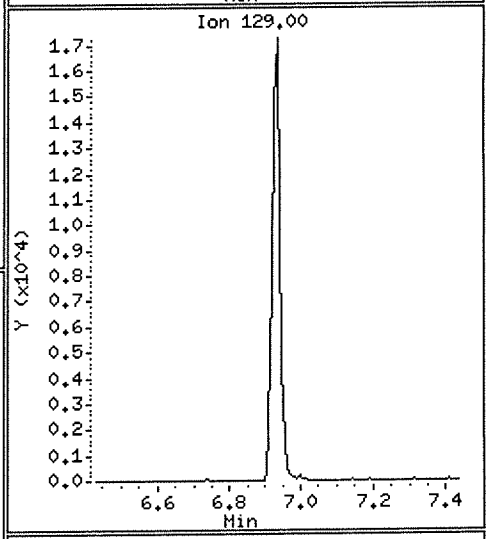
56 Tetrachloroethene

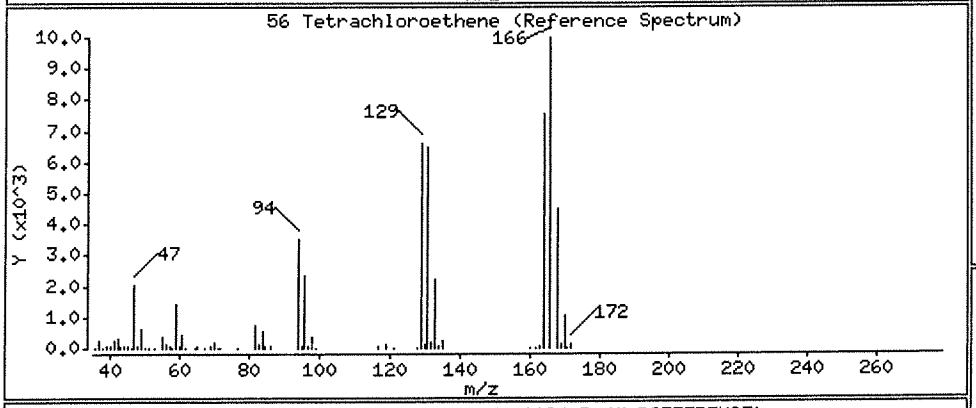
Concentration: 12.81 ug/l

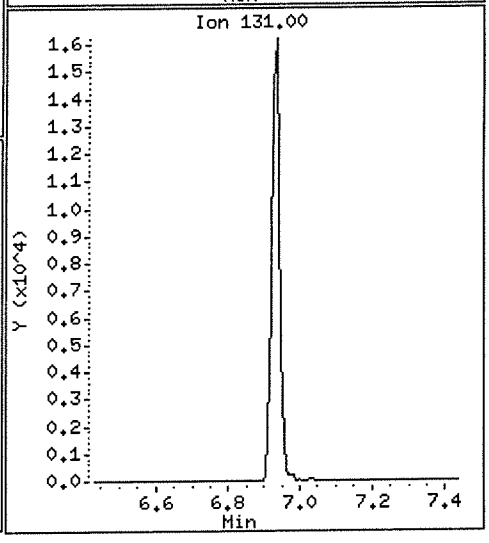


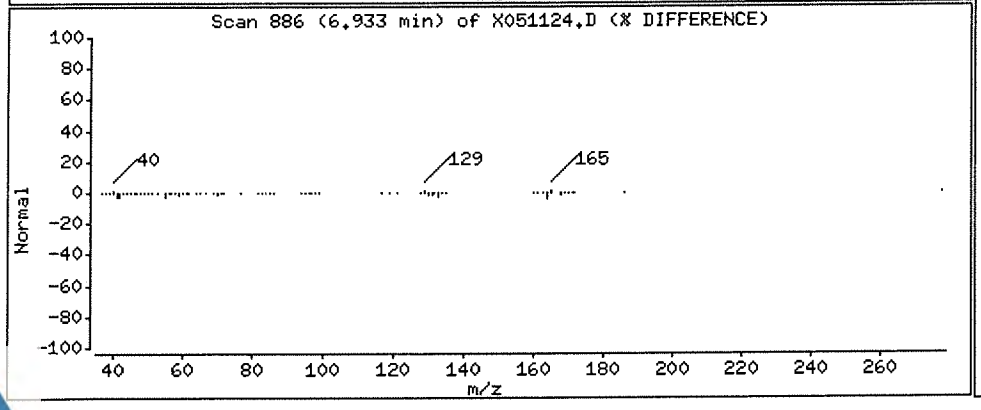












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051124.D

Date : 11-MAY-2020 22:24

Client ID: HS20050292-02

Instrument: voa6.i

Sample Info: HS20050292-02;HS20050292-02;;;

Purge Volume: 5.0

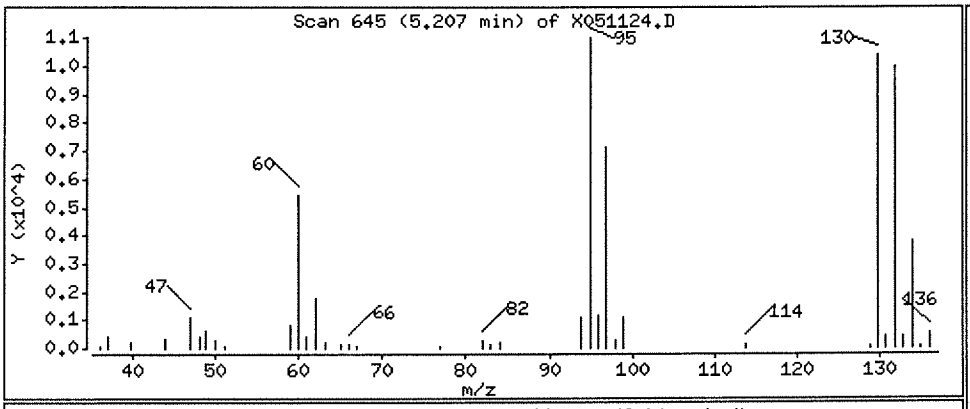
Operator: PC

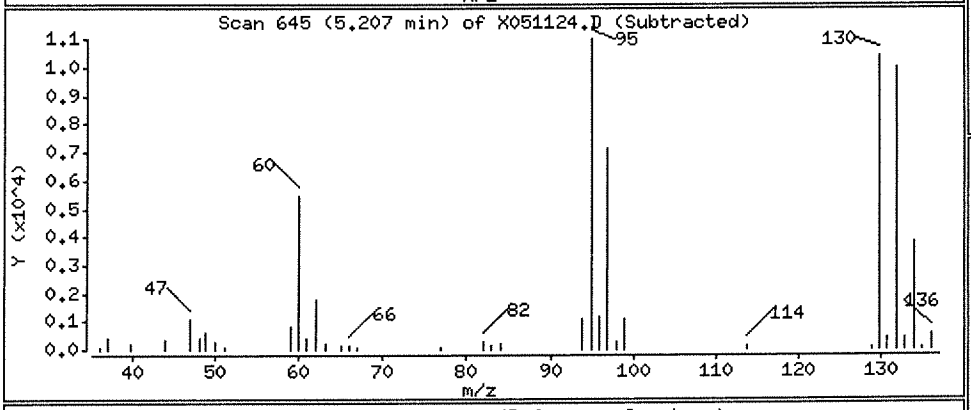
Column phase: DB624

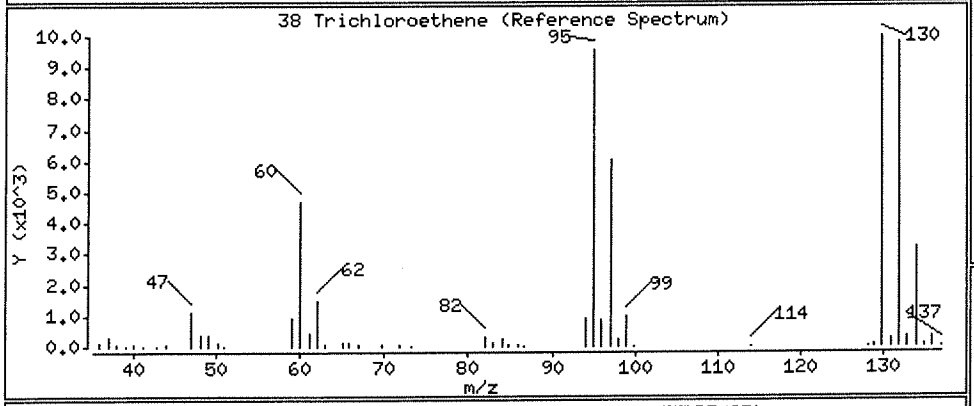
Column diameter: 0.18

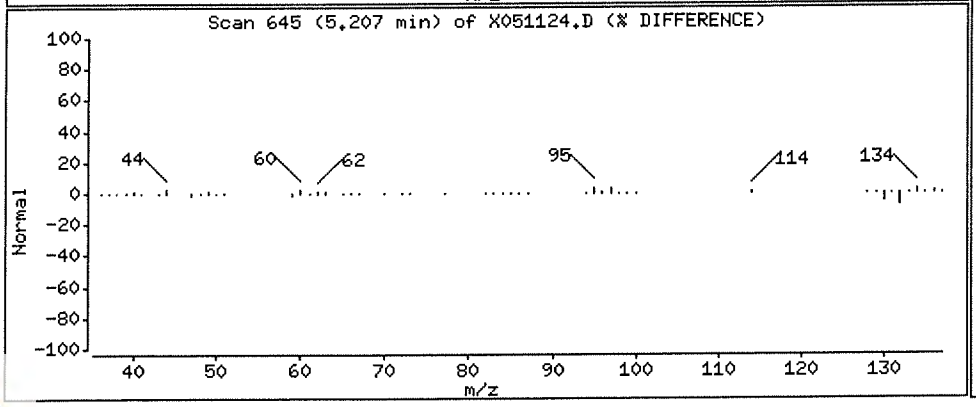
38 Trichloroethene

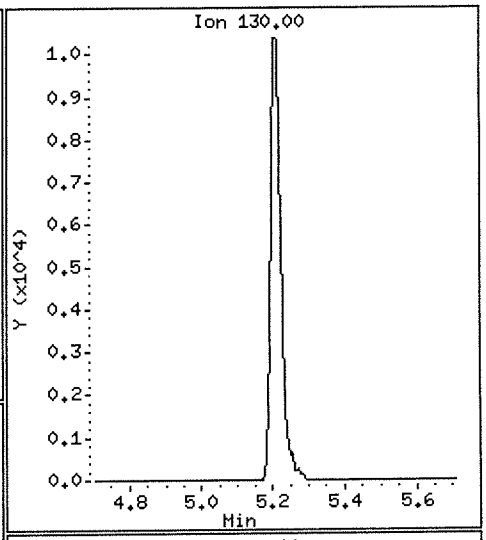
Concentration: 7.68 ug/l

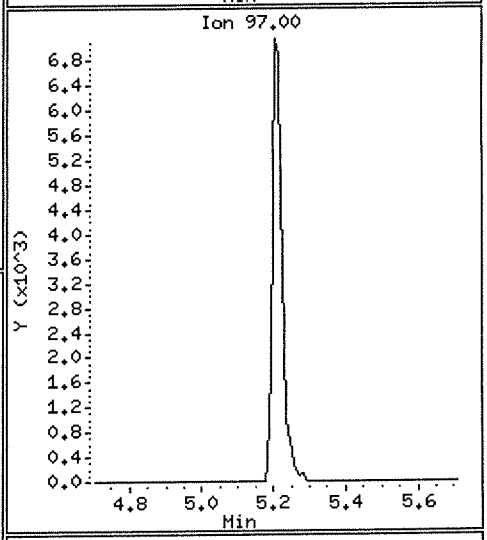


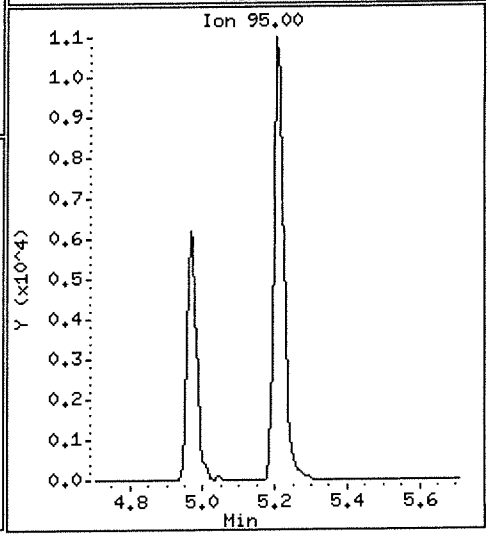












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051125.D Page 1
Report Date: 28-May-2020 16:11

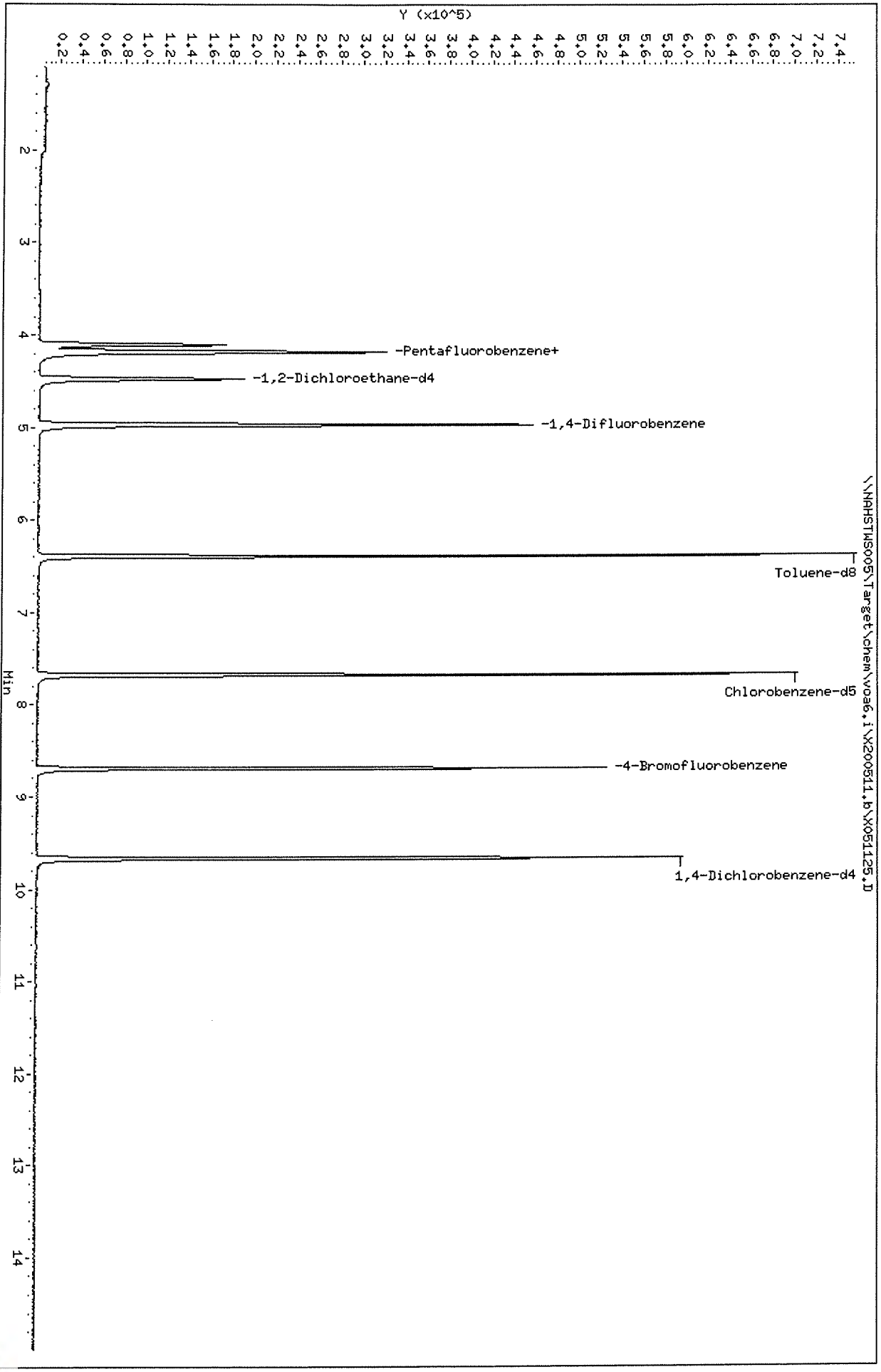
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051125.D
Lab Smp Id: HS20050292-03 Client Smp ID: HS20050292-03
Inj Date : 11-MAY-2020 22:48
Operator : PC Inst ID: voa6.i
Smp Info : HS20050292-03;HS20050292-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	270232	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	373745	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	326017	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	154461	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124798	46.2750	46.27
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	146895	44.1016	44.10
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	436156	53.2996	53.29
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	154227	49.5090	49.50



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200511,b\X051125,D
Date : 11-MAY-2020 22:48
Client ID: HS20050292-03
Sample Info: HS20050292-03;HS20050292-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051126.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051126.D
Lab Smp Id: HS20050292-03MS Client Smp ID: HS20050292-03MS
Inj Date : 11-MAY-2020 23:12
Operator : PC Inst ID: voa6.i
Smp Info : HS20050292-03MS;HS20050292-03MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\8260W.m
Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 27 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

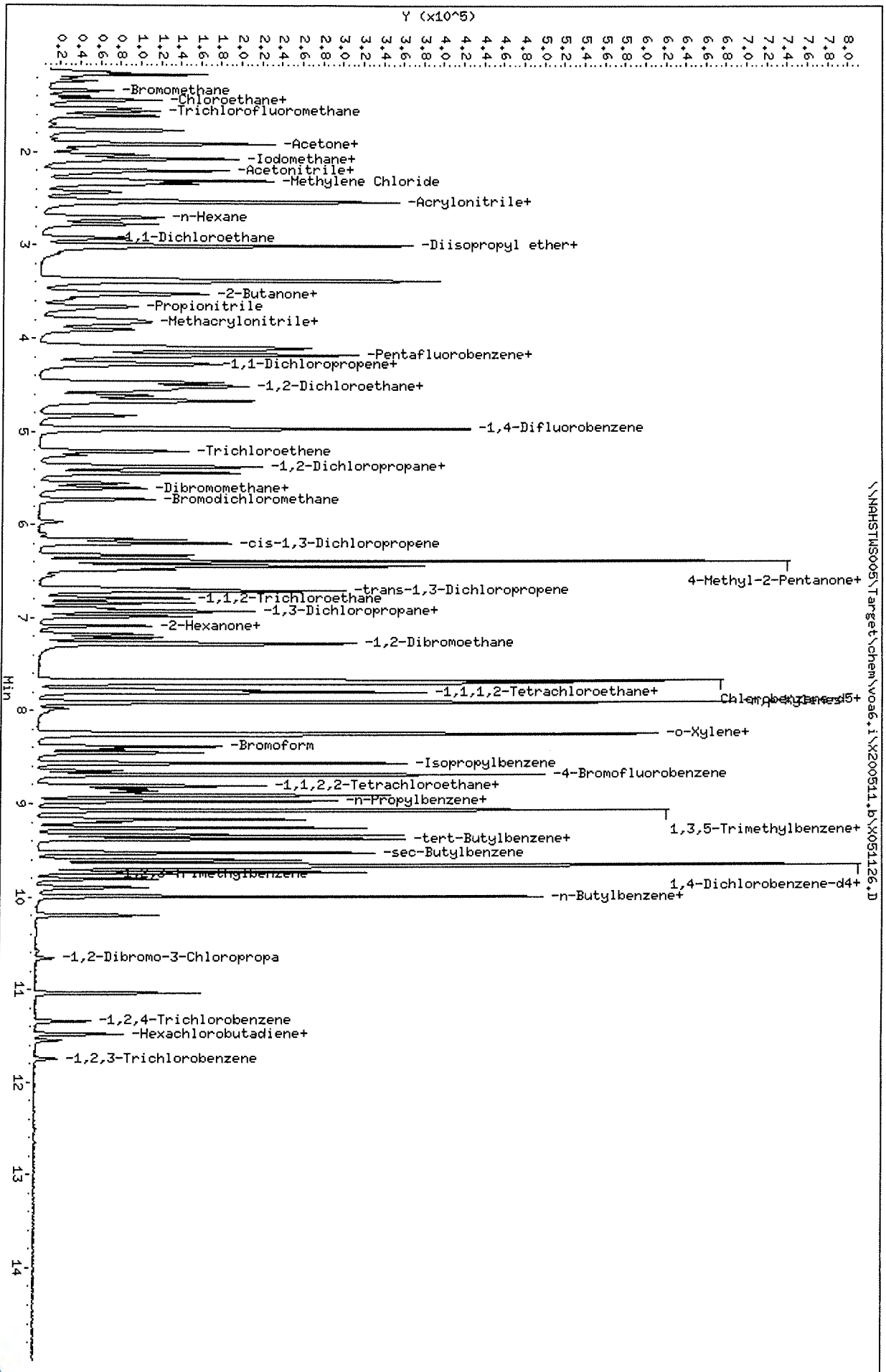
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	257388	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	353311	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	304795	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	148588	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	117876	45.8875	45.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	141216	44.5126	44.51
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	410375	53.6438	53.64
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	144286	49.5433	49.54
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	50240	20.9708	20.97
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	78431	19.0281	19.02
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	43765	18.3278	18.32
138 Freon TF	101	1.912	1.911	(0.457)	38672	19.4422	19.44
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	33469	19.7402	19.74
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	97314	17.3966	17.39
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	37356	18.2425	18.24
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	63266	19.5604	19.56
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	7096	15.1129	15.11
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	39368	19.0132	19.01(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	15468	16.2959	16.29
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	163530	20.9808	20.98
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	3976	17.6872	17.68
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	44544	20.5705	20.57

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051126.D Page 2
Report Date: 28-May-2020 16:11

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	80036	19.3354	19.33
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	72544	19.7202	19.72
42	1,2-Dichloropropane	63	5.436	5.443	(1.094)	52631	18.3007	18.30
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	164871	21.4895	21.48
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	92631	20.4581	20.45
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	69832	19.8130	19.81
84	1,4-Dichlorobenzene	146	9.684	9.683	(1.002)	91552	19.4933	19.49
26	2,2-Dichloropropane	77	3.516	3.509	(0.841)	71471	17.5376	17.53
24	2-Butanone	43	3.581	3.573	(0.856)	35699	30.7746	30.77
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	132593	19.9922	19.99
52	2-Hexanone	43	7.090	7.090	(0.924)	64406	34.1707	34.17
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	154632	20.2241	20.22
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	166305	21.3082	21.30
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	97629	35.4757	35.47
10	Acetone	43	1.976	1.969	(0.473)	23461	24.1077	24.10
37	Benzene	78	4.512	4.512	(0.908)	173535	19.2154	19.21
74	Bromobenzene	156	8.810	8.810	(0.912)	59166	21.2388	21.23
29	Bromochloromethane	128	3.795	3.795	(0.908)	25971	17.3906	17.39
39	Bromodichloromethane	83	5.730	5.729	(1.153)	63561	19.2728	19.27
66	Bromoform	173	8.416	8.416	(1.097)	34385	19.6902	19.69
6	Bromomethane	94	1.339	1.324	(0.320)	35688	18.3880	18.38
19	Carbon Disulfide	76	2.069	2.069	(0.495)	235451	33.7482	33.74
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	71295	20.0841	20.08
59	Chlorobenzene	112	7.699	7.699	(1.004)	126037	20.8708	20.87
7	Chloroethane	64	1.403	1.396	(0.336)	31282	16.9012	16.90
28	Chloroform	83	3.910	3.910	(0.935)	86971	18.9082	18.90
3	Chloromethane	50	1.074	1.073	(0.257)	54588	13.9151	13.91
27	cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	51944	19.1305	19.13
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	72251	18.7064	18.70
55	Dibromochloromethane	129	7.176	7.176	(0.936)	49465	20.0511	20.05
44	Dibromomethane	93	5.558	5.557	(1.118)	29853	19.1384	19.13
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	35476	12.6160	12.61
61	Ethylbenzene	106	7.800	7.800	(1.017)	66951	21.1241	21.12
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	15068	19.1805	19.18
67	Isopropylbenzene	105	8.566	8.566	(1.117)	200039	21.0462	21.04
62	m,p-Xylenes	106	7.907	7.907	(1.031)	158295	41.1476	41.14
17	Methylene Chloride	84	2.306	2.298	(0.551)	46298	17.5965	17.59
87	n-Butylbenzene	91	9.999	9.999	(1.035)	131441	20.8730	20.87
73	n-Propylbenzene	91	8.917	8.917	(0.923)	223438	20.9162	20.91
92	Naphthalene	128	11.546	11.546	(1.195)	19809	14.1604	14.16
63	o-Xylene	106	8.244	8.244	(1.075)	76259	20.3742	20.37
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	190408	21.1569	21.15
64	Styrene	104	8.258	8.265	(1.077)	131665	20.2969	20.29
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	142729	21.9107	21.91
56	Tetrachloroethene	164	6.933	6.933	(0.904)	42765	21.2700	21.26
50	Toluene	91	6.446	6.446	(0.840)	187132	20.7455	20.74
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	44628	19.0603	19.06
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	65876	18.8072	18.80
38	Trichloroethene	130	5.207	5.206	(1.048)	50686	19.9935	19.99
8	Trichlorofluoromethane	101	1.561	1.553	(0.373)	78401	18.9321	18.93
5	Vinyl Chloride	62	1.138	1.138	(0.272)	54411	15.2498	15.24

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: HS20050292-03MS;HS20050292-03MS;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\X200511.b\X051127.D Page 1
Report Date: 28-May-2020 16:11

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051127.D
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Inj Date : 11-MAY-2020 23:36
Operator : PC Inst ID: voa6.i
Smp Info : HS20050292-03MSD;HS20050292-03MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 28-May-2020 16:11 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 27 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

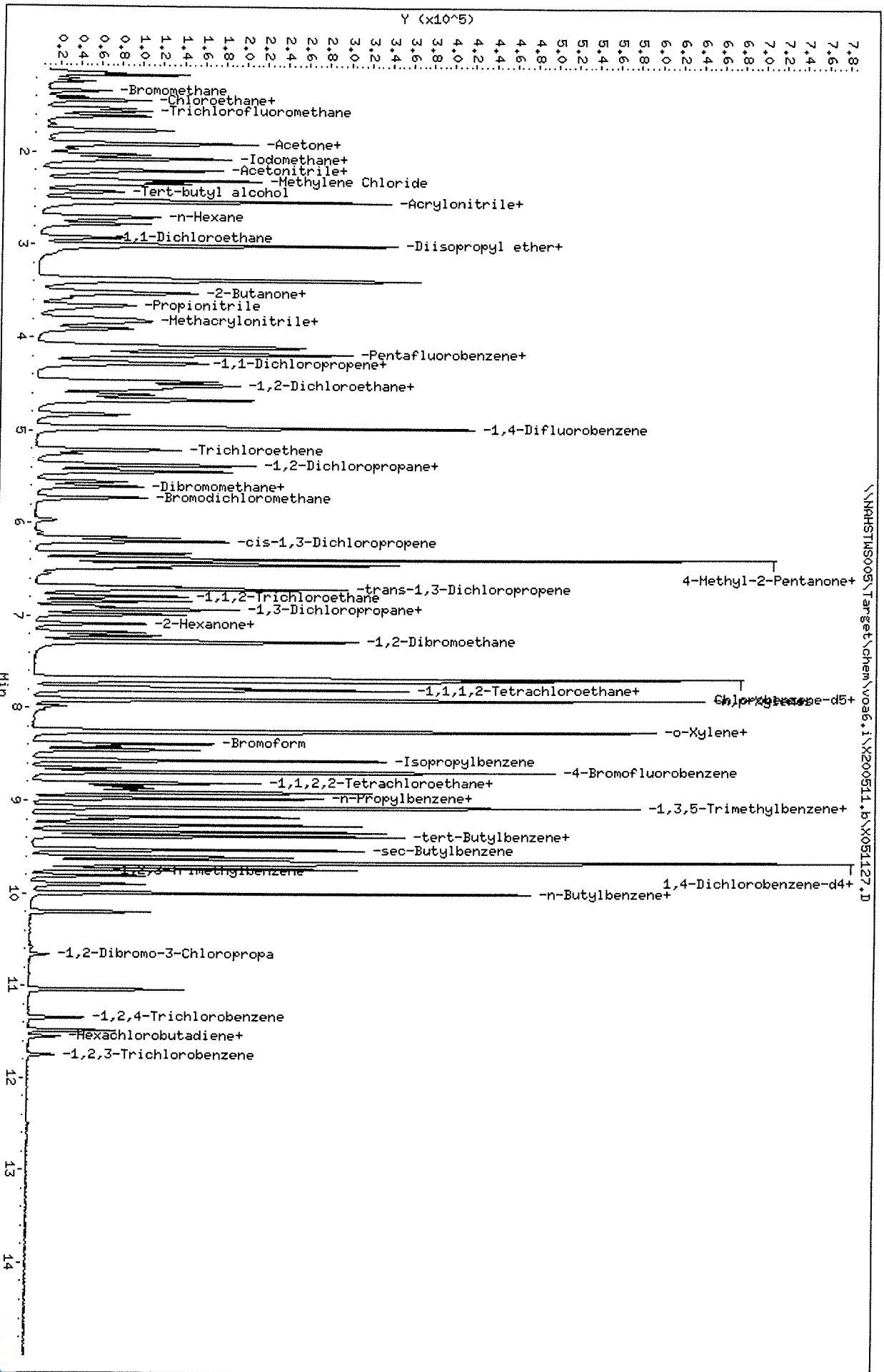
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	249785	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	345641	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	300879	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	144845	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	116168	46.6028	46.60
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	134471	43.6760	43.67
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	405126	53.6469	53.64
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	141487	49.2094	49.20
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	47041	19.8910	19.89
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	73831	18.4573	18.45
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	43582	18.7228	18.72
138 Freon TF	101	1.912	1.911	(0.457)	36288	18.7989	18.79
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	32092	19.1744	19.17
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	90730	16.7133	16.71
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	33979	17.0984	17.09
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	57068	18.0356	18.03
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	7075	15.4614	15.46
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	38386	19.0180	19.01(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.174)	15764	16.9168	16.91
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	161052	21.1969	21.19
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	4053	18.4285	18.42
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	43139	20.1809	20.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051127.D Page 2
Report Date: 28-May-2020 16:11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88 1,2-Dichlorobenzene	146	9.991	9.999	(1.034)	79246	19.6393	19.63
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	69863	19.4129	19.41
42 1,2-Dichloropropane	63	5.436	5.443	(1.094)	51327	18.2434	18.24
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	157869	21.1086	21.10
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	88404	20.0291	20.02
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	66015	18.9738	18.97
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	90556	19.7795	19.77
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	65285	16.5073	16.50
24 2-Butanone	43	3.580	3.573	(0.856)	35504	31.5381	31.53
76 2-Chlorotoluene	91	8.974	8.981	(0.929)	129485	20.0281	20.02
52 2-Hexanone	43	7.090	7.090	(0.924)	62729	33.7141	33.71
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	149212	20.0195	20.01
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	162467	21.3543	21.35
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	94349	34.7301	34.73
10 Acetone	43	1.969	1.969	(0.471)	23355	24.7971	24.79
37 Benzene	78	4.512	4.512	(0.908)	162578	18.4016	18.40
74 Bromobenzene	156	8.810	8.810	(0.912)	56338	20.7462	20.74
29 Bromochloromethane	128	3.795	3.795	(0.908)	25832	17.8241	17.82
39 Bromodichloromethane	83	5.729	5.729	(1.153)	61240	18.9810	18.98
66 Bromoform	173	8.416	8.416	(1.097)	32670	18.9517	18.95
6 Bromomethane	94	1.338	1.324	(0.320)	32011	16.9389	16.93
19 Carbon Disulfide	76	2.069	2.069	(0.495)	215395	31.8132	31.81
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	67822	19.5297	19.52
59 Chlorobenzene	112	7.699	7.699	(1.004)	116702	19.5765	19.57
7 Chloroethane	64	1.403	1.396	(0.336)	28017	15.5655	15.56
28 Chloroform	83	3.910	3.910	(0.935)	80687	18.0759	18.07
3 Chloromethane	50	1.073	1.073	(0.257)	50878	13.3890	13.38
27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	46820	17.7682	17.76
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	69027	18.2682	18.26
55 Dibromochloromethane	129	7.176	7.176	(0.936)	49081	20.1544	20.15
44 Dibromomethane	93	5.557	5.557	(1.118)	28414	18.6201	18.62
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	32021	11.8083	11.80
61 Ethylbenzene	106	7.800	7.800	(1.017)	63876	20.4162	20.41
91 Hexachlorobutadiene	225	11.488	11.481	(1.189)	14142	18.5029	18.50
67 Isopropylbenzene	105	8.566	8.566	(1.117)	192112	20.4753	20.47
62 m,p-Xylenes	106	7.907	7.907	(1.031)	150532	39.6390	39.63
17 Methylene Chloride	84	2.305	2.298	(0.551)	42332	16.5169	16.51
87 n-Butylbenzene	91	9.999	9.999	(1.035)	126463	20.6014	20.60
73 n-Propylbenzene	91	8.917	8.917	(0.923)	212005	20.3588	20.35
92 Naphthalene	128	11.546	11.546	(1.195)	21139	15.5016	15.50
63 o-Xylene	106	8.244	8.244	(1.075)	73518	19.8976	19.89
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	181326	20.6684	20.66
64 Styrene	104	8.258	8.265	(1.077)	122600	19.1455	19.14
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	135892	21.4002	21.40
56 Tetrachloroethene	164	6.933	6.933	(0.904)	39368	19.8352	19.83
50 Toluene	91	6.446	6.446	(0.840)	174227	19.5663	19.56
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	39671	17.4589	17.45
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	63462	18.5201	18.52
38 Trichloroethene	130	5.207	5.206	(1.048)	47636	19.2074	19.20
8 Trichlorofluoromethane	101	1.561	1.553	(0.373)	70379	17.5122	17.51
5 Vinyl Chloride	62	1.138	1.138	(0.272)	51194	14.7849	14.78

QC Flag Legend

M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051128.D Page 1
Report Date: 28-May-2020 16:12

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051128.D
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Inj Date : 12-MAY-2020 00:00
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
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Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 28 Continuing Calibration Sample
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Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	201789	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	298953	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	278465	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	139356	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	102550	50.0000	50.94
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	124600	50.0000	50.10
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	349458	50.0000	49.96
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	130988	50.0000	49.22
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	101471	50.0000	46.36
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	151103	50.0000	46.75
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	95085	50.0000	42.45
138 Freon TF	101	1.912	1.912	(0.457)	67511	50.0000	43.29
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	69080	50.0000	44.59
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	197190	50.0000	44.96
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	70154	50.0000	43.69
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	119855	50.0000	43.79
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	20537	50.0000	45.98
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	87857	50.0000	45.24(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	40962	50.0000	41.19
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	339513	50.0000	46.44
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	9957	50.0000	44.77
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	92783	50.0000	46.89

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051128.D Page 2
Report Date: 28-May-2020 16:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.992	9.992	(1.034)	176768	50.0000	45.53
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	151406	50.0000	48.64
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	108020	50.0000	44.39
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	331797	50.0000	46.11
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	198415	50.0000	46.72
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	146499	50.0000	45.49
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.002)	197647	50.0000	44.87
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	133014	50.0000	41.63
24 2-Butanone	43	3.573	3.573	(0.854)	85022	100.000	93.48
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	277854	50.0000	44.66
52 2-Hexanone	43	7.083	7.083	(0.923)	137994	100.000	80.13
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	323922	50.0000	45.17
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	332325	50.0000	45.40
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	206531	100.000	82.14
10 Acetone	43	1.969	1.969	(0.471)	52739	100.000	74.03
37 Benzene	78	4.512	4.512	(0.908)	350864	50.0000	45.91
74 Bromobenzene	156	8.810	8.810	(0.912)	120544	50.0000	46.13
29 Bromochloromethane	128	3.795	3.795	(0.908)	55293	50.0000	47.22
39 Bromodichloromethane	83	5.730	5.730	(1.153)	131639	50.0000	47.17
66 Bromoform	173	8.416	8.416	(1.097)	75725	50.0000	47.46
6 Bromomethane	94	1.339	1.339	(0.320)	67460	50.0000	45.38
19 Carbon Disulfide	76	2.069	2.069	(0.495)	486207	100.000	88.89
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	133431	50.0000	44.42
59 Chlorobenzene	112	7.692	7.692	(1.003)	252673	50.0000	45.79
7 Chloroethane	64	1.403	1.403	(0.336)	62717	50.0000	43.87
28 Chloroform	83	3.910	3.910	(0.935)	172558	50.0000	47.85
3 Chloromethane	50	1.074	1.074	(0.257)	131214	50.0000	41.36
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	101943	50.0000	47.88
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	152825	50.0000	46.76
55 Dibromochloromethane	129	7.176	7.176	(0.936)	106165	50.0000	47.10
44 Dibromomethane	93	5.550	5.550	(1.117)	60599	50.0000	45.91
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	98970	50.0000	42.16
61 Ethylbenzene	106	7.800	7.800	(1.017)	133425	50.0000	46.07
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	32657	50.0000	43.05
67 Isopropylbenzene	105	8.566	8.566	(1.117)	394721	50.0000	45.45
62 m,p-Xylenes	106	7.907	7.907	(1.031)	321277	100.000	91.41
17 Methylene Chloride	84	2.306	2.306	(0.551)	94484	50.0000	47.52
87 n-Butylbenzene	91	9.999	9.999	(1.035)	264482	50.0000	44.78
73 n-Propylbenzene	91	8.917	8.917	(0.923)	446013	50.0000	44.51
92 Naphthalene	128	11.546	11.546	(1.195)	57033	50.0000	43.47
63 o-Xylene	106	8.244	8.244	(1.075)	158010	50.0000	46.20
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	365924	50.0000	43.35
64 Styrene	104	8.258	8.258	(1.077)	280646	50.0000	47.35
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	279745	50.0000	45.78
56 Tetrachloroethene	164	6.933	6.933	(0.904)	81042	50.0000	44.11
50 Toluene	91	6.446	6.446	(0.840)	374061	50.0000	45.38
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	87418	50.0000	47.62
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	139053	50.0000	46.91
38 Trichloroethene	130	5.207	5.207	(1.048)	100001	50.0000	46.61
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	146542	50.0000	45.13
5 Vinyl Chloride	62	1.138	1.138	(0.272)	117266	50.0000	41.92

QC Flag Legend

M - Compound response manually integrated.

HS20050292 Wet Chem Raw Data (IC)

ALS WO# HS20050292

Sequence: 050820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume [ul]	Status
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Program 02052020.1	Anions P	5.0	Finished
	STD2	NEW PRGM	Calibration	GA2	1.0000	2	Anions Program 02052020.1	Anions P	5.0	Finished
	STD3		Calibration	GA3	1.0000	3	Anions Program 02052020.1	Anions P	5.0	Finished
	STD4		Calibration	GA4	1.0000	4	Anions Program 02052020.1	Anions P	5.0	Finished
	STD5	NO2/PO4	Calibration	GA5	1.0000	5	Anions Program 02052020.1	Anions P	5.0	Finished
	STD6	MAX 10PPM	Calibration	GA6	1.0000	6	Anions Program 02052020.1	Anions P	5.0	Finished
	ICV	2970209123	Unknown	GA7	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	ICB		Unknown	GA8	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	CCV		Unknown	RA2	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	CCB		Unknown	RA3	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	WBLKW1-050820	9056_w Batch #1	Unknown	RB1	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	WLCSW1-05020		Unknown	RB2	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	WLCSDW1-050820		Unknown	RB3	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	HS20050292-01	CL, NO3, SO4	Unknown	GD2	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	HS20050292-01DF5	CL, NO3, SO4	Unknown	GD3	5.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	HS20050292-06	CL, NO3, SO4	Unknown	GD4	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	HS20050292-06DF5	CL, NO3, SO4	Unknown	GD5	5.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	HS20050292-06MSDF5		Unknown	GD6	5.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	HS20050292-06MSDDF5		Unknown	GD7	5.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	CCV1		Unknown	RA4	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished
	CCB		Unknown	RA5	1.0000		Anions Program 02052020.1	Anions P	5.0	Finished

Sequence: 050820
Last Update Operator: alshs.nouser

Inject Time
2/5/2020 7:39:11 PM -06:00
2/5/2020 7:57:16 PM -06:00
2/5/2020 8:15:24 PM -06:00
2/5/2020 8:33:31 PM -06:00
2/5/2020 8:51:36 PM -06:00
2/5/2020 9:09:41 PM -06:00
2/5/2020 9:27:48 PM -06:00
2/5/2020 9:45:53 PM -06:00
5/8/2020 1:10:41 PM -05:00
5/8/2020 1:28:49 PM -05:00
5/8/2020 1:46:55 PM -05:00
5/8/2020 2:04:59 PM -05:00
5/8/2020 2:23:04 PM -05:00
5/8/2020 2:41:17 PM -05:00
5/8/2020 2:59:22 PM -05:00
5/8/2020 3:17:27 PM -05:00
5/8/2020 3:35:38 PM -05:00
5/8/2020 3:53:45 PM -05:00
5/8/2020 4:11:51 PM -05:00
5/8/2020 4:30:01 PM -05:00
5/8/2020 4:48:06 PM -05:00

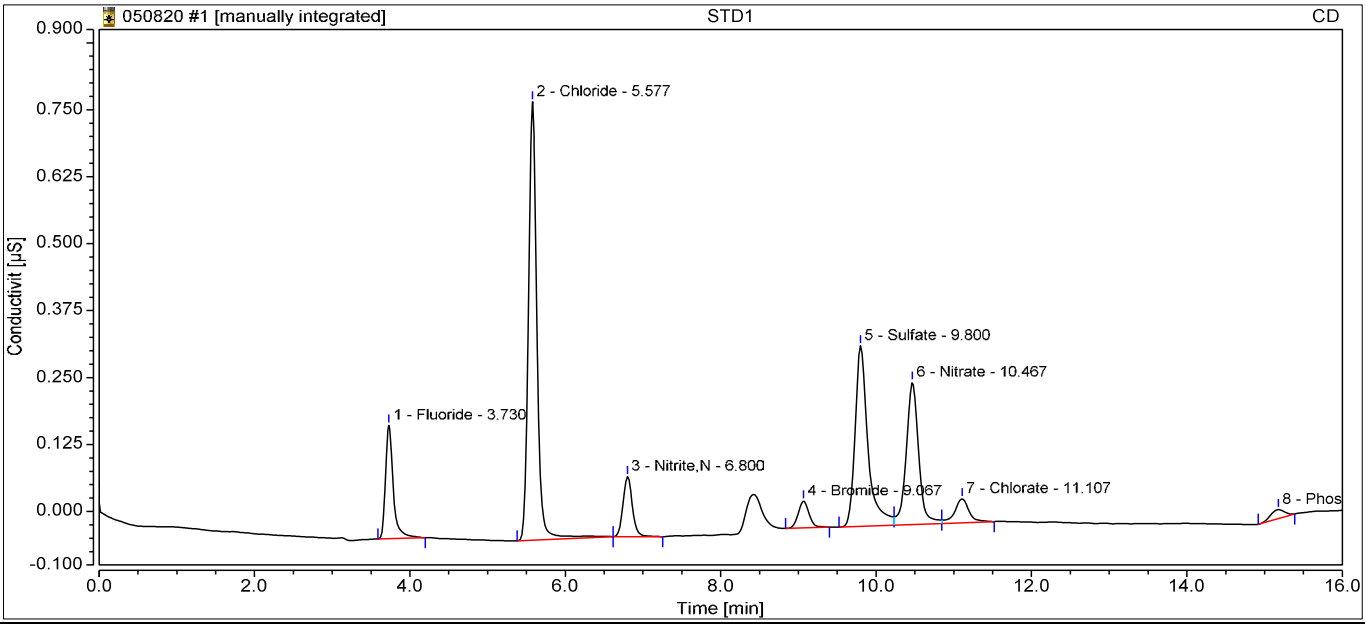
Sequence: 042320
Injection #6: STD6

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*	*13.4314*	*0.99915*	*-0.0083*	*0.3414*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	2.2020	0.99998	-0.0141	0.2320	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	19.9747	0.99771	-0.0251	0.4962	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	12.1436	0.99933	-0.0033	0.0991	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	4.2312	0.99991	-0.0170	0.1679	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.3081	0.99997	-0.0076	0.5843	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	9.7729	0.99945	0.0017	0.0949	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	5	18.6678	0.99857	-0.0214	0.2119	0.0000
Maximum					**19.9747**	0.99998			
Minimum					2.2020	**0.99771**			

1 STD1			
Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:39**	*Sample Weight:*	**1.0000**

Run Time:



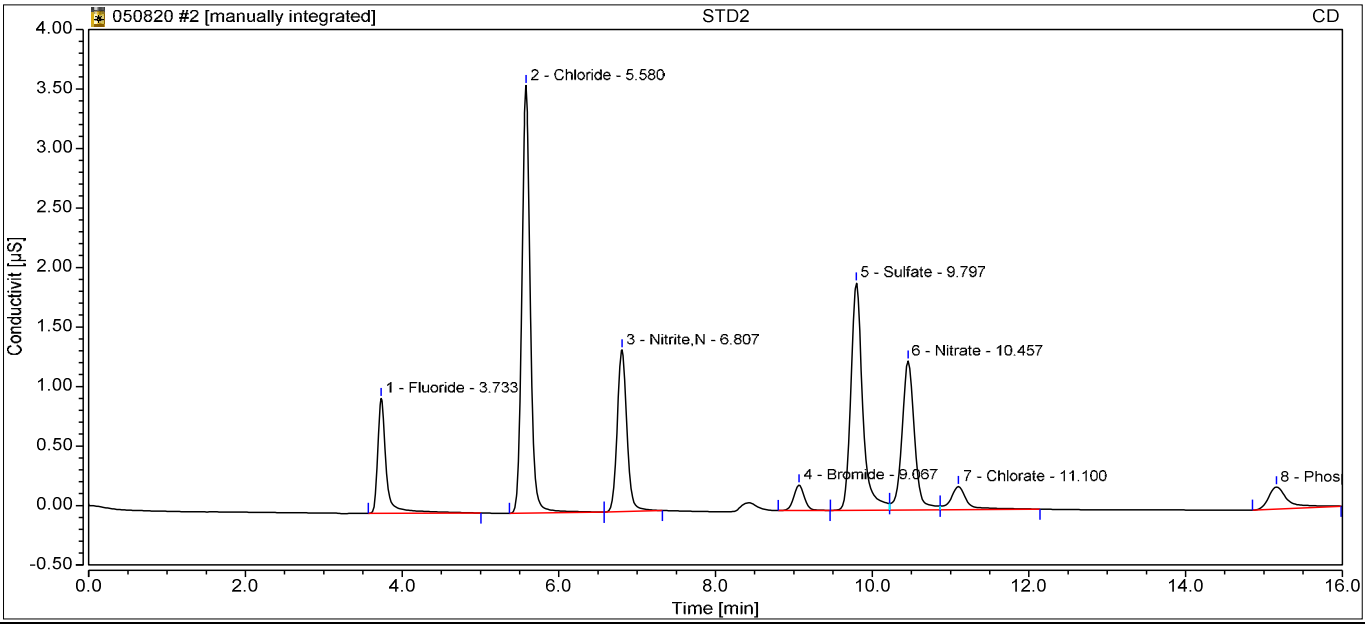
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.024	0.0955	0.0955	1.0000
2	5.58	Chloride	BMB	0.103	0.5065	0.5065	1.0000
3	6.80	Nitrite,N	BMB	0.016	0.0673	0.0673	1.0000
4	9.07	Bromide	BMB	0.008	0.1156	0.1156	1.0000
5	9.80	Sulfate	BM	0.065	0.4885	0.4885	1.0000
6	10.47	Nitrate	M	0.049	0.0974	0.0974	1.0000
7	11.11	Chlorate	MB	0.010	0.0834	0.0834	1.0000
8	15.18	Phosphate	BMB*	0.003	0.1235	0.1235	1.0000
Total:			**0.000**	**0.279**		**1.58**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:57**	*Sample Weight:*	**1.0000**

Run Time:



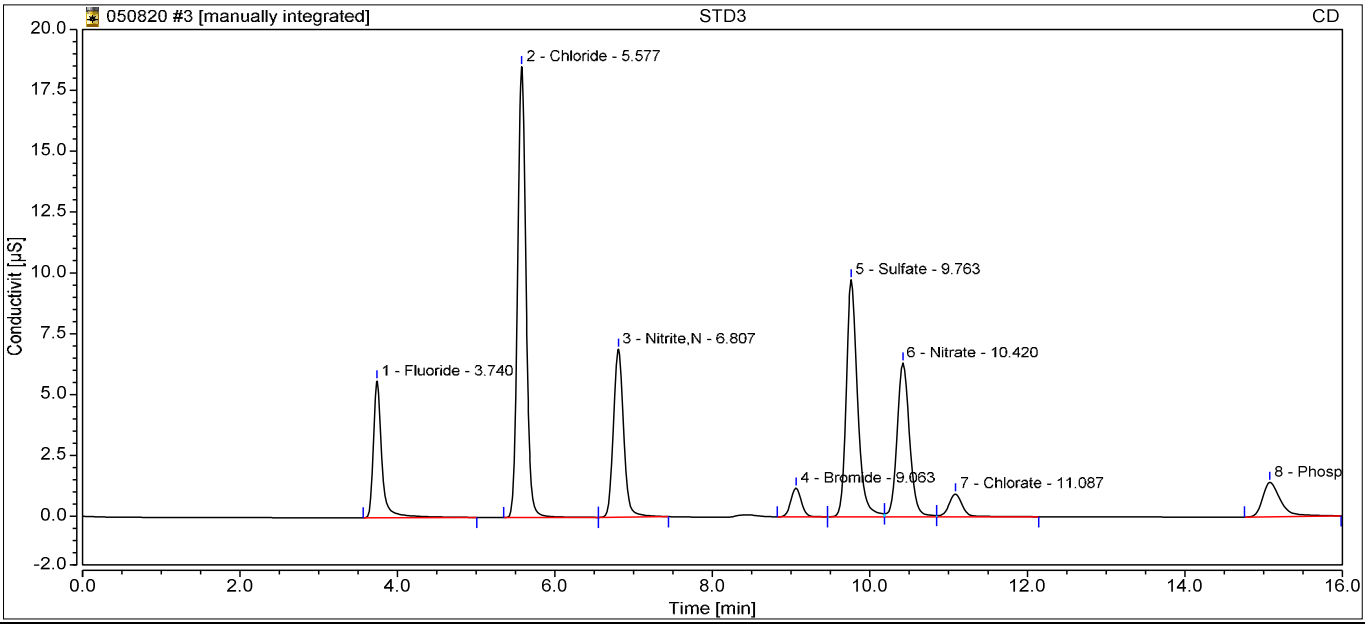
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.123	0.3833	0.3833	1.0000
2	5.58	Chloride	BMb*	0.449	1.9963	1.9963	1.0000
3	6.81	Nitrite,N	bMB*	0.194	0.4500	0.4500	1.0000
4	9.07	Bromide	BMB	0.034	0.3722	0.3722	1.0000
5	9.80	Sulfate	BM	0.335	2.0973	2.0973	1.0000
6	10.46	Nitrate	M	0.232	0.4103	0.4103	1.0000
7	11.10	Chlorate	MB	0.047	0.4759	0.4759	1.0000
8	15.16	Phosphate	BMB	0.053	0.3508	0.3508	1.0000
Total:			**0.000**	**1.467**		**6.54**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:15**	*Sample Weight:*	**1.0000**

Run Time:



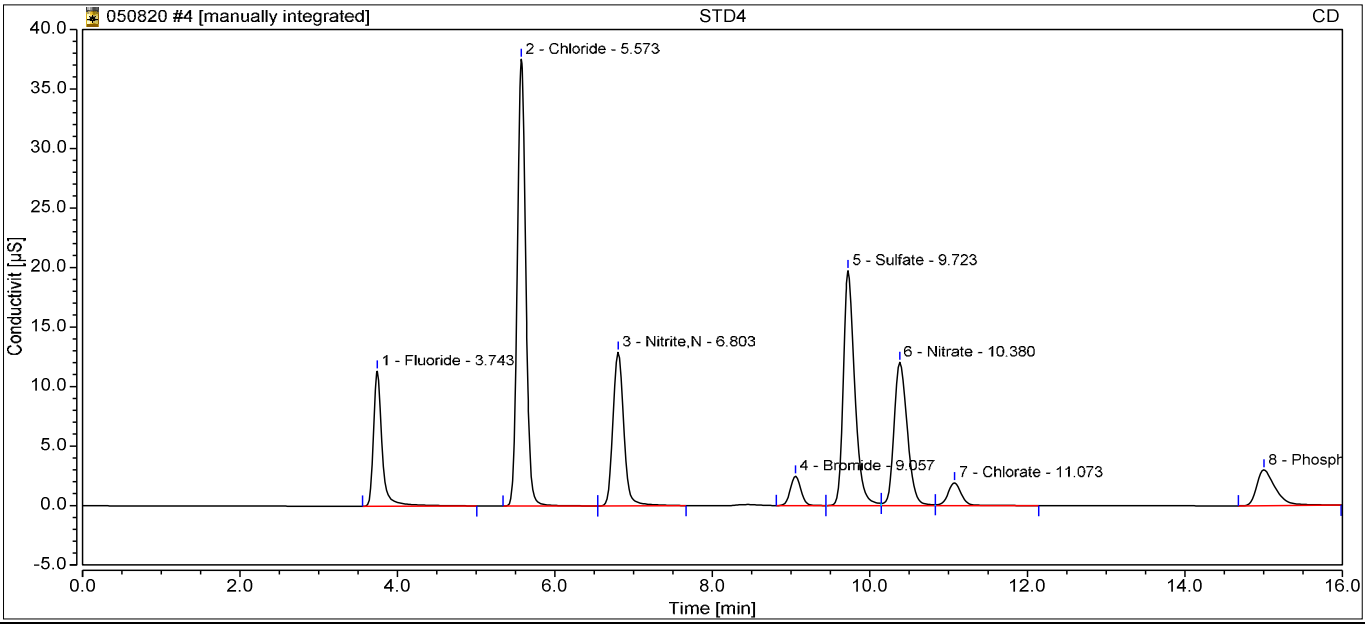
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.701	2.0769	2.0769	1.0000
2	5.58	Chloride	BMb*	2.284	9.9073	9.9073	1.0000
3	6.81	Nitrite,N	bMB*	1.029	2.2369	2.2369	1.0000
4	9.06	Bromide	BM	0.182	1.8657	1.8657	1.0000
5	9.76	Sulfate	M	1.624	9.7730	9.7730	1.0000
6	10.42	Nitrate	M	1.160	1.9980	1.9980	1.0000
7	11.09	Chlorate	MB	0.189	1.9689	1.9689	1.0000
8	15.08	Phosphate	BMB	0.374	1.8187	1.8187	1.0000
Total:			**0.000**	**7.542**		**31.65**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:33**	*Sample Weight:*	**1.0000**

Run Time:



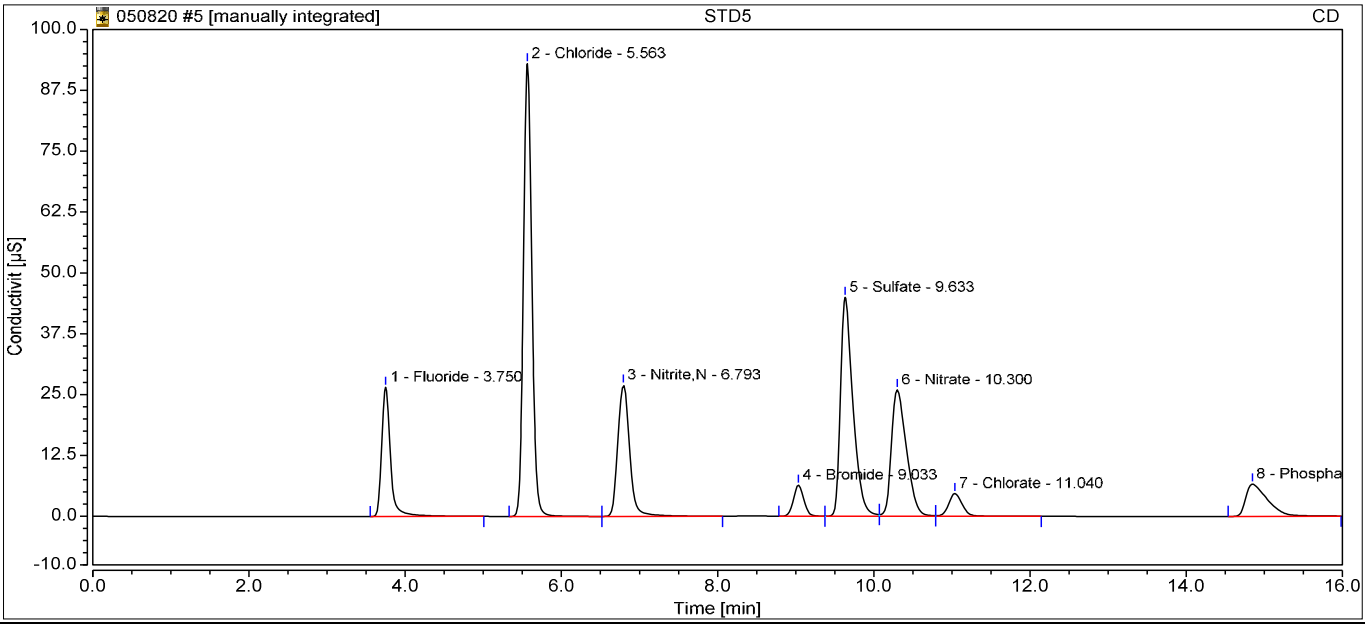
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.428	4.2080	4.2080	1.0000
2	5.57	Chloride	BMb*	4.627	20.0069	20.0069	1.0000
3	6.80	Nitrite,N	bMB*	2.046	4.4146	4.4146	1.0000
4	9.06	Bromide	BM	0.382	3.8871	3.8871	1.0000
5	9.72	Sulfate	M	3.337	19.9713	19.9713	1.0000
6	10.38	Nitrate	M	2.343	4.0228	4.0228	1.0000
7	11.07	Chlorate	MB	0.380	3.9830	3.9830	1.0000
8	15.00	Phosphate	BMB	0.824	3.8745	3.8745	1.0000
Total:			**0.000**	**15.366**		**64.37**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:51**	*Sample Weight:*	**1.0000**

Run Time:



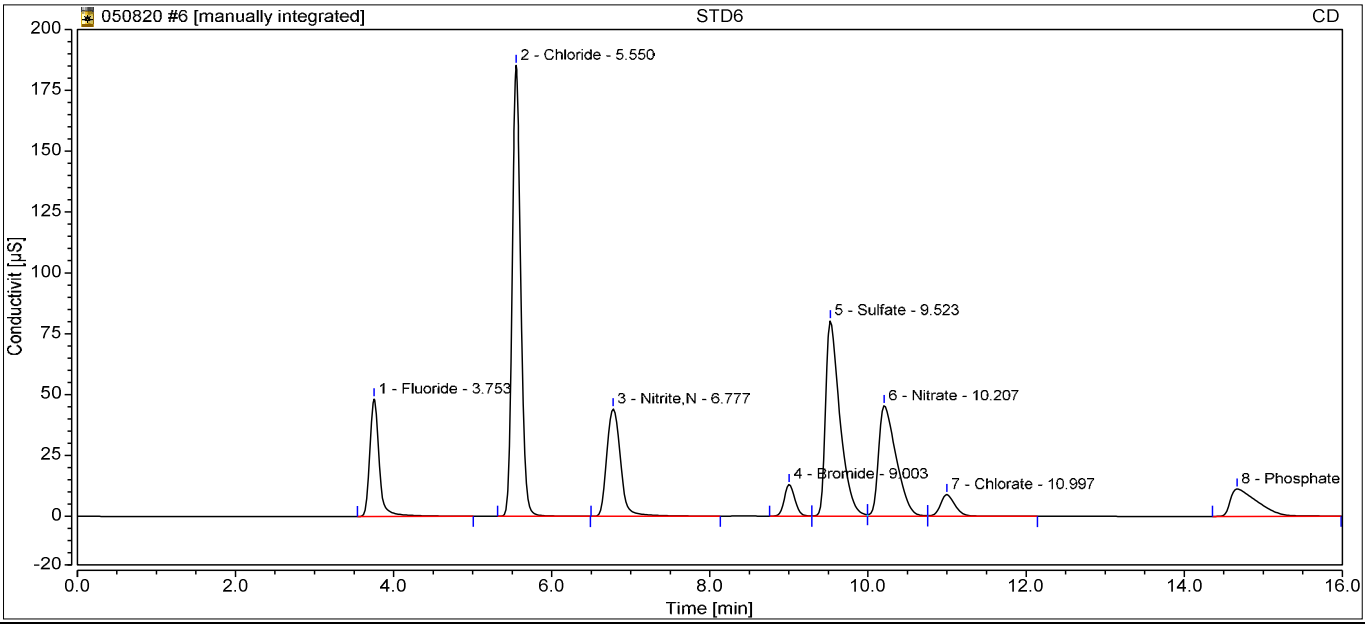
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.472	10.1940	10.1940	1.0000
2	5.56	Chloride	BMB	11.516	49.7057	49.7057	1.0000
3	6.79	Nitrite,N	BMB*	4.776	10.2593	10.2593	1.0000
4	9.03	Bromide	BM	0.981	9.9279	9.9279	1.0000
5	9.63	Sulfate	M	8.325	49.6811	49.6811	1.0000
6	10.30	Nitrate	M	5.799	9.9382	9.9382	1.0000
7	11.04	Chlorate	MB	0.944	9.9252	9.9252	1.0000
8	14.85	Phosphate	BMB	2.135	9.8737	9.8737	1.0000
Total:			**0.000**	**37.949**		**159.51**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:09**	*Sample Weight:*	**1.0000**

Run Time:



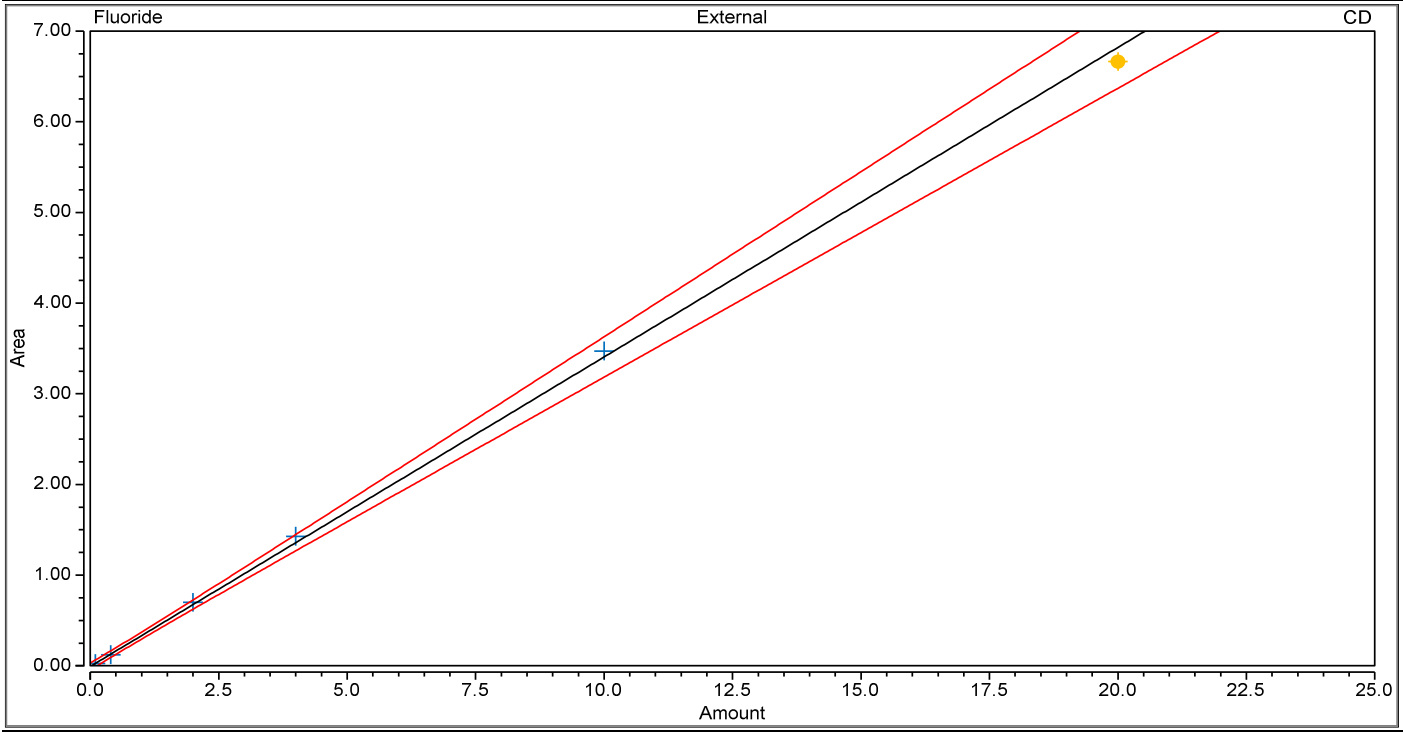
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	6.664	19.5424	19.5424	1.0000
2	5.55	Chloride	BMB	23.270	100.3774	100.3774	1.0000
3	6.78	Nitrite,N	BMB*	8.893	19.0718	19.0718	1.0000
4	9.00	Bromide	BM	2.012	20.3316	20.3316	1.0000
5	9.52	Sulfate	M	16.857	100.4888	100.4888	1.0000
6	10.21	Nitrate	M	11.698	20.0333	20.0333	1.0000
7	11.00	Chlorate	MB	1.906	20.0635	20.0635	1.0000
8	14.67	Phosphate	BMB	4.450	20.4589	20.4589	1.0000
Total:			**0.000**	**75.750**		**320.37**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0083
Evaluation Type	Area	*Slope (C1)*	0.3414
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**



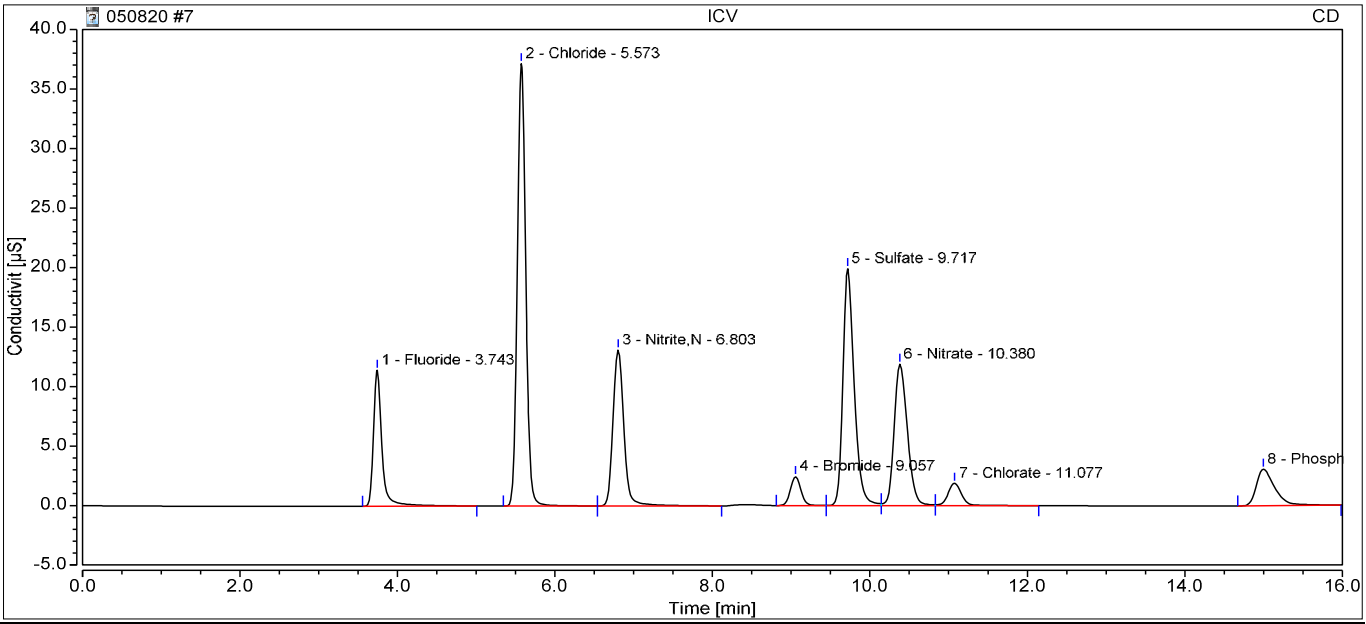
Calibration Results **Fluoride**

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	0.0243	0.0243	0.024	0.212
2	STD2	2	0.4000	0.1226	0.1226	0.123	0.964
3	STD3	3	2.0000	0.7008	0.7008	0.701	5.614
4	STD4	4	4.0000	1.4284	1.4284	1.428	11.345
5	STD5	5	10.0000	3.4723	3.4723	3.472	26.547
6	STD6	6	20.0000	6.6641	6.6641	6.664	48.233

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:27**	*Sample Weight:*	**1.0000**

Run Time:



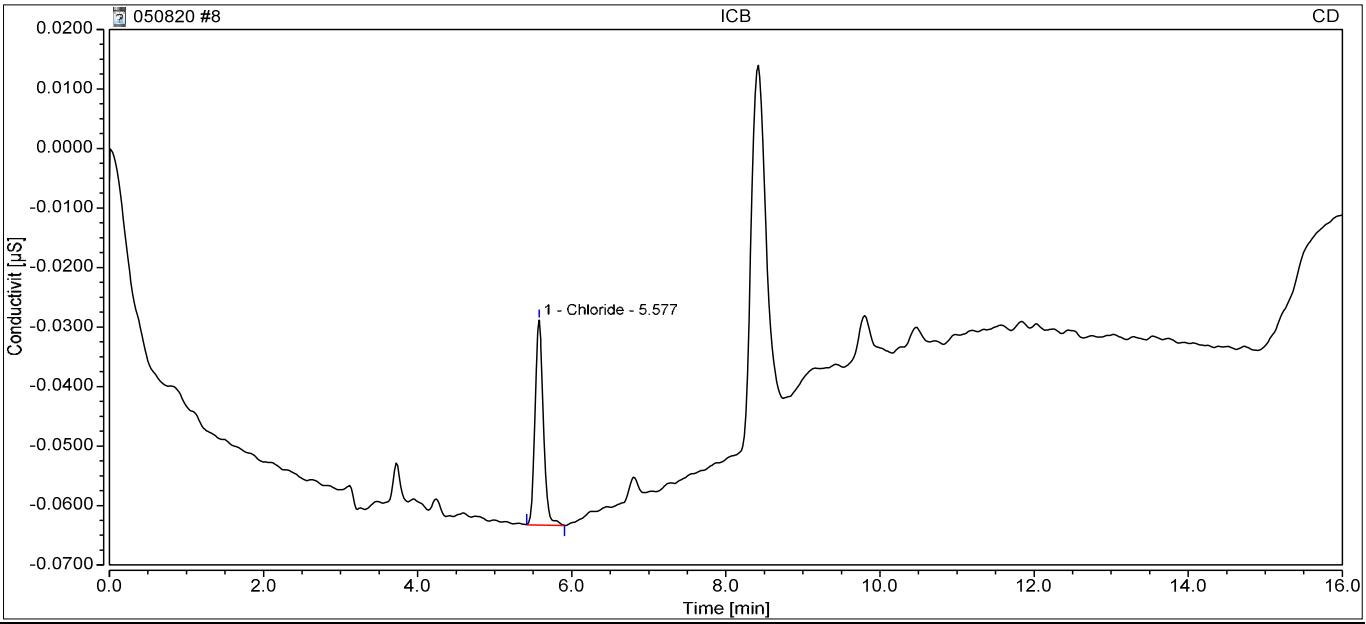
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.412	4.1607	4.1607	1.0000
2	5.57	Chloride	BMB	4.570	19.7627	19.7627	1.0000
3	6.80	Nitrite,N	BMB	2.081	4.4887	4.4887	1.0000
4	9.06	Bromide	BM	0.374	3.8104	3.8104	1.0000
5	9.72	Sulfate	M	3.327	19.9126	19.9126	1.0000
6	10.38	Nitrate	M	2.299	3.9478	3.9478	1.0000
7	11.08	Chlorate	MB	0.379	3.9799	3.9799	1.0000
8	15.00	Phosphate	BMB	0.835	3.9271	3.9271	1.0000
Total:			**0.000**	**15.278**		**63.99**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:45**	*Sample Weight:*	**1.0000**

Run Time:



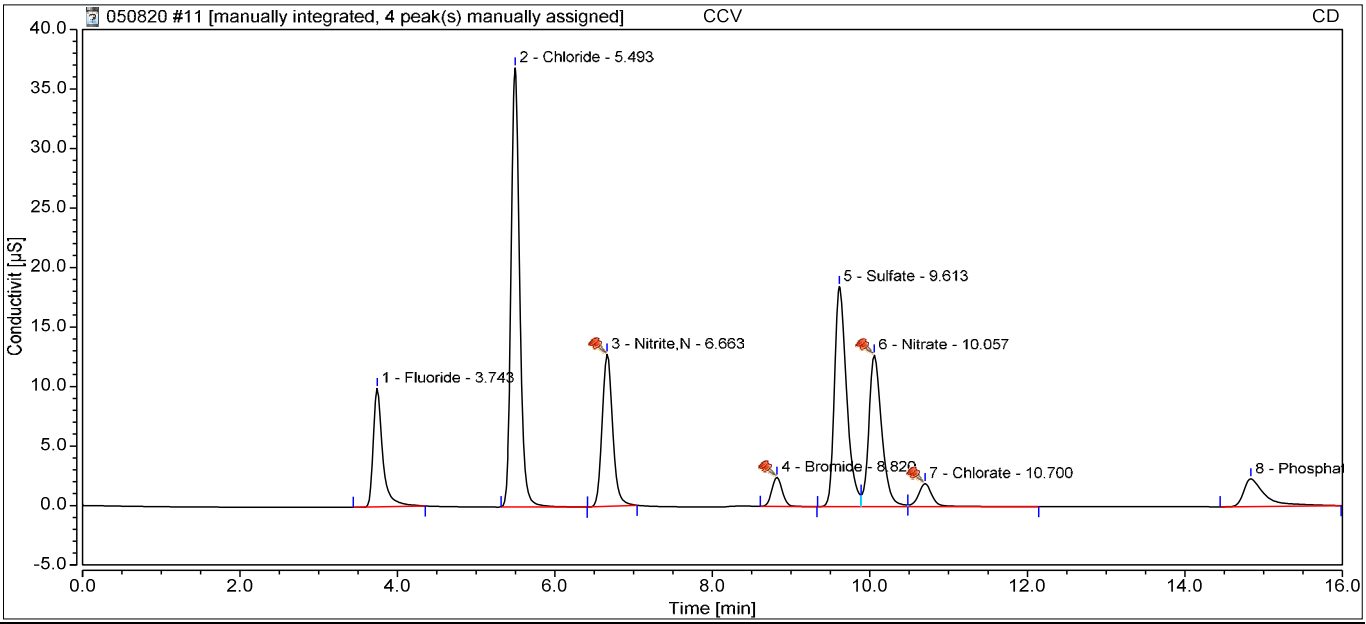
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.58	Chloride	BMB	0.004	0.0794	0.0794	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**	**0.004**		**0.08**	

11 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 13:10**	*Sample Weight:*	**1.0000**

Run Time:



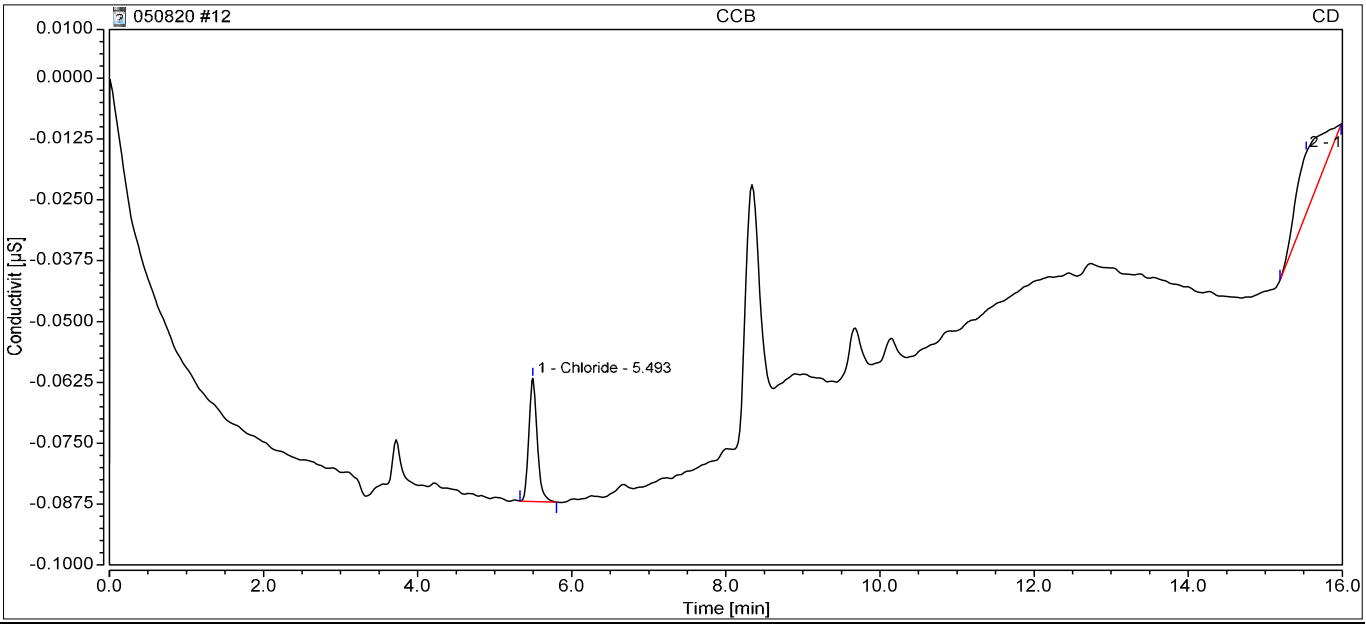
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB*	1.377	4.0565	4.0565	1.0000
2	5.49	Chloride	BMB	4.633	20.0345	20.0345	1.0000
3	6.66	Nitrite,N	BMB*^	1.993	4.3012	4.3012	1.0000
4	8.82	Bromide	BMB^	0.378	3.8513	3.8513	1.0000
5	9.61	Sulfate	BM	3.301	19.7605	19.7605	1.0000
6	10.06	Nitrate	M ^	2.417	4.1501	4.1501	1.0000
7	10.70	Chlorate	MB^	0.394	4.1314	4.1314	1.0000
8	14.84	Phosphate	BMB*	0.737	3.4763	3.4763	1.0000
Total:			**0.000**	**15.230**		**63.76**	

12 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 13:28**	*Sample Weight:*	**1.0000**

Run Time:



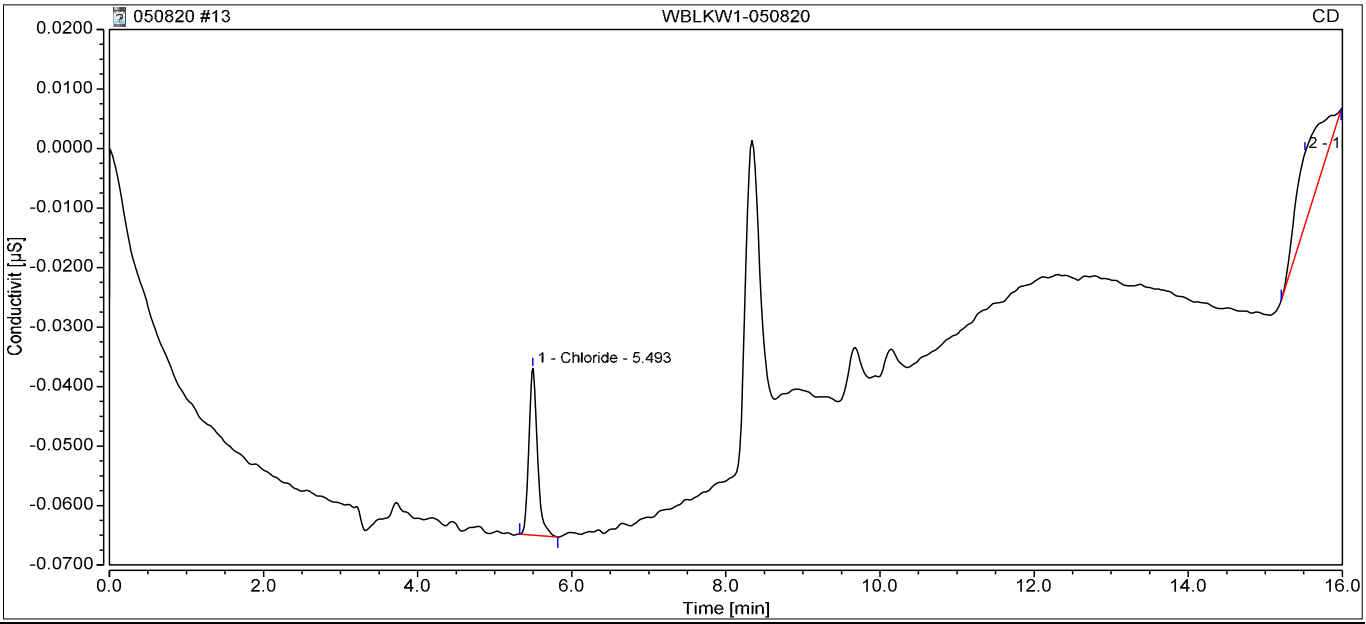
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.49	Chloride	BMB	0.003	0.0748	0.0748	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**	**0.003**		**0.07**	

13 WBLKW1-050820

Sample Name:	**WBLKW1-050820**	*Injection Volume:*	**5.00**
Vial Number:	**RB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 13:46**	*Sample Weight:*	**1.0000**

Run Time:



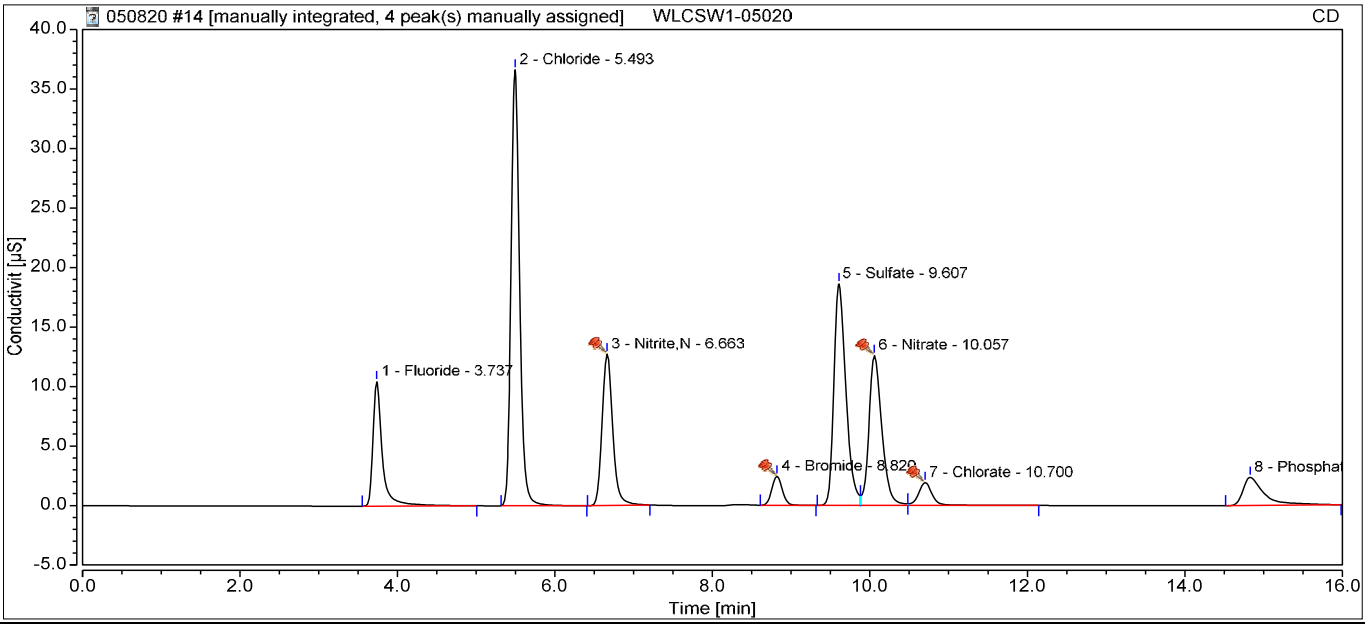
Integration Results

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	5.49	Chloride	BMB	0.004	0.0766	0.0766	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**	**0.004**		**0.08**	

14 WLCSW1-05020

Sample Name:	**WLCSW1-05020**	*Injection Volume:*	**5.00**
Vial Number:	**RB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 14:04**	*Sample Weight:*	**1.0000**

Run Time:



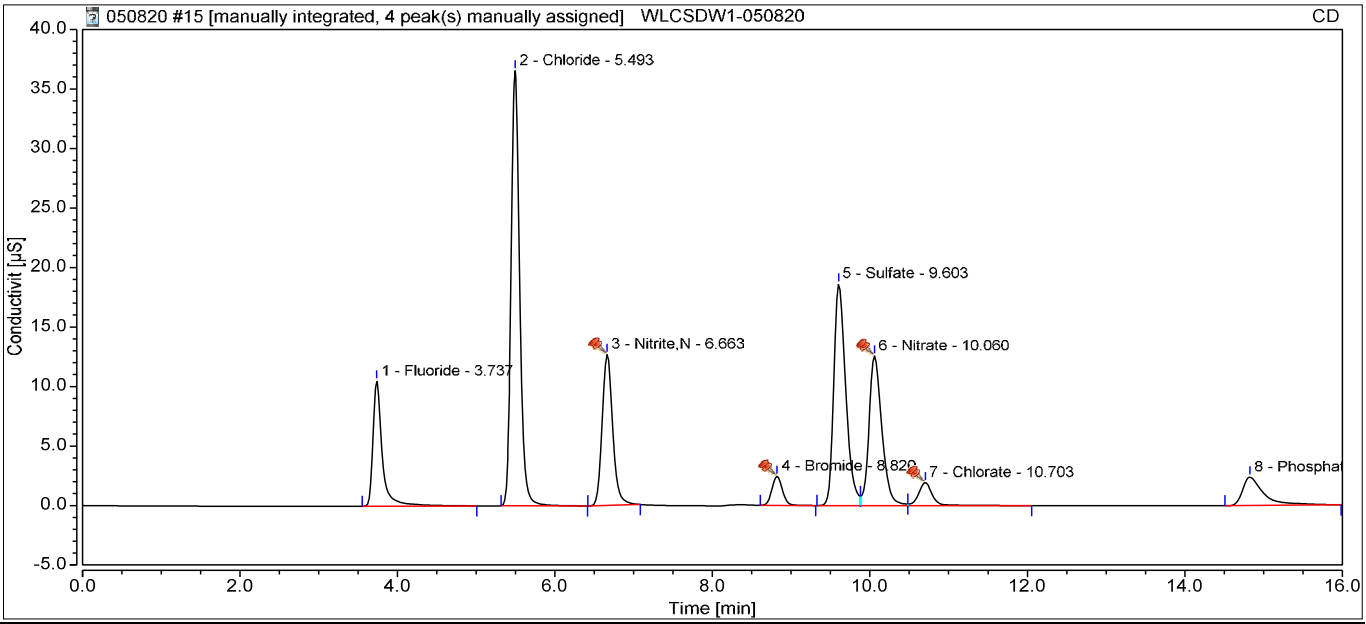
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.437	4.2340	4.2340	1.0000
2	5.49	Chloride	BMB	4.586	19.8328	19.8328	1.0000
3	6.66	Nitrite,N	BMB*^	2.014	4.3464	4.3464	1.0000
4	8.82	Bromide	BMB^	0.376	3.8218	3.8218	1.0000
5	9.61	Sulfate	BM	3.278	19.6230	19.6230	1.0000
6	10.06	Nitrate	M ^	2.391	4.1047	4.1047	1.0000
7	10.70	Chlorate	MB^	0.393	4.1181	4.1181	1.0000
8	14.83	Phosphate	BMB	0.741	3.4978	3.4978	1.0000
Total:			**0.000**	**15.216**		**63.58**	

15 WLCSDW1-050820

Sample Name:	**WLCSDW1-050820**	*Injection Volume:*	**5.00**
Vial Number:	**RB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 14:23**	*Sample Weight:*	**1.0000**

Run Time:



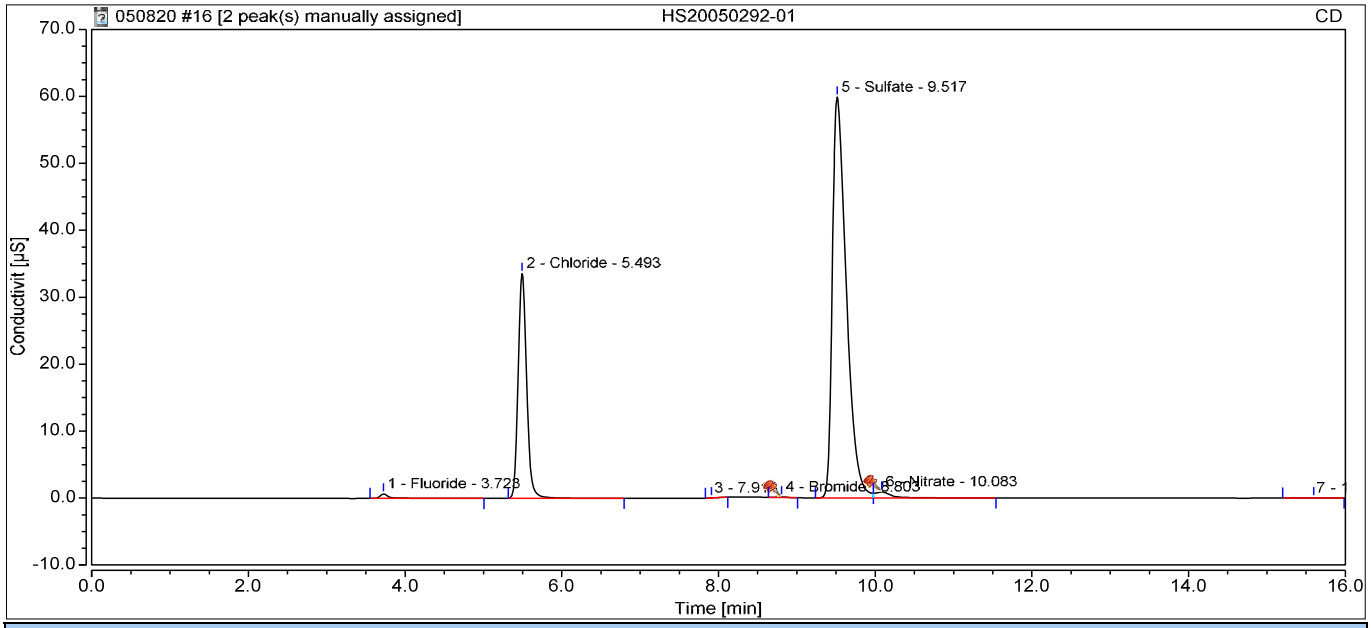
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.434	4.2228	4.2228	1.0000
2	5.49	Chloride	BMB	4.579	19.8008	19.8008	1.0000
3	6.66	Nitrite,N	BMB*^	1.984	4.2807	4.2807	1.0000
4	8.82	Bromide	BMB^	0.374	3.8065	3.8065	1.0000
5	9.60	Sulfate	BM	3.271	19.5793	19.5793	1.0000
6	10.06	Nitrate	M ^	2.378	4.0829	4.0829	1.0000
7	10.70	Chlorate	MB^	0.387	4.0630	4.0630	1.0000
8	14.83	Phosphate	BMB	0.750	3.5390	3.5390	1.0000
Total:			**0.000**	**15.157**		**63.38**	

16 HS20050292-01

Sample Name:	**HS20050292-01**	*Injection Volume:*	**5.00**
Vial Number:	**GD2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 14:41**	*Sample Weight:*	**1.0000**

Run Time:



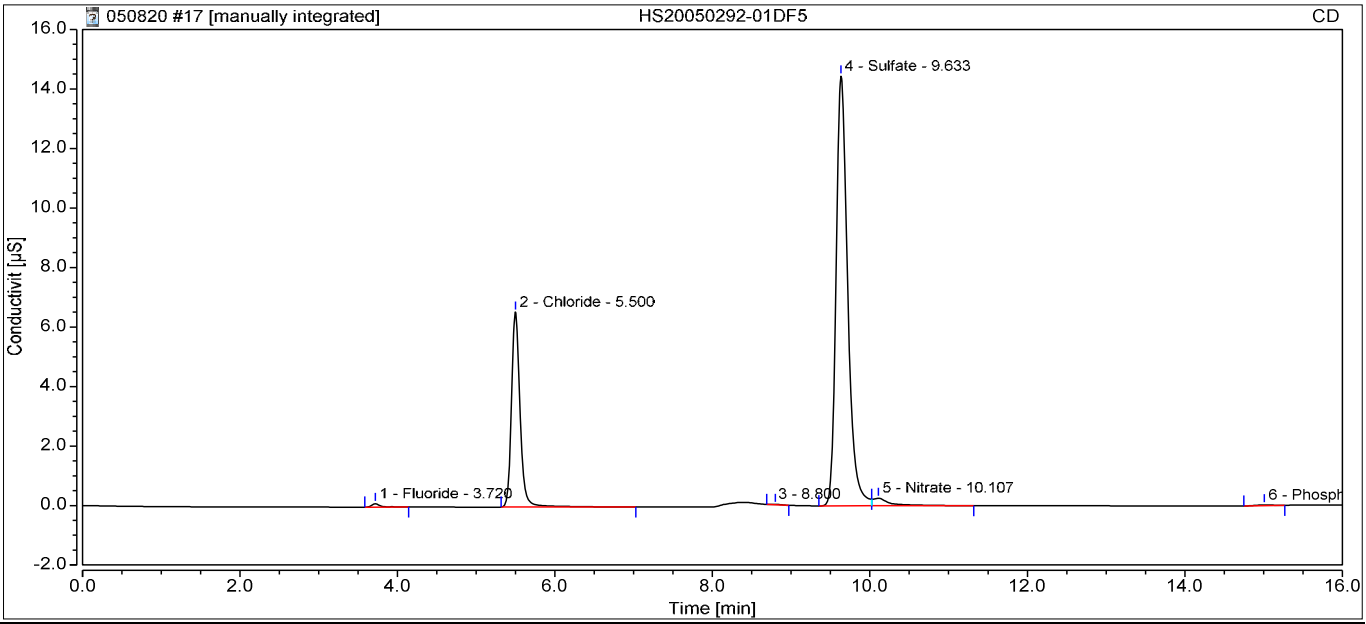
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.101	0.3209	0.3209	1.0000
2	5.49	Chloride	BMB	4.172	18.0468	18.0468	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.80	Bromide	BMB^	0.013	0.1685	0.1685	1.0000
5	9.52	Sulfate	BM	12.366	73.7427	73.7427	1.0000
6	10.08	Nitrate	MB^	0.223	0.3941	0.3941	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**	**16.875**		**92.67**	

17 HS20050292-01DF5

Sample Name:	**HS20050292-01DF5**	*Injection Volume:*	**5.00**
Vial Number:	**GD3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**05/08/2020 14:59**	*Sample Weight:*	**1.0000**

Run Time:



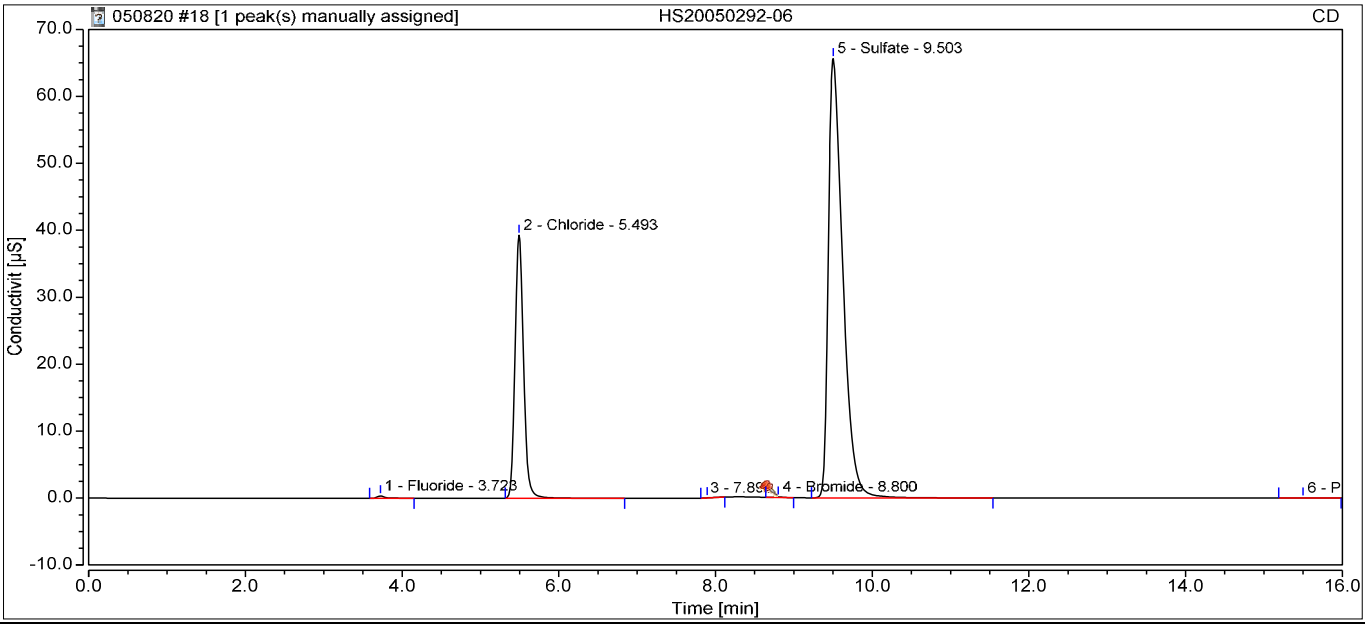
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.014	0.0646	0.3228	5.0000
2	5.50	Chloride	BMB	0.825	3.6196	18.0979	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	5.0000
4	9.63	Sulfate	BM *	2.458	14.7364	73.6821	5.0000
5	10.11	Nitrate	MB*	0.067	0.1272	0.6358	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
6	15.01	Phosphate	BMB	0.006	0.1334	0.6670	5.0000
Total:			**0.000**	**3.369**		**93.41**	

18 HS20050292-06

Sample Name:	**HS20050292-06**	*Injection Volume:*	**5.00**
Vial Number:	**GD4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 15:17**	*Sample Weight:*	**1.0000**

Run Time:



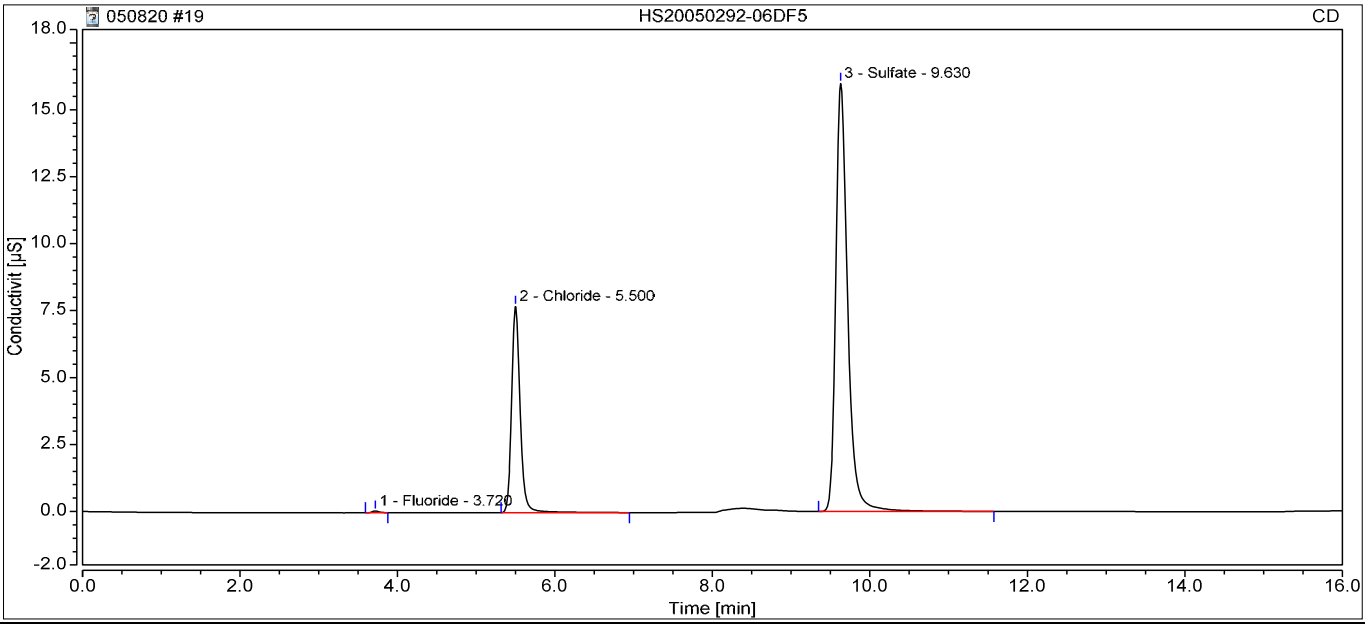
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.044	0.1523	0.1523	1.0000
2	5.49	Chloride	BMB	4.886	21.1224	21.1224	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.80	Bromide	BMB^	0.010	0.1349	0.1349	1.0000
5	9.50	Sulfate	BMB	14.057	83.8168	83.8168	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
6	15.50	Phosphate	BMB	0.006	0.1370	0.1370	1.0000
Total:			**0.000**	**19.003**		**105.36**	

19 HS20050292-06DF5

Sample Name:	**HS20050292-06DF5**	*Injection Volume:*	**5.00**
Vial Number:	**GD5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**05/08/2020 15:35**	*Sample Weight:*	**1.0000**

Run Time:



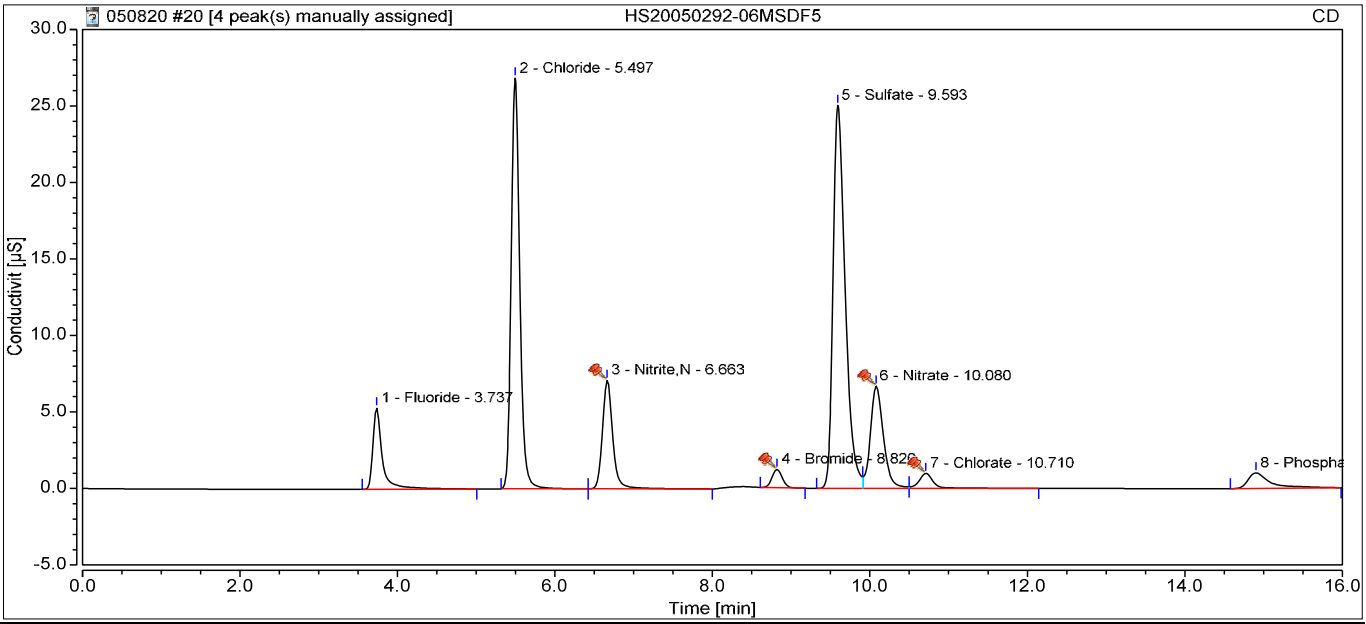
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.006	0.0424	0.2119	5.0000
2	5.50	Chloride	BMB	0.967	4.2315	21.1573	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	5.0000
3	9.63	Sulfate	BMB	2.790	16.7140	83.5700	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**	**3.763**		**104.94**	

20 HS20050292-06MSDF5

Sample Name:	**HS20050292-06MSDF5**	*Injection Volume:*	**5.00**
Vial Number:	**GD6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**05/08/2020 15:53**	*Sample Weight:*	**1.0000**

Run Time:



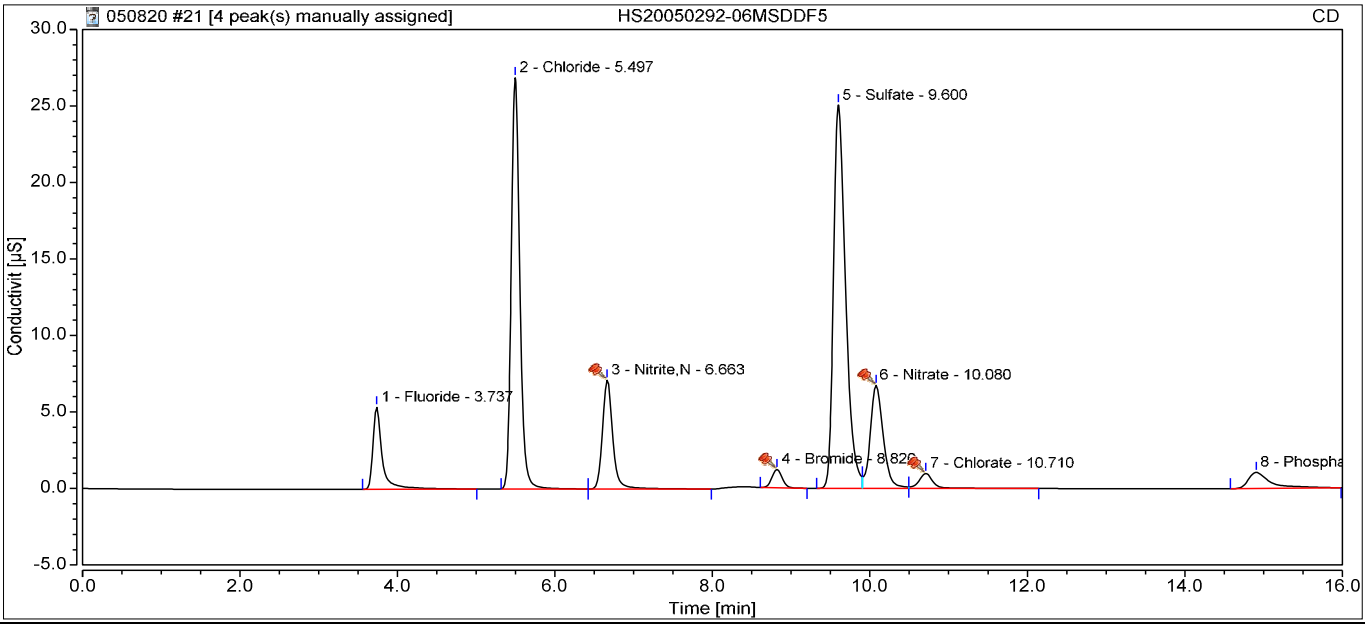
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.741	2.1944	10.9720	5.0000
2	5.50	Chloride	BMB	3.352	14.5127	72.5634	5.0000
3	6.66	Nitrite,N	BMB^	1.089	2.3661	11.8304	5.0000
4	8.82	Bromide	BMB^	0.180	1.8494	9.2469	5.0000
5	9.59	Sulfate	BM	4.443	26.5615	132.8074	5.0000
6	10.08	Nitrate	M ^	1.276	2.1974	10.9871	5.0000
7	10.71	Chlorate	MB^	0.207	2.1651	10.8253	5.0000
8	14.90	Phosphate	BMB	0.336	1.6462	8.2309	5.0000
Total:			**0.000**	**11.626**		**267.46**	

21 HS20050292-06MSDDF5

Sample Name:	**HS20050292-06MSDDF5**	*Injection Volume:*	**5.00**
Vial Number:	**GD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**05/08/2020 16:11**	*Sample Weight:*	**1.0000**

Run Time:

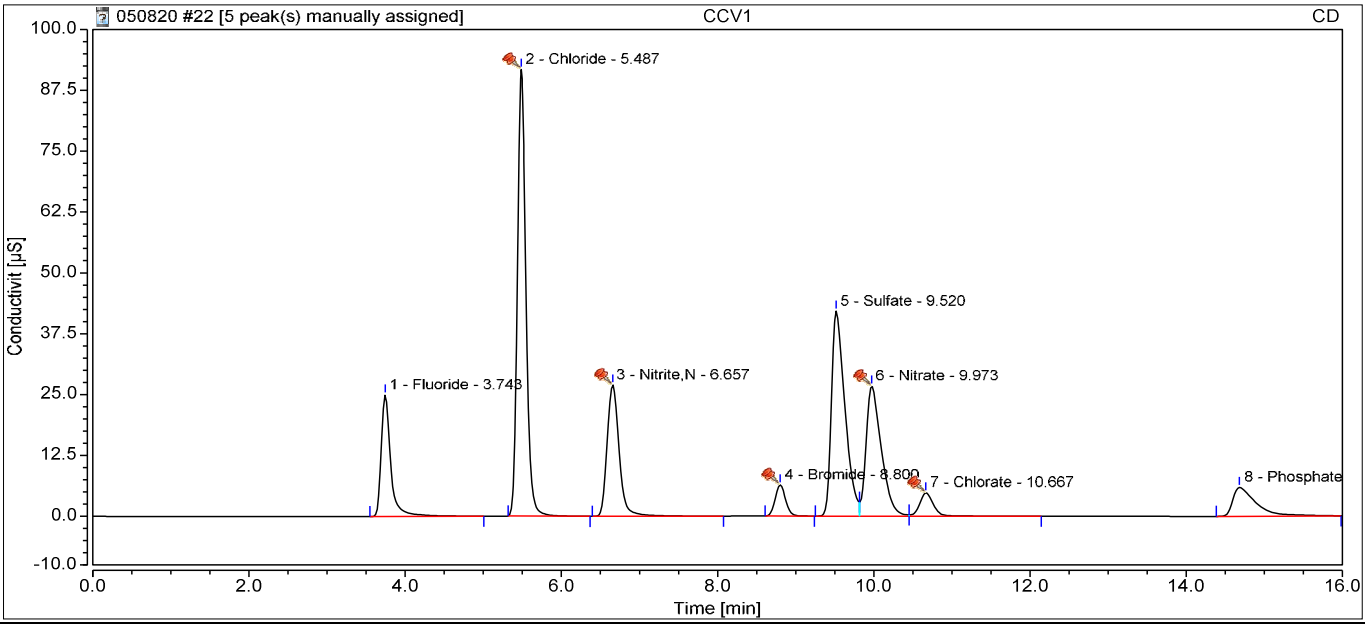


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.742	2.1983	10.9913	5.0000
2	5.50	Chloride	BMB	3.359	14.5429	72.7147	5.0000
3	6.66	Nitrite,N	BMB^	1.090	2.3685	11.8427	5.0000
4	8.82	Bromide	BMB^	0.180	1.8465	9.2324	5.0000
5	9.60	Sulfate	BM	4.453	26.6196	133.0978	5.0000
6	10.08	Nitrate	M ^	1.280	2.2043	11.0213	5.0000
7	10.71	Chlorate	MB^	0.207	2.1661	10.8304	5.0000
8	14.91	Phosphate	BMB	0.347	1.6947	8.4737	5.0000
Total:			**0.000**	**11.659**		**268.20**	

22 CCV1			
Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 16:30**	*Sample Weight:*	**1.0000**

Run Time:



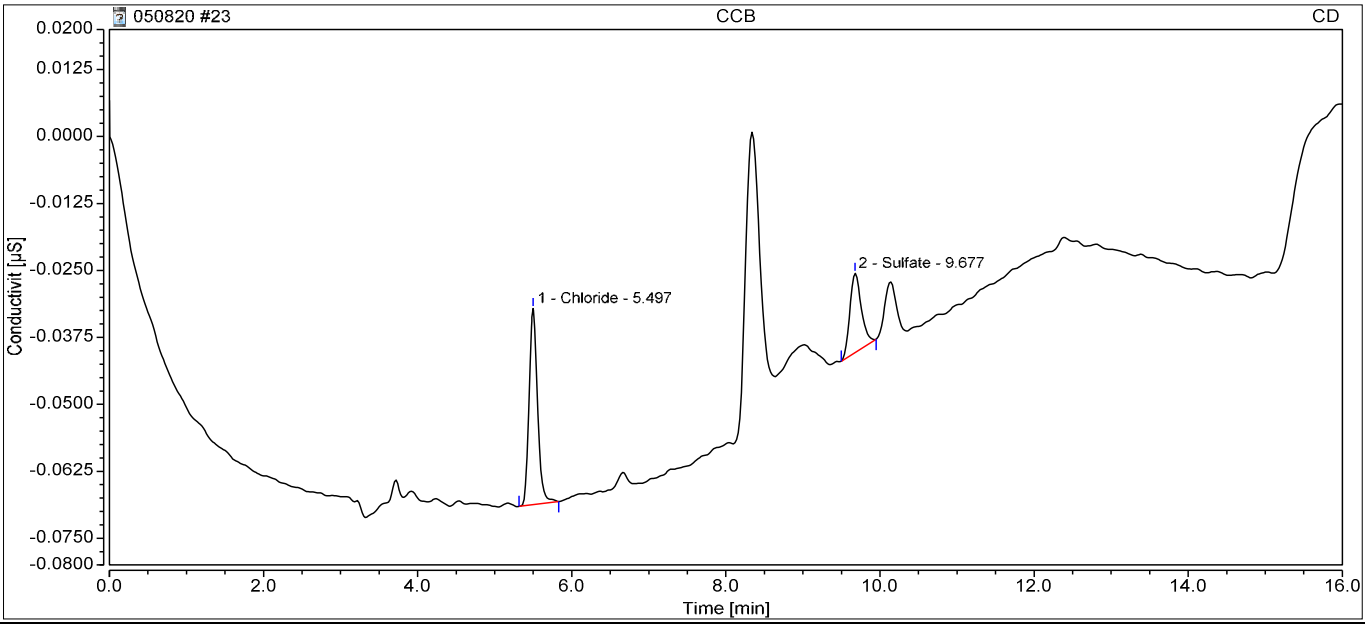
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.537	10.3833	10.3833	1.0000
2	5.49	Chloride	BMB^	11.573	49.9531	49.9531	1.0000
3	6.66	Nitrite,N	BMB^	4.839	10.3933	10.3933	1.0000
4	8.80	Bromide	BMB^	0.979	9.9100	9.9100	1.0000
5	9.52	Sulfate	BM	8.463	50.5016	50.5016	1.0000
6	9.97	Nitrate	M ^	6.033	10.3385	10.3385	1.0000
7	10.67	Chlorate	MB^	0.978	10.2809	10.2809	1.0000
8	14.68	Phosphate	BMB	2.039	9.4354	9.4354	1.0000
Total:			**0.000**	**38.442**		**161.20**	

23 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**05/08/2020 16:48**	*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	5.50	Chloride	BMB	0.005	0.0810	0.0810	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
2	9.68	Sulfate	BMB	0.003	0.1164	0.1164	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**	**0.007**		**0.20**	

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WorkOrder: HS20050467

Longhorn Army Ammunition Plant

Aptim Environmental & Infrastucture, Inc.

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

03-Jun-2020

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
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  - 35BWW09-200511
  - 35BWW19-200511
  - 35BWW18-200511
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COC

HS20050467 8260 Raw Data

HS20050467 Longhorn Army Ammunition Plant
Final

ALS WO# HS20050467

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May 15, 2020

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

Work Order: **HS20050467**

Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 10 sample(s) on May 13, 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: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050467

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20050467-01	35BWW07-200511	Groundwater		11-May-2020 07:30	13-May-2020 12:20	☐
HS20050467-02	35BWW20-200511	Groundwater		11-May-2020 08:15	13-May-2020 12:20	☐
HS20050467-03	35BWW20-200511-FD	Groundwater		11-May-2020 08:15	13-May-2020 12:20	☐
HS20050467-04	LHSMW58-200511	Groundwater		11-May-2020 09:00	13-May-2020 12:20	☐
HS20050467-05	35BWW09-200511	Groundwater		11-May-2020 09:50	13-May-2020 12:20	☐
HS20050467-06	35BWW19-200511	Groundwater		11-May-2020 10:30	13-May-2020 12:20	☐
HS20050467-07	35BWW18-200511	Groundwater		11-May-2020 11:15	13-May-2020 12:20	☐
HS20050467-08	35BSW01-200511	Groundwater		11-May-2020 11:25	13-May-2020 12:20	☐
HS20050467-09	35BSW02-200511	Groundwater		11-May-2020 11:35	13-May-2020 12:20	☐
HS20050467-10	Trip Blank	Water		11-May-2020 00:00	13-May-2020 12:20	☐

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050467

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R361617

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW07-200511
Collection Date: 11-May-2020 07:30

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-01
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	14-May-2020 13:34
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 13:34
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 13:34
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 13:34
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 13:34
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 13:34
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:34
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW07-200511
Collection Date: 11-May-2020 07:30

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 13:34
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 13:34
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 13:34
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 13:34
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:34
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:34
Surr: 1,2-Dichloroethane-d4	*92.2*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 13:34*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 13:34*
Surr: Dibromofluoromethane	*90.6*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 13:34*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 13:34*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW20-200511
Collection Date: 11-May-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-02
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	14-May-2020 13:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:58
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.2**		**0.50**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 13:58
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:58
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:58
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 13:58
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 13:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 13:58
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 13:58
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 13:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:58
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW20-200511
Collection Date: 11-May-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 13:58
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 13:58
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 13:58
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 13:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:58
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Tetrachloroethene	**12**		**0.30**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 13:58
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Trichloroethene	**2.9**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2020 13:58
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:58
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 13:58*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 13:58*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 13:58*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 13:58*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW20-200511-FD
Collection Date: 11-May-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-03
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	14-May-2020 14:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:22
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.3**		**0.50**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 14:22
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:22
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:22
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:22
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 14:22
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 14:22
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 14:22
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 14:22
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 14:22
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:22
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW20-200511-FD
Collection Date: 11-May-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 14:22
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 14:22
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 14:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 14:22
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:22
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Tetrachloroethene	**12**		**0.30**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 14:22
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Trichloroethene	**2.9**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2020 14:22
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:22
Surr: 1,2-Dichloroethane-d4	*92.1*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 14:22*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 14:22*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 14:22*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 14:22*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW58-200511
Collection Date: 11-May-2020 09:00

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-04
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	14-May-2020 14:46
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:46
1,1,2-Trichlor-1,2,2-trifluoroethane	**0.66**	J	**0.50**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 14:46
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:46
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:46
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:46
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 14:46
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 14:46
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 14:46
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 14:46
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 14:46
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 14:46
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW58-200511
Collection Date: 11-May-2020 09:00

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 14:46
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 14:46
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 14:46
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 14:46
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 14:46
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Tetrachloroethene	**14**		**0.30**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 14:46
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Trichloroethene	**0.88**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2020 14:46
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 14:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 14:46
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 14:46*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 14:46*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 14:46*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 14:46*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW09-200511
Collection Date: 11-May-2020 09:50

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-05
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	14-May-2020 15:11
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:11
1,1,2-Trichlor-1,2,2-trifluoroethane	**0.74**	J	**0.50**	**1.0**	**1.0**	**UG/L**	1	14-May-2020 15:11
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:11
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:11
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:11
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 15:11
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 15:11
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 15:11
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 15:11
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 15:11
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:11
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW09-200511
Collection Date: 11-May-2020 09:50

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 15:11
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 15:11
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 15:11
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 15:11
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:11
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Trichloroethene	**42**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2020 15:11
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:11
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 15:11*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 15:11*
Surr: Dibromofluoromethane	*91.8*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 15:11*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 15:11*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW19-200511
Collection Date: 11-May-2020 10:30

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-06
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	14-May-2020 15:35
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 15:35
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 15:35
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 15:35
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 15:35
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 15:35
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:35
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW19-200511
Collection Date: 11-May-2020 10:30

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 15:35
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 15:35
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 15:35
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 15:35
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:35
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:35
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:35
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 15:35*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 15:35*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 15:35*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 15:35*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW18-200511
Collection Date: 11-May-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-07
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	14-May-2020 15:59
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 15:59
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 15:59
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 15:59
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 15:59
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 15:59
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 15:59
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW18-200511
Collection Date: 11-May-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 15:59
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 15:59
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 15:59
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 15:59
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 15:59
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 15:59
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 15:59
Surr: 1,2-Dichloroethane-d4	*92.0*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 15:59*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 15:59*
Surr: Dibromofluoromethane	*91.1*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 15:59*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 15:59*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BSW01-200511
Collection Date: 11-May-2020 11:25

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-08
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	14-May-2020 16:23
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 16:23
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 16:23
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 16:23
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 16:23
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 16:23
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:23
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BSW01-200511
Collection Date: 11-May-2020 11:25

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 16:23
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 16:23
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 16:23
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 16:23
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:23
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:23
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:23
Surr: 1,2-Dichloroethane-d4	*91.5*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 16:23*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 16:23*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 16:23*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 16:23*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BSW02-200511
Collection Date: 11-May-2020 11:35

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-09
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	14-May-2020 16:47
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 16:47
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 16:47
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 16:47
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 16:47
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 16:47
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 16:47
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BSW02-200511
Collection Date: 11-May-2020 11:35

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 16:47
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 16:47
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 16:47
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 16:47
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 16:47
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 16:47
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 16:47
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 16:47*
Surr: 4-Bromofluorobenzene	*98.4*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 16:47*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 16:47*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 16:47*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Trip Blank
Collection Date: 11-May-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-10
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	14-May-2020 13:10
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 13:10
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	14-May-2020 13:10
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	14-May-2020 13:10
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 13:10
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2020 13:10
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	14-May-2020 13:10
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Trip Blank
Collection Date: 11-May-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20050467
Lab ID:HS20050467-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2020 13:10
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2020 13:10
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2020 13:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2020 13:10
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	14-May-2020 13:10
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	14-May-2020 13:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2020 13:10
Surr: 1,2-Dichloroethane-d4	*90.0*			**0**	*81-118*	*%REC*	*1*	*14-May-2020 13:10*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*14-May-2020 13:10*
Surr: Dibromofluoromethane	*92.2*			**0**	*80-119*	*%REC*	*1*	*14-May-2020 13:10*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*14-May-2020 13:10*

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

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R361617 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20050467-10	Trip Blank	11 May 2020 00:00			14 May 2020 13:10	1
Batch ID: R361617 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20050467-01	35BWW07-200511	11 May 2020 07:30			14 May 2020 13:34	1
HS20050467-02	35BWW20-200511	11 May 2020 08:15			14 May 2020 13:58	1
HS20050467-03	35BWW20-200511-FD	11 May 2020 08:15			14 May 2020 14:22	1
HS20050467-04	LHSMW58-200511	11 May 2020 09:00			14 May 2020 14:46	1
HS20050467-05	35BWW09-200511	11 May 2020 09:50			14 May 2020 15:11	1
HS20050467-06	35BWW19-200511	11 May 2020 10:30			14 May 2020 15:35	1
HS20050467-07	35BWW18-200511	11 May 2020 11:15			14 May 2020 15:59	1
HS20050467-08	35BSW01-200511	11 May 2020 11:25			14 May 2020 16:23	1
HS20050467-09	35BSW02-200511	11 May 2020 11:35			14 May 2020 16:47	1

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200514** Units: **UG/L** Analysis Date: **14-May-2020 12:46**
Client ID: Run ID: **VOA6_361617** SeqNo: **5585735** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	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	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200514** Units: **UG/L** Analysis Date: **14-May-2020 12:46**
Client ID: Run ID: **VOA6_361617** SeqNo: **5585735** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.69*	*1.0*	*50*	*0*	*91.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.64*	*1.0*	*50*	*0*	*97.3*	*85 - 114*				
Surr: Dibromofluoromethane	*45.89*	*1.0*	*50*	*0*	*91.8*	*80 - 119*				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200514** Units: **UG/L** Analysis Date: **14-May-2020 12:46**
Client ID: Run ID: **VOA6_361617** SeqNo: **5585735** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*54.2*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200514** Units: **UG/L** Analysis Date: **14-May-2020 11:58**
Client ID: Run ID: **VOA6_361617** SeqNo: **5585734** 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	19.77	1.0	20	0	98.8	78 - 124				
1,1,1-Trichloroethane	18.68	1.0	20	0	93.4	74 - 131				
1,1,2,2-Tetrachloroethane	19.22	1.0	20	0	96.1	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.68	1.0	20	0	88.4	70 - 136				
1,1,2-Trichloroethane	19.85	1.0	20	0	99.2	80 - 119				
1,1-Dichloroethane	18.34	1.0	20	0	91.7	77 - 125				
1,1-Dichloroethene	18.35	1.0	20	0	91.7	71 - 131				
1,1-Dichloropropene	17.21	1.0	20	0	86.1	78 - 125				
1,2,3-Trichlorobenzene	24.45	1.0	20	0	122	69 - 129				
1,2,3-Trichloropropane	19.28	1.0	20	0	96.4	73 - 122				
1,2,4-Trichlorobenzene	22.4	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	18.06	1.0	20	0	90.3	76 - 124				
1,2-Dibromo-3-chloropropane	21.47	1.0	20	0	107	62 - 128				
1,2-Dibromoethane	20.4	1.0	20	0	102	77 - 121				
1,2-Dichlorobenzene	18.57	1.0	20	0	92.8	80 - 119				
1,2-Dichloroethane	20.81	1.0	20	0	104	73 - 128				
1,2-Dichloropropane	19.05	1.0	20	0	95.2	78 - 122				
1,3,5-Trimethylbenzene	17.69	1.0	20	0	88.5	75 - 124				
1,3-Dichlorobenzene	18.66	1.0	20	0	93.3	80 - 119				
1,3-Dichloropropane	20.08	1.0	20	0	100	80 - 119				
1,4-Dichlorobenzene	17.65	1.0	20	0	88.2	79 - 118				
2,2-Dichloropropane	19.16	1.0	20	0	95.8	60 - 139				
2-Butanone	43.87	2.0	40	0	110	56 - 143				
2-Chlorotoluene	17.42	1.0	20	0	87.1	79 - 122				
2-Hexanone	39.18	2.0	40	0	98.0	57 - 139				
4-Chlorotoluene	18.03	1.0	20	0	90.1	78 - 122				
4-Isopropyltoluene	17.6	1.0	20	0	88.0	77 - 127				
4-Methyl-2-pentanone	40.12	2.0	40	0	100	67 - 130				
Acetone	38.01	2.0	40	0	95.0	39 - 160				
Benzene	19.05	1.0	20	0	95.3	79 - 120				
Bromobenzene	18.97	1.0	20	0	94.9	80 - 120				
Bromochloromethane	19.26	1.0	20	0	96.3	78 - 123				
Bromodichloromethane	19.93	1.0	20	0	99.7	79 - 125				
Bromoform	20.01	1.0	20	0	100	66 - 130				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200514** Units: **UG/L** Analysis Date: **14-May-2020 11:58**
Client ID: Run ID: **VOA6_361617** SeqNo: **5585734** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.56	1.0	20	0	108	53 - 141				
Carbon disulfide	37.36	2.0	40	0	93.4	64 - 133				
Carbon tetrachloride	17.51	1.0	20	0	87.5	72 - 136				
Chlorobenzene	18.86	1.0	20	0	94.3	82 - 118				
Chloroethane	18.55	1.0	20	0	92.7	60 - 138				
Chloroform	20.1	1.0	20	0	100	79 - 124				
Chloromethane	18.28	1.0	20	0	91.4	50 - 139				
cis-1,2-Dichloroethene	19.78	1.0	20	0	98.9	78 - 123				
cis-1,3-Dichloropropene	19.6	1.0	20	0	98.0	75 - 124				
Dibromochloromethane	20.19	1.0	20	0	101	74 - 126				
Dibromomethane	20.13	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	19.07	1.0	20	0	95.3	32 - 152				
Ethylbenzene	18.01	1.0	20	0	90.0	79 - 121				
Hexachlorobutadiene	23.51	1.0	20	0	118	66 - 134				
Isopropylbenzene	17.72	1.0	20	0	88.6	72 - 131				
m,p-Xylene	36.07	2.0	40	0	90.2	80 - 121				
Methylene chloride	20.37	2.0	20	0	102	74 - 124				
Naphthalene	21.07	1.0	20	0	105	61 - 128				
n-Butylbenzene	18.54	1.0	20	0	92.7	75 - 128				
n-Propylbenzene	17.34	1.0	20	0	86.7	76 - 126				
o-Xylene	18	1.0	20	0	90.0	78 - 122				
sec-Butylbenzene	16.91	1.0	20	0	84.5	77 - 126				
Styrene	18.42	1.0	20	0	92.1	78 - 123				
tert-Butylbenzene	17.22	1.0	20	0	86.1	78 - 124				
Tetrachloroethene	18.02	1.0	20	0	90.1	74 - 129				
Toluene	18.89	1.0	20	0	94.4	80 - 121				
trans-1,2-Dichloroethene	19.68	1.0	20	0	98.4	75 - 124				
trans-1,3-Dichloropropene	19.8	1.0	20	0	99.0	73 - 127				
Trichloroethene	18.56	1.0	20	0	92.8	79 - 123				
Trichlorofluoromethane	18.73	1.0	20	0	93.7	65 - 141				
Vinyl chloride	17.86	1.0	20	0	89.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.26*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.03*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.87*	*1.0*	*50*	*0*	*97.7*	*80 - 119*				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200514** Units: **UG/L** Analysis Date: **14-May-2020 11:58**
Client ID: Run ID: **VOA6_361617** SeqNo: **5585734** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.51*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050467-04MS** Units: **UG/L** Analysis Date: **14-May-2020 17:11**
Client ID: **LHSMW58-200511** Run ID: **VOA6_361617** SeqNo: **5585793** 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	21.17	1.0	20	0	106	78 - 124				
1,1,1-Trichloroethane	20.12	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	21.37	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	22.08	1.0	20	0.6579	107	70 - 136				
1,1,2-Trichloroethane	21.38	1.0	20	0	107	80 - 119				
1,1-Dichloroethane	18.63	1.0	20	0	93.2	77 - 125				
1,1-Dichloroethene	19.46	1.0	20	0	97.3	71 - 131				
1,1-Dichloropropene	20.59	1.0	20	0	103	78 - 125				
1,2,3-Trichlorobenzene	19.53	1.0	20	0	97.7	69 - 129				
1,2,3-Trichloropropane	21.2	1.0	20	0	106	73 - 122				
1,2,4-Trichlorobenzene	18.89	1.0	20	0	94.4	69 - 130				
1,2,4-Trimethylbenzene	21.46	1.0	20	0	107	76 - 124				
1,2-Dibromo-3-chloropropane	23.53	1.0	20	0	118	62 - 128				
1,2-Dibromoethane	21.69	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	20.77	1.0	20	0	104	80 - 119				
1,2-Dichloroethane	20.95	1.0	20	0	105	73 - 128				
1,2-Dichloropropane	18.96	1.0	20	0	94.8	78 - 122				
1,3,5-Trimethylbenzene	21.89	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	21	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	20.88	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	20.37	1.0	20	0	102	79 - 118				
2,2-Dichloropropane	18.8	1.0	20	0	94.0	60 - 139				
2-Butanone	44.16	2.0	40	0	110	56 - 143				
2-Chlorotoluene	20.71	1.0	20	0	104	79 - 122				
2-Hexanone	43.14	2.0	40	0	108	57 - 139				
4-Chlorotoluene	20.67	1.0	20	0	103	78 - 122				
4-Isopropyltoluene	22.19	1.0	20	0	111	77 - 127				
4-Methyl-2-pentanone	43.99	2.0	40	0	110	67 - 130				
Acetone	35.07	2.0	40	0	87.7	39 - 160				
Benzene	20.07	1.0	20	0	100	79 - 120				
Bromobenzene	20.33	1.0	20	0	102	80 - 120				
Bromochloromethane	18.4	1.0	20	0	92.0	78 - 123				
Bromodichloromethane	19.74	1.0	20	0	98.7	79 - 125				
Bromoform	20.57	1.0	20	0	103	66 - 130				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050467-04MS** Units: **UG/L** Analysis Date: **14-May-2020 17:11**
Client ID: **LHSMW58-200511** Run ID: **VOA6_361617** SeqNo: **5585793** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	18.68	1.0	20	0	93.4	53 - 141				
Carbon disulfide	36	2.0	40	0	90.0	64 - 133				
Carbon tetrachloride	20.44	1.0	20	0	102	72 - 136				
Chlorobenzene	20.81	1.0	20	0	104	82 - 118				
Chloroethane	18.21	1.0	20	0	91.1	60 - 138				
Chloroform	19.59	1.0	20	0	97.9	79 - 124				
Chloromethane	14.82	1.0	20	0	74.1	50 - 139				
cis-1,2-Dichloroethene	19.94	1.0	20	0	99.7	78 - 123				
cis-1,3-Dichloropropene	19.34	1.0	20	0	96.7	75 - 124				
Dibromochloromethane	21.31	1.0	20	0	107	74 - 126				
Dibromomethane	20.12	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	11.62	1.0	20	0	58.1	32 - 152				
Ethylbenzene	21.57	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	18.71	1.0	20	0	93.5	66 - 134				
Isopropylbenzene	22.09	1.0	20	0	110	72 - 131				
m,p-Xylene	43.35	2.0	40	0	108	80 - 121				
Methylene chloride	17.85	2.0	20	0	89.3	74 - 124				
Naphthalene	18.38	1.0	20	0	91.9	61 - 128				
n-Butylbenzene	22.76	1.0	20	0	114	75 - 128				
n-Propylbenzene	21.44	1.0	20	0	107	76 - 126				
o-Xylene	21.21	1.0	20	0	106	78 - 122				
sec-Butylbenzene	22.09	1.0	20	0	110	77 - 126				
Styrene	21.34	1.0	20	0	107	78 - 123				
tert-Butylbenzene	22.03	1.0	20	0	110	78 - 124				
Tetrachloroethene	36	1.0	20	13.68	112	74 - 129				
Toluene	21.45	1.0	20	0	107	80 - 121				
trans-1,2-Dichloroethene	20.04	1.0	20	0	100	75 - 124				
trans-1,3-Dichloropropene	19.91	1.0	20	0	99.5	73 - 127				
Trichloroethene	21.09	1.0	20	0.8786	101	79 - 123				
Trichlorofluoromethane	20.38	1.0	20	0	102	65 - 141				
Vinyl chloride	17	1.0	20	0	85.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.13*	*1.0*	*50*	*0*	*92.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.86*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*45.86*	*1.0*	*50*	*0*	*91.7*	*80 - 119*				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050467-04MS** Units: **UG/L** Analysis Date: **14-May-2020 17:11**
Client ID: **LHSMW58-200511** Run ID: **VOA6_361617** SeqNo: **5585793** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.32*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050467-04MSD** Units: **UG/L** Analysis Date: **14-May-2020 17:35**
Client ID: **LHSMW58-200511** Run ID: **VOA6_361617** SeqNo: **5585794** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.26	1.0	20	0	101	78 - 124	21.17	4.4	20	
1,1,1-Trichloroethane	19.09	1.0	20	0	95.5	74 - 131	20.12	5.27	20	
1,1,2,2-Tetrachloroethane	21.02	1.0	20	0	105	71 - 121	21.37	1.63	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	20.36	1.0	20	0.6579	98.5	70 - 136	22.08	8.11	20	
1,1,2-Trichloroethane	20.65	1.0	20	0	103	80 - 119	21.38	3.48	20	
1,1-Dichloroethane	17.82	1.0	20	0	89.1	77 - 125	18.63	4.44	20	
1,1-Dichloroethene	18.89	1.0	20	0	94.5	71 - 131	19.46	2.94	20	
1,1-Dichloropropene	18.94	1.0	20	0	94.7	78 - 125	20.59	8.36	20	
1,2,3-Trichlorobenzene	22.69	1.0	20	0	113	69 - 129	19.53	15	20	
1,2,3-Trichloropropane	20.58	1.0	20	0	103	73 - 122	21.2	2.97	20	
1,2,4-Trichlorobenzene	20.84	1.0	20	0	104	69 - 130	18.89	9.83	20	
1,2,4-Trimethylbenzene	21.05	1.0	20	0	105	76 - 124	21.46	1.96	20	
1,2-Dibromo-3-chloropropane	24.12	1.0	20	0	121	62 - 128	23.53	2.44	20	
1,2-Dibromoethane	20.79	1.0	20	0	104	77 - 121	21.69	4.23	20	
1,2-Dichlorobenzene	20.27	1.0	20	0	101	80 - 119	20.77	2.43	20	
1,2-Dichloroethane	20.15	1.0	20	0	101	73 - 128	20.95	3.89	20	
1,2-Dichloropropane	18.74	1.0	20	0	93.7	78 - 122	18.96	1.18	20	
1,3,5-Trimethylbenzene	21.21	1.0	20	0	106	75 - 124	21.89	3.17	20	
1,3-Dichlorobenzene	20.54	1.0	20	0	103	80 - 119	21	2.23	20	
1,3-Dichloropropane	20.53	1.0	20	0	103	80 - 119	20.88	1.7	20	
1,4-Dichlorobenzene	19.94	1.0	20	0	99.7	79 - 118	20.37	2.12	20	
2,2-Dichloropropane	17.73	1.0	20	0	88.7	60 - 139	18.8	5.87	20	
2-Butanone	44.41	2.0	40	0	111	56 - 143	44.16	0.567	20	
2-Chlorotoluene	20.04	1.0	20	0	100	79 - 122	20.71	3.29	20	
2-Hexanone	43.1	2.0	40	0	108	57 - 139	43.14	0.0931	20	
4-Chlorotoluene	20.1	1.0	20	0	101	78 - 122	20.67	2.78	20	
4-Isopropyltoluene	21.73	1.0	20	0	109	77 - 127	22.19	2.1	20	
4-Methyl-2-pentanone	43.33	2.0	40	0	108	67 - 130	43.99	1.49	20	
Acetone	33.92	2.0	40	0	84.8	39 - 160	35.07	3.33	20	
Benzene	19.28	1.0	20	0	96.4	79 - 120	20.07	4.02	20	
Bromobenzene	19.78	1.0	20	0	98.9	80 - 120	20.33	2.74	20	
Bromochloromethane	18.05	1.0	20	0	90.3	78 - 123	18.4	1.92	20	
Bromodichloromethane	19.34	1.0	20	0	96.7	79 - 125	19.74	2.04	20	
Bromoform	21	1.0	20	0	105	66 - 130	20.57	2.09	20	

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050467-04MSD** Units: **UG/L** Analysis Date: **14-May-2020 17:35**
Client ID: **LHSMW58-200511** Run ID: **VOA6_361617** SeqNo: **5585794** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	16.37	1.0	20	0	81.8	53 - 141	18.68	13.2	20	
Carbon disulfide	34.07	2.0	40	0	85.2	64 - 133	36	5.5	20	
Carbon tetrachloride	18.99	1.0	20	0	94.9	72 - 136	20.44	7.36	20	
Chlorobenzene	19.88	1.0	20	0	99.4	82 - 118	20.81	4.57	20	
Chloroethane	17.47	1.0	20	0	87.3	60 - 138	18.21	4.17	20	
Chloroform	19.11	1.0	20	0	95.5	79 - 124	19.59	2.46	20	
Chloromethane	14.51	1.0	20	0	72.5	50 - 139	14.82	2.14	20	
cis-1,2-Dichloroethene	19.17	1.0	20	0	95.8	78 - 123	19.94	3.94	20	
cis-1,3-Dichloropropene	18.83	1.0	20	0	94.1	75 - 124	19.34	2.67	20	
Dibromochloromethane	20.77	1.0	20	0	104	74 - 126	21.31	2.56	20	
Dibromomethane	19.53	1.0	20	0	97.6	79 - 123	20.12	2.98	20	
Dichlorodifluoromethane	10.73	1.0	20	0	53.6	32 - 152	11.62	7.95	20	
Ethylbenzene	20.4	1.0	20	0	102	79 - 121	21.57	5.55	20	
Hexachlorobutadiene	21.24	1.0	20	0	106	66 - 134	18.71	12.7	20	
Isopropylbenzene	21.32	1.0	20	0	107	72 - 131	22.09	3.53	20	
m,p-Xylene	40.96	2.0	40	0	102	80 - 121	43.35	5.68	20	
Methylene chloride	17.97	2.0	20	0	89.8	74 - 124	17.85	0.63	20	
Naphthalene	22.2	1.0	20	0	111	61 - 128	18.38	18.8	20	
n-Butylbenzene	22.44	1.0	20	0	112	75 - 128	22.76	1.43	20	
n-Propylbenzene	20.81	1.0	20	0	104	76 - 126	21.44	2.96	20	
o-Xylene	20.08	1.0	20	0	100	78 - 122	21.21	5.45	20	
sec-Butylbenzene	21.03	1.0	20	0	105	77 - 126	22.09	4.89	20	
Styrene	20.09	1.0	20	0	100	78 - 123	21.34	6.05	20	
tert-Butylbenzene	21.32	1.0	20	0	107	78 - 124	22.03	3.26	20	
Tetrachloroethene	33.01	1.0	20	13.68	96.6	74 - 129	36	8.67	20	
Toluene	20.64	1.0	20	0	103	80 - 121	21.45	3.81	20	
trans-1,2-Dichloroethene	19.09	1.0	20	0	95.4	75 - 124	20.04	4.87	20	
trans-1,3-Dichloropropene	19.27	1.0	20	0	96.3	73 - 127	19.91	3.28	20	
Trichloroethene	20.08	1.0	20	0.8786	96.0	79 - 123	21.09	4.95	20	
Trichlorofluoromethane	18.77	1.0	20	0	93.9	65 - 141	20.38	8.19	20	
Vinyl chloride	15.54	1.0	20	0	77.7	58 - 137	17	8.98	20	
Surr: 1,2-Dichloroethane-d4	*47.48*	*1.0*	*50*	*0*	*95.0*	*81 - 118*	*46.13*	*2.89*	*20*	
Surr: 4-Bromofluorobenzene	*50.37*	*1.0*	*50*	*0*	*101*	*85 - 114*	*50.86*	*0.964*	*20*	
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*80 - 119*	*45.86*	*1.73*	*20*	

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050467

QC BATCH REPORT

Batch ID: R361617 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050467-04MSD** Units: **UG/L** Analysis Date: **14-May-2020 17:35**
Client ID: **LHSMW58-200511** Run ID: **VOA6_361617** SeqNo: **5585794** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.26*	*1.0*	*50*	*0*	*107*	*89 - 112*	*53.32*	*0.102*	*20*	

The following samples were analyzed in this batch:

HS20050467-01	HS20050467-02	HS20050467-03	HS20050467-04
HS20050467-05	HS20050467-06	HS20050467-07	HS20050467-08
HS20050467-09	HS20050467-10		

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20050467**

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	20-030-0	26-Mar-2021
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 15-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050467

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20050467-01	35BWW07-200511	Login	5/13/2020 6:13:28 PM	NDR	VOA090
HS20050467-02	35BWW20-200511	Login	5/13/2020 6:13:28 PM	NDR	VOA090
HS20050467-03	35BWW20-200511-FD	Login	5/13/2020 6:13:28 PM	NDR	VOA090
HS20050467-04	LHSMW58-200511	Login	5/13/2020 6:13:28 PM	NDR	VOA090

ALS Houston, US Date: 15-May-20

Sample Receipt Checklist

Work Order ID: HS20050467 **Date/Time Received:** 13-May-2020 12:20

Client Name: CBI-Houston **Received by:** Paresh M. Giga

Completed By: /S/ Nilesh D. Ranchod (eSignature) 13-May-2020 18:21 (Date/Time) **Reviewed by:** /S/ Corey Grandits (eSignature) 14-May-2020 10:36 (Date/Time)

Matrices: GW/Water Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	2.1C U/C	IR11
Cooler(s)/Kit(s):	44784	
Date/Time sample(s) sent to storage:	5/13/2020 19:00	

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: Sample label time differ LHSMW58-200511 COC= 09:00 Label MS/MSD = 09:30

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

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

Project No.: 501032

Job: **37MAY 2020_ALS**

Prepared By: Scott Beesinger

P.O. Number:

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175						Remarks (Preservatives, etc.)
35BWW07-200511	WG	5/11/20/0730		3	X										
35BWW20-200511	WG	5/11/20/0815		3	X										
35BWW20-200511-FD	WG	5/11/20/0815		3	X										
LHSMW58-200511	WG	5/11/20/0900		3	X										
LHSMW58-200511-MS	WG	5/11/20/0900		3	X										
LHSMW58-200511-MSD	WG	5/11/20/0900		3	X										
35BWW09-200511	WG	5/11/20/0950		3	X										
35BWW19-200511	WG	5/11/20/1030		3	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	5/12/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Mathew	5/13/20	12:20							

Remarks:
Cooler 44784 IR11
Temp 2.1°C CF00

Aptim Environmental & Infrastructure, Inc.
Longhorn Army Ammunition Plant

HS20050467

(Word) S:\1-ces\Forms\Chain of Custody - Bi Weekly

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

Project No. 501032

Job: **37MAY 2020_ALS**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175						Remarks (Preservatives, etc.)
35BWW18-200511	WG	5/11/20/1115		3	X										
35BSW01-200511	WG	5/11/20/1125		3	X										
35BSW02-200511	WG	5/11/20 1135		3	X										
TRIP BLANK	W	5/11/20		2	X										

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

HS20050467

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	5/12/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Mauney	5/13/20	12:20							

Remarks:

(Word) S:\All-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

44784

CUSTODY SEAL

Date: 5/12/20 Time: 1430
Name: SCOTT BEESINGER
Company: BHATE

Seal Broken By:
Date: 05/13/20

44784 MAY 13 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

44784

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

SHIP DATE: 18APR20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-37-BO 71452-RJ

RMA:

FedEx Express

FedEx TRK# 0221 1251 0296 4946

WED - 13 MAY 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

HS20050467 8260 Raw Data

ALS WO# HS20050467

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromochloromethane	50.00	47.43	95	80-120
Vinyl Chloride	50.00	46.46	93	80-120
Chloromethane	50.00	44.04	88	80-120
Bromomethane	50.00	50.90	102	80-120
Chloroethane	50.00	44.86	90	80-120
Methylene Chloride	50.00	47.67	95	80-120
Acetone	100.00	96.04	96	80-120
1,1-Dichloroethene	50.00	47.66	95	80-120
trans-1,2-Dichloroethen	50.00	47.92	96	80-120
Carbon Tetrachloride	50.00	47.41	95	80-120
1,1-Dichloroethane	50.00	45.20	90	80-120
Bromodichloromethane	50.00	48.69	97	80-120
1,2-Dichloropropane	50.00	47.53	95	80-120
cis-1,3-Dichloropropene	50.00	49.61	99	80-120
2-Butanone	100.00	107.79	108	80-120
Dibromochloromethane	50.00	49.74	99	80-120
cis-1,2-Dichloroethene	50.00	47.90	96	80-120
1,1,2-Trichloroethane	50.00	47.86	96	80-120
Chloroform	50.00	48.19	96	80-120
Benzene	50.00	47.92	96	80-120
trans-1,3-Dichloroprope	50.00	49.97	100	80-120
Bromoform	50.00	50.11	100	80-120
4-Methyl-2-Pentanone	100.00	92.90	93	80-120
1,1,1-Trichloroethane	50.00	47.51	95	80-120
2-Hexanone	100.00	94.75	95	80-120
1,2-Dichloroethane	50.00	49.48	99	80-120
1,1,2,2-Tetrachloroetha	50.00	46.16	92	80-120
Trichloroethene	50.00	49.38	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Toluene	50.00	48.70	97	80-120
Dichlorodifluoromethane	50.00	46.95	94	80-120
Trichlorofluoromethane	50.00	48.67	97	80-120
Tetrachloroethene	50.00	49.21	98	80-120
1,2-Dibromoethane	50.00	50.22	100	80-120
Chlorobenzene	50.00	48.90	98	80-120
1,3-Dichlorobenzene	50.00	48.89	98	80-120
1,4-Dichlorobenzene	50.00	47.77	96	80-120
1,2-Dichlorobenzene	50.00	48.42	97	80-120
Ethylbenzene	50.00	48.80	98	80-120
m,p-Xylenes	100.00	98.10	98	80-120
o-Xylene	50.00	49.08	98	80-120
Styrene	50.00	49.46	99	80-120
Carbon Disulfide	100.00	95.54	96	80-120
2,2-Dichloropropane	50.00	47.48	95	80-120
1,1-Dichloropropene	50.00	48.00	96	80-120
Dibromomethane	50.00	49.84	100	80-120
1,3-Dichloropropane	50.00	48.33	97	80-120
1,1,1,2-Tetrachloroetha	50.00	48.99	98	80-120
Isopropylbenzene	50.00	49.54	99	80-120
Bromobenzene	50.00	48.32	97	80-120
1,2,3-Trichloropropane	50.00	46.59	93	80-120
n-Propylbenzene	50.00	48.00	96	80-120
2-Chlorotoluene	50.00	46.75	94	80-120
1,3,5-Trimethylbenzene	50.00	49.68	99	80-120
4-Chlorotoluene	50.00	47.20	94	80-120
tert-Butylbenzene	50.00	48.50	97	80-120
1,2,4-Trimethylbenzene	50.00	49.86	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
sec-Butylbenzene	50.00	48.50	97	80-120
p-Isopropyltoluene	50.00	50.33	101	80-120
n-Butylbenzene	50.00	50.73	101	80-120
1,2-Dibromo-3-Chloropro	50.00	46.37	93	80-120
1,2,4-Trichlorobenzene	50.00	47.52	95	80-120
Hexachlorobutadiene	50.00	49.71	99	80-120
Naphthalene	50.00	53.21	106	80-120
1,2,3-Trichlorobenzene	50.00	54.69	109	80-120
Freon TF	50.00	48.97	98	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Lab File ID: X051101 BFB Injection Date: 05/11/20

Instrument ID: VOA6 BFB Injection Time: 1248

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	24.2
75	30.0 - 60.0% of mass 95	46.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	58.1
175	5.0 - 9.0% of mass 174	5.0 (8.6)1
176	95.0 - 101.0% of mass 174	57.6 (99.1)1
177	5.0 - 9.0% of mass 176	4.7 (8.2)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	VSTD000.5	VSTD000.5	X051103	05/11/20	1400
02	VSTD001	VSTD001	X051104	05/11/20	1424
03	VSTD002	VSTD002	X051105	05/11/20	1448
04	VSTD005	VSTD005	X051106	05/11/20	1512
05	VSTD020	VSTD020	X051107	05/11/20	1536
06	VSTD050	VSTD050	X051108	05/11/20	1600
07	VSTD100	VSTD100	X051109	05/11/20	1624
08	VSTD150	VSTD150	X051110	05/11/20	1647
09	VSTD200	VSTD200	X051111	05/11/20	1711
10	ICV	ICV	X051114	05/11/20	1823
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF0.5: X051103 RF1: X051104 RF2: X051105
RF5: X051106 RF20: X051107 RF50: X051108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Bromochloromethane	0.363	0.313	0.285	0.299	0.276	0.275
Vinyl Chloride	0.756	0.651	0.677	0.656	0.679	0.684
Chloromethane	2464	4677	8356	19497	77009	185773
Bromomethane	1460	2788	5327	11539	40170	86417
Chloroethane	1364	2214	3636	10011	35750	85402
Methylene Chloride	1939	3655	6641	14433	52520	120730
Acetone	1874	3027	5040	9390	35665	95313
1,1-Dichloroethene	0.461	0.404	0.370	0.376	0.386	0.384
trans-1,2-Dichloroethene	0.523	0.408	0.446	0.450	0.457	0.446
Carbon Tetrachloride	0.629	0.525	0.488	0.473	0.462	0.468
1,1-Dichloroethane	1.312	1.108	1.104	1.086	1.050	1.019
Bromodichloromethane	0.525	0.432	0.461	0.461	0.456	0.457
1,2-Dichloropropane	0.483	0.403	0.398	0.404	0.401	0.395
cis-1,3-Dichloropropene	0.603	0.536	0.520	0.534	0.536	0.541
2-Butanone	0.188	0.183	0.186	0.220	0.241	0.263
Dibromochloromethane	0.441	0.380	0.411	0.397	0.396	0.396
cis-1,2-Dichloroethene	0.543	0.472	0.583	0.527	0.536	0.514
1,1,2-Trichloroethane	0.332	0.252	0.293	0.293	0.271	0.267
Chloroform	1.057	0.803	0.890	0.923	0.881	0.861
Benzene	1.483	1.317	1.243	1.210	1.258	1.234
trans-1,3-Dichloropropene	0.537	0.462	0.480	0.485	0.483	0.486
Bromoform	0.318	0.258	0.306	0.286	0.283	0.274
4-Methyl-2-Pentanone	0.503	0.400	0.504	0.456	0.451	0.430
1,1,1-Trichloroethane	0.928	0.796	0.766	0.770	0.780	0.766
2-Hexanone	0.373	0.243	0.350	0.304	0.307	0.304
1,2-Dichloroethane	0.587	0.485	0.477	0.510	0.523	0.527
1,1,2,2-Tetrachloroethane	0.939	0.812	0.883	0.798	0.789	0.746
Trichloroethene	0.425	0.329	0.342	0.341	0.347	0.350
Toluene	1.729	1.419	1.522	1.489	1.484	1.431
Dichlorodifluoromethane	1503	2633	5304	13068	55700	135443
Trichlorofluoromethane	0.888	0.754	0.749	0.761	0.781	0.796
Tetrachloroethene	0.362	0.327	0.345	0.324	0.321	0.319
1,2-Dibromoethane	0.385	0.308	0.373	0.358	0.364	0.351
Chlorobenzene	1.224	0.910	1.008	0.984	0.965	0.948
1,3-Dichlorobenzene	1.771	1.441	1.502	1.497	1.508	1.462
1,4-Dichlorobenzene	2.196	1.462	1.507	1.543	1.491	1.488
1,2-Dichlorobenzene	1.694	1.345	1.445	1.362	1.340	1.326
Ethylbenzene	0.595	0.494	0.526	0.496	0.513	0.506
m,p-Xylenes	0.749	0.582	0.637	0.617	0.627	0.617
o-Xylene	0.671	0.590	0.652	0.604	0.617	0.595
Styrene	1.220	1.068	1.068	1.028	1.061	1.034
Carbon Disulfide	1.559	1.278	1.317	1.321	1.317	1.321
2,2-Dichloropropane	0.934	0.845	0.817	0.768	0.765	0.739
1,1-Dichloropropene	0.542	0.467	0.464	0.436	0.437	0.429

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF0.5: X051103 RF1: X051104 RF2: X051105
RF5: X051106 RF20: X051107 RF50: X051108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Dibromomethane	0.272	0.187	0.211	0.223	0.213	0.217
1,3-Dichloropropane	0.667	0.536	0.609	0.586	0.581	0.558
1,1,1,2-Tetrachloroethane	0.441	0.401	0.388	0.383	0.384	0.380
Isopropylbenzene	1.838	1.487	1.440	1.550	1.543	1.499
Bromobenzene	1.160	0.908	0.931	0.886	0.907	0.902
1,2,3-Trichloropropane	0.825	0.629	0.829	0.664	0.661	0.681
n-Propylbenzene	4.517	3.295	3.337	3.514	3.496	3.465
2-Chlorotoluene	2.730	2.379	2.191	2.204	2.100	2.070
1,3,5-Trimethylbenzene	2.835	2.374	2.552	2.616	2.533	2.515
4-Chlorotoluene	3.235	2.656	2.511	2.448	2.492	2.419
tert-Butylbenzene	2.511	2.130	2.115	2.215	2.151	2.088
1,2,4-Trimethylbenzene	3.200	2.288	2.506	2.550	2.590	2.573
sec-Butylbenzene	3.786	2.605	2.991	3.022	2.939	2.872
p-Isopropyltoluene	3.242	2.169	2.411	2.533	2.612	2.578
n-Butylbenzene	2.569	1.648	1.842	2.072	2.142	2.132
1,2-Dibromo-3-Chloropropane	114	128	532	1596	5237	12187
1,2,4-Trichlorobenzene	505	762	1924	5746	23261	54809
Hexachlorobutadiene	605	736	2177	5460	21311	41952
Naphthalene	0.460	0.409	0.406	0.433	0.467	0.465
1,2,3-Trichlorobenzene	385	431	1047	3164	11186	27245
Freon TF	0.351	0.375	0.391	0.378	0.379	0.386
Dibromofluoromethane	1793	3147	5198	14036	51294	118264
1,2-Dichloroethane-d4	2117	3902	7290	17135	62012	143586
Toluene-d8	5920	10982	18430	47142	176771	410250
4-Bromofluorobenzene	2708	6819	8380	19241	69563	152557

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF100: X051109 RF150: X051110 RF200: X051111

COMPOUND	RF100	RF150	RF200
Bromochloromethane	0.269	0.272	0.259
Vinyl Chloride	0.715	0.722	0.698
Chloromethane	352150	510038	668216
Bromomethane	166042	236806	301011
Chloroethane	162411	229270	289295
Methylene Chloride	224234	318789	395941
Acetone	157042	214208	
1,1-Dichloroethene	0.398	0.407	0.394
trans-1,2-Dichloroethene	0.457	0.461	0.444
Carbon Tetrachloride	0.489	0.496	0.491
1,1-Dichloroethane	1.046	1.051	1.004
Bromodichloromethane	0.466	0.477	0.465
1,2-Dichloropropane	0.399	0.395	0.384
cis-1,3-Dichloropropene	0.550	0.556	0.544
2-Butanone	0.253	0.253	0.241
Dibromochloromethane	0.410	0.407	0.403
cis-1,2-Dichloroethene	0.526	0.533	0.512
1,1,2-Trichloroethane	0.267	0.266	0.262
Chloroform	0.878	0.889	0.859
Benzene	1.256	1.263	1.238
trans-1,3-Dichloropropene	0.504	0.517	0.506
Bromoform	0.283	0.285	0.285
4-Methyl-2-Pentanone	0.441	0.443	0.435
1,1,1-Trichloroethane	0.796	0.813	0.790
2-Hexanone	0.303	0.300	0.298
1,2-Dichloroethane	0.527	0.530	0.518
1,1,2,2-Tetrachloroethane	0.749	0.756	0.761
Trichloroethene	0.367	0.367	0.360
Toluene	1.433	1.414	1.396
Dichlorodifluoromethane	264084	377623	499972
Trichlorofluoromethane	0.833	0.843	0.836
Tetrachloroethene	0.326	0.324	0.320
1,2-Dibromoethane	0.352	0.357	0.348
Chlorobenzene	0.963	0.964	0.949
1,3-Dichlorobenzene	1.500	1.522	1.508
1,4-Dichlorobenzene	1.506	1.517	1.512
1,2-Dichlorobenzene	1.337	1.360	1.327
Ethylbenzene	0.523	0.514	0.512
m,p-Xylenes	0.622	0.618	0.610
o-Xylene	0.603	0.605	0.588
Styrene	1.048	1.031	1.019
Carbon Disulfide	1.365	1.385	1.334
2,2-Dichloropropane	0.754	0.769	0.733
1,1-Dichloropropene	0.452	0.452	0.441

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

LAB FILE ID: RF100: X051109 RF150: X051110 RF200: X051111

COMPOUND	RF100	RF150	RF200
Dibromomethane	0.222	0.224	0.218
1,3-Dichloropropane	0.557	0.557	0.550
1,1,1,2-Tetrachloroethane	0.387	0.387	0.385
Isopropylbenzene	1.568	1.560	1.547
Bromobenzene	0.907	0.911	0.925
1,2,3-Trichloropropane	0.669	0.656	0.658
n-Propylbenzene	3.577	3.585	3.566
2-Chlorotoluene	2.149	2.144	2.118
1,3,5-Trimethylbenzene	2.613	2.611	2.585
4-Chlorotoluene	2.476	2.464	2.454
tert-Butylbenzene	2.180	2.179	2.160
1,2,4-Trimethylbenzene	2.630	2.656	2.612
sec-Butylbenzene	3.026	3.020	2.996
p-Isopropyltoluene	2.679	2.702	2.709
n-Butylbenzene	2.216	2.237	2.212
1,2-Dibromo-3-Chloropropane	23938	35913	47270
1,2,4-Trichlorobenzene	103966	161556	221042
Hexachlorobutadiene	77175	122993	160116
Naphthalene	0.480	0.544	0.572
1,2,3-Trichlorobenzene	50765	82626	114644
Freon TF	0.410	0.412	0.396
Dibromofluoromethane	228909	320906	412124
1,2-Dichloroethane-d4	281127	402302	508534
Toluene-d8	778769	1109628	1416689
4-Bromofluorobenzene	294185	420723	537390

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Bromochloromethane	AVRG		0.29010501		10.972	15.000
Vinyl Chloride	AVRG		0.69311531		4.827	15.000
Chloromethane	LINR	1.254e-002	1.25307618		0.9996990	0.9900000
Bromomethane	LINR	-1.49e-002	2.76010828		0.9992442	0.9900000
Chloroethane	LINR	-8.42e-003	2.85056864		0.9990197	0.9900000
Methylene Chloride	LINR	-2.15e-002	2.07576331		0.9984246	0.9900000
Acetone	LINR	-5.26e-002	5.86673099		0.9980780	0.9900000
1,1-Dichloroethene	AVRG		0.39779340		6.695	15.000
trans-1,2-Dichloroethene	AVRG		0.45484162		6.601	15.000
Carbon Tetrachloride	AVRG		0.50236564		10.139	15.000
1,1-Dichloroethane	AVRG		1.08665862		8.445	15.000
Bromodichloromethane	AVRG		0.46672354		5.340	15.000
1,2-Dichloropropane	AVRG		0.40699172		7.156	15.000
cis-1,3-Dichloropropene	AVRG		0.54659701		4.308	15.000
2-Butanone	AVRG		0.22534364		14.170	15.000
Dibromochloromethane	AVRG		0.40468890		4.114	15.000
cis-1,2-Dichloroethene	AVRG		0.52746114		5.587	15.000
1,1,2-Trichloroethane	AVRG		0.27813289		8.790	15.000
Chloroform	AVRG		0.89352495		7.768	15.000
Benzene	AVRG		1.27806051		6.430	15.000
trans-1,3-Dichloropropene	AVRG		0.49569616		4.508	15.000
Bromoform	AVRG		0.28647071		5.980	15.000
4-Methyl-2-Pentanone	AVRG		0.45144990		7.411	15.000
1,1,1-Trichloroethane	AVRG		0.80070947		6.298	15.000
2-Hexanone	AVRG		0.30919632		11.650	15.000
1,2-Dichloroethane	AVRG		0.52059797		6.006	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.80353274		8.275	15.000
Trichloroethene	AVRG		0.35876630		7.774	15.000
Toluene	AVRG		1.47974156		6.910	15.000
Dichlorodifluoromethane	LINR	2.129e-002	1.67614322		0.9997226	0.9900000
Trichlorofluoromethane	AVRG		0.80446144		5.962	15.000
Tetrachloroethene	AVRG		0.32982532		4.351	15.000
1,2-Dibromoethane	AVRG		0.35522808		5.929	15.000
Chlorobenzene	AVRG		0.99065323		9.243	15.000
1,3-Dichlorobenzene	AVRG		1.52362325		6.309	15.000
1,4-Dichlorobenzene	AVRG		1.58040454		14.681	15.000
1,2-Dichlorobenzene	AVRG		1.39289493		8.511	15.000
Ethylbenzene	AVRG		0.51992575		5.830	15.000
m,p-Xylenes	AVRG		0.63108004		7.383	15.000
o-Xylene	AVRG		0.61400525		4.669	15.000
Styrene	AVRG		1.06414813		5.759	15.000
Carbon Disulfide	AVRG		1.35528961		6.080	15.000
2,2-Dichloropropane	AVRG		0.79166371		8.135	15.000
1,1-Dichloropropene	AVRG		0.45772621		7.432	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date(s): 05/11/20 05/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1312 1711

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Dibromomethane	AVRG		0.22074683		10.081	15.000
1,3-Dichloropropane	AVRG		0.57818454		6.898	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.39300458		4.846	15.000
Isopropylbenzene	AVRG		1.55920520		7.226	15.000
Bromobenzene	AVRG		0.93740919		9.001	15.000
1,2,3-Trichloropropane	AVRG		0.69674447		10.773	15.000
n-Propylbenzene	AVRG		3.59467414		10.034	15.000
2-Chlorotoluene	AVRG		2.23175124		9.279	15.000
1,3,5-Trimethylbenzene	AVRG		2.58168968		4.708	15.000
4-Chlorotoluene	AVRG		2.57286118		10.008	15.000
tert-Butylbenzene	AVRG		2.19201247		5.722	15.000
1,2,4-Trimethylbenzene	AVRG		2.62277408		9.226	15.000
sec-Butylbenzene	AVRG		3.02845002		10.363	15.000
p-Isopropyltoluene	AVRG		2.62630864		10.952	15.000
n-Butylbenzene	AVRG		2.11900949		12.212	15.000
1,2-Dibromo-3-Chloropropane	LINR	2.938e-002	12.1217534		0.9986839	0.9900000
1,2,4-Trichlorobenzene	LINR	5.285e-002	2.62316086		0.9957908	0.9900000
Hexachlorobutadiene	LINR	1.932e-002	3.59227170		0.9969896	0.9900000
Naphthalene	AVRG		0.47073223		11.912	15.000
1,2,3-Trichlorobenzene	2ORDR	-8.18e-003	6.59831211	-2.0506170	0.9995281	0.9900000
Freon TF	AVRG		0.38639662		4.893	15.000
Dibromofluoromethane	LINR	-4.86e-003	2.01455990		0.9994974	0.9900000
1,2-Dichloroethane-d4	LINR	-7.35e-004	1.62396266		0.9990167	0.9900000
Toluene-d8	LINR	-9.31e-003	0.80376231		0.9999444	0.9900000
4-Bromofluorobenzene	LINR	-1.54e-002	2.12571618		0.9999166	0.9900000

FORM VI VOA

MSVOA06 -Logbook

Batch: 40533
Date: 05-11-2020
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-11-2020 12:48 pm	1.00	50 mL	50 mL	X051101.D	Liquid	Y	NA
	Auto find / Purged									
2	VSTD000.25	ICAL1	05-11-2020 01:12 pm	1.00	50 mL	50 mL	X051102.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	05-11-2020 02:00 pm	1.00	50 mL	50 mL	X051103.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	05-11-2020 02:24 pm	1.00	50 mL	50 mL	X051104.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	05-11-2020 02:48 pm	1.00	50 mL	50 mL	X051105.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	05-11-2020 03:12 pm	1.00	50 mL	50 mL	X051106.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	05-11-2020 03:36 pm	1.00	50 mL	50 mL	X051107.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	05-11-2020 04:00 pm	1.00	50 mL	50 mL	X051108.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	05-11-2020 04:24 pm	1.00	50 mL	50 mL	X051109.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	05-11-2020 04:47 pm	1.00	50 mL	50 mL	X051110.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	05-11-2020 05:11 pm	1.00	50 mL	50 mL	X051111.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	05-11-2020 05:35 pm	1.00	50 mL	50 mL	X051112.D	Liquid	Y	NA
13	BLANK	SAMP	05-11-2020 05:59 pm	1.00	50 mL	50 mL	X051113.D	Liquid	Y	NA
14	ICV	CCV	05-11-2020 06:23 pm	1.00	50 mL	50 mL	X051114.D	Liquid	Y	NA
	10 uL icv std/50 mL DI									
15	BLANK	SAMP	05-11-2020 06:47 pm	1.00	50 mL	50 mL	X051115.D	Liquid	Y	NA
16	VLCSW-200511	LCS	05-11-2020 07:11 pm	1.00	50 mL	50 mL	X051116.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
17	BLANK	SAMP	05-11-2020 07:35 pm	1.00	50 mL	50 mL	X051117.D	Liquid	Y	NA
18	BLANK	SAMP	05-11-2020 07:59 pm	1.00	50 mL	50 mL	X051118.D	Liquid	Y	NA
19	VBLKW-200511	MBLK	05-11-2020 08:24 pm	1.00	50 mL	50 mL	X051119.D	Liquid	Y	NA
20	HS20050202-17	SAMP	05-11-2020 08:48 pm	1.00	50 mL	50 mL	X051120.D	Liquid	Y	NA
	neat samples									
21	HS20050202-18	SAMP	05-11-2020 09:12 pm	1.00	50 mL	50 mL	X051121.D	Liquid	Y	NA
22	HS20050202-18	SAMP	05-11-2020 09:36 pm	5.00	10 mL	50 mL	X051122.D	Liquid	Y	NA
23	HS20050292-01	SAMP	05-11-2020 10:00 pm	1.00	50 mL	50 mL	X051123.D	Liquid	Y	NA
24	HS20050292-02	SAMP	05-11-2020 10:24 pm	1.00	50 mL	50 mL	X051124.D	Liquid	Y	NA
25	HS20050292-03	SAMP	05-11-2020 10:48 pm	1.00	50 mL	50 mL	X051125.D	Liquid	Y	<2
26	HS20050292-03MS	MS	05-11-2020 11:12 pm	1.00	50 mL	50 mL	X051126.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
27	HS20050292-03MSD	MSD	05-11-2020 11:36 pm	1.00	50 mL	50 mL	X051127.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
28	CCV-END	CCV	05-12-2020 12:00 am	1.00	50 mL	50 mL	X051128.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
29	HS20050337-02	SAMP	05-12-2020 12:24 am	1.00	50 mL	50 mL	X051129.D	Liquid	Y	<2

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-26-06
IS ID	31106-26-06
CAL STD ID	31106-29-01/02
BFB ID	31106-26-06
pH Paper	634-64-11

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

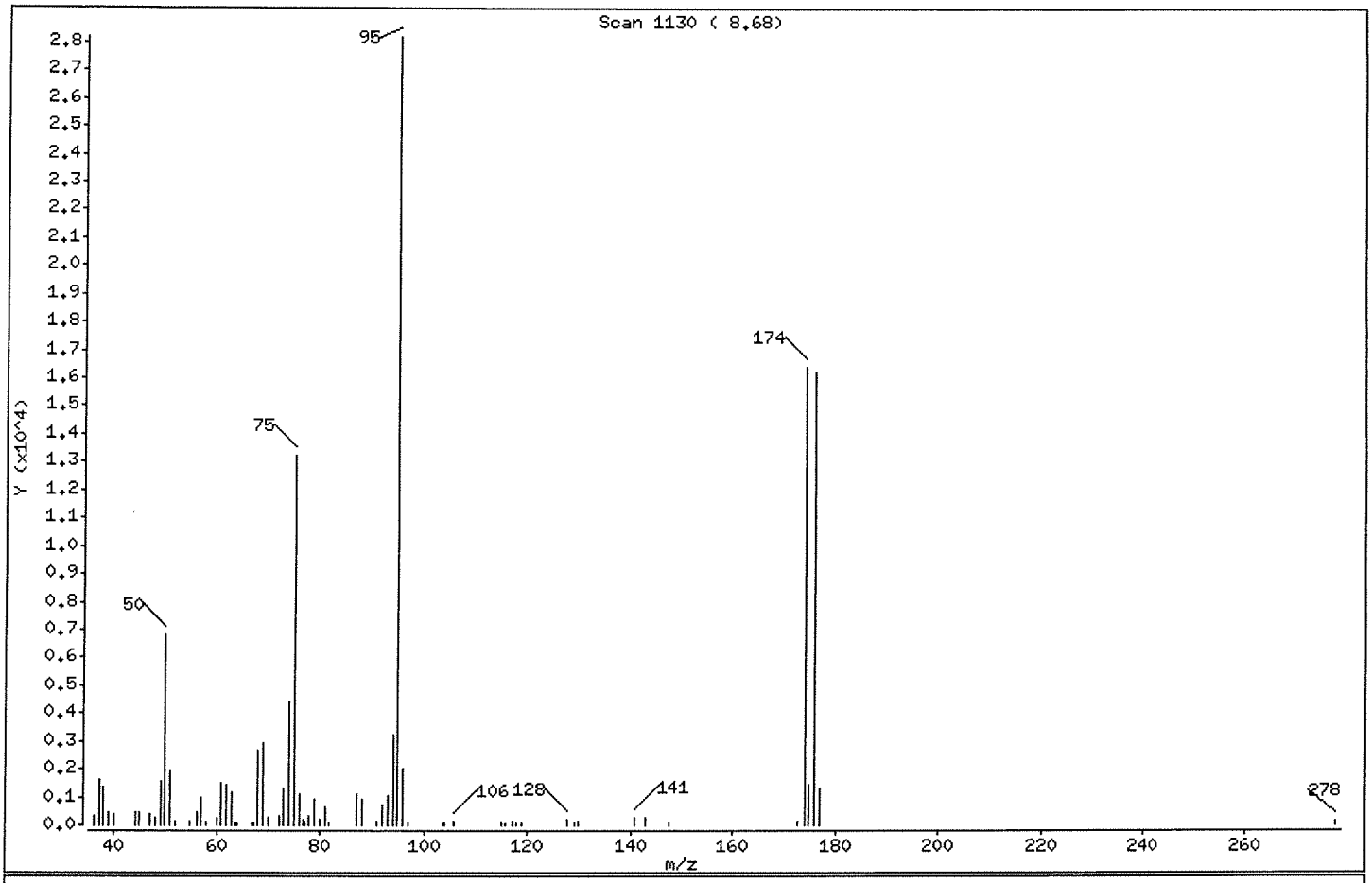
Volume Injected (uL): 2.0

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	24.23
75	30.00 - 60.00% of mass 95	46.94
96	5.00 - 9.00% of mass 95	7.07
173	Less than 2.00% of mass 174	0.40 (0.70)
174	Greater than 50.00% of mass 95	58.12
175	5.00 - 9.00% of mass 174	5.01 (8.63)
176	95.00 - 101.00% of mass 174	57.57 (99.06)
177	5.00 - 9.00% of mass 176	4.70 (8.16)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

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: X051101.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 69

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	344	61.00	1469	78.80	878	117.00	116
37.00	1597	62.00	1437	80.00	215	118.00	62
38.00	1339	63.00	1157	80.90	656	119.00	80
39.00	476	63.80	94	81.90	63	127.90	221
40.00	388	64.00	94	87.00	1132	129.00	87
44.10	480	66.70	60	88.00	930	130.00	133
45.00	427	67.10	88	91.10	98	141.00	245
47.00	412	68.00	2631	92.00	714	142.90	244
48.00	286	69.00	2930	93.00	1015	147.70	93
49.00	1548	70.00	291	94.00	3223	172.70	114
50.00	6829	72.00	332	95.00	28184	174.00	16380
51.00	1936	73.00	1275	96.00	1993	174.90	1413
52.10	99	74.00	4408	96.90	91	176.00	16226
55.00	155	75.00	13230	103.60	76	176.90	1324
56.10	426	76.00	1105	104.00	94	277.90	107
57.00	975	76.80	194	105.80	140		
58.00	122	77.10	149	114.90	135		
60.10	288	77.90	324	115.70	61		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051101.D

Date : 11-MAY-2020 12:48

Client ID: BFB

Instrument: voa6.i

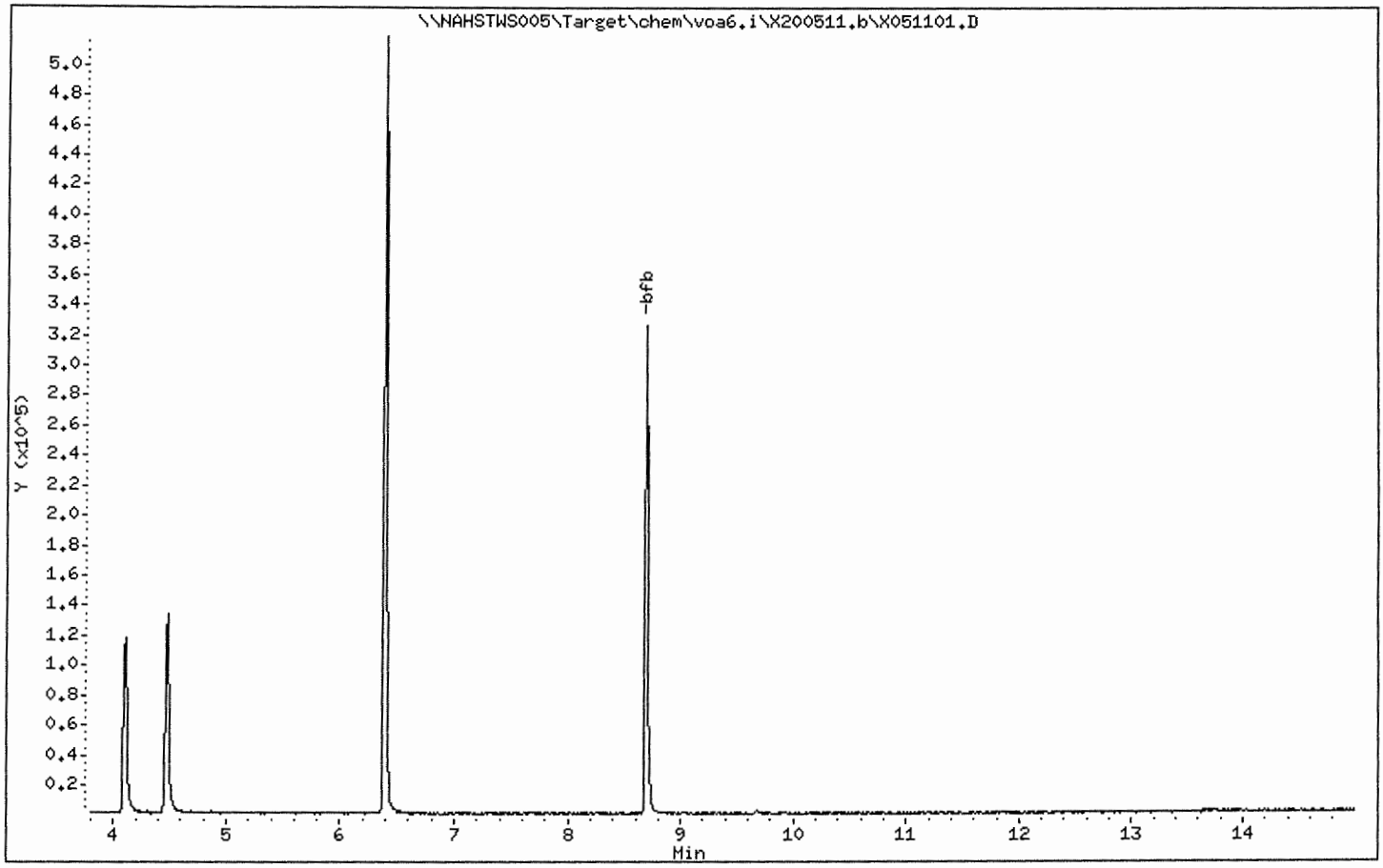
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 11-MAY-2020 14:00
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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	4.182	4.182	(1.000)	264457	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	403047	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	360066	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	172614	50.0000	
$	30 Dibromofluoromethane	113	4.118	4.118	(0.985)	1793	0.50000	0.43(a)
$	35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	2117	0.50000	0.61(TaM)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	5920	0.50000	0.19(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	2708	0.50000	0.02(aM)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1589	0.50000	0.56(a)
	31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	2455	0.50000	0.57(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1621	0.50000	0.58(aM)
	138 Freon TF	101	1.911	1.911	(0.457)	928	0.50000	0.45(a)
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	1197	0.50000	0.59(a)
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	3470	0.50000	0.60(Ta)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1219	0.50000	0.57(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2183	0.50000	0.59(aM)
	93 1,2,3-Trichlorobenzene	180	11.768	11.768	(1.218)	385	0.50000	0.32(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	1424	0.50000	0.59(aM)
	90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.175)	505	0.50000	3.02(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	5523	0.50000	0.60(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.104)	114	0.50000	1.86(aM)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	1387	0.50000	0.54(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D Page 2
Report Date: 01-Jun-2020 15:33

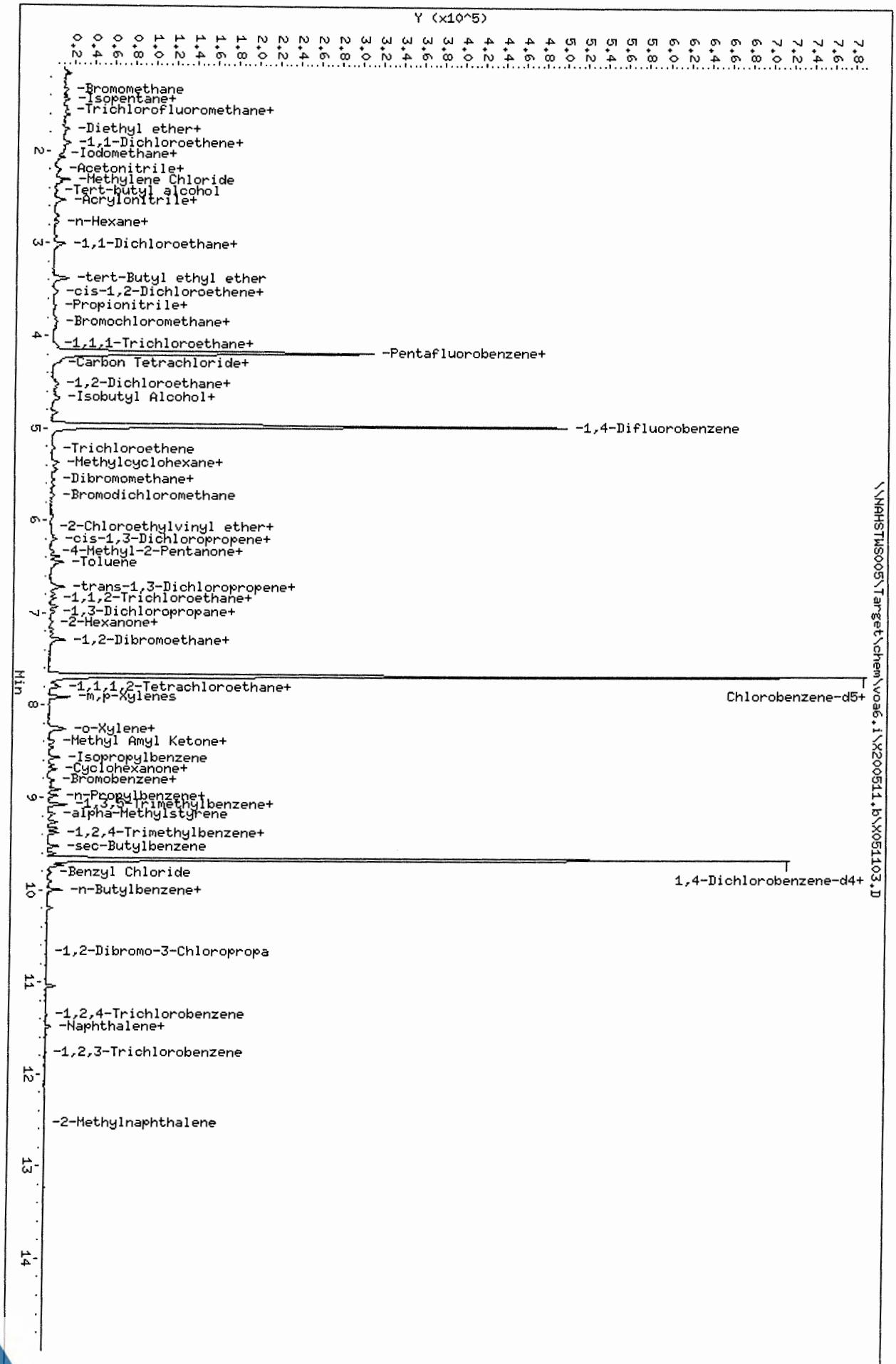
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.006	10.006	(1.036)	2924	0.50000	0.60(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	2366	0.50000	0.56(a)
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	1947	0.50000	0.59(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	4894	0.50000	0.54(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	3057	0.50000	0.58(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	2403	0.50000	0.57(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	3791	0.50000	0.69(aM)
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	2471	0.50000	0.59(aM)
24	2-Butanone	43	3.609	3.609	(0.863)	996	1.00000	0.83(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.930)	4712	0.50000	0.61(a)
52	2-Hexanone	43	7.105	7.105	(0.926)	2689	1.00000	1.20(a)
77	4-Chlorotoluene	91	9.082	9.082	(0.940)	5584	0.50000	0.62(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	5597	0.50000	0.61(a)
45	4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	3621	1.00000	1.11(a)
37	Benzene	78	4.519	4.519	(0.909)	5977	0.50000	0.58(a)
74	Bromobenzene	156	8.817	8.817	(0.913)	2002	0.50000	0.61(a)
29	Bromochloromethane	128	3.817	3.817	(0.913)	960	0.50000	0.62(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	2116	0.50000	0.56(aM)
66	Bromoform	173	8.415	8.415	(1.097)	1144	0.50000	0.55(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	8247	1.00000	1.15(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	2535	0.50000	0.62(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	4408	0.50000	0.61(a)
7	Chloroethane	64	1.403	1.403	(0.336)	1364	0.50000	0.31(aM)
28	Chloroform	83	3.917	3.917	(0.937)	2796	0.50000	0.59(aM)
3	Chloromethane	50	1.073	1.073	(0.257)	2464	0.50000	1.21(a)
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	1435	0.50000	0.51(a)
46	cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	2430	0.50000	0.55(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1589	0.50000	0.54(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	1096	0.50000	0.61(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1503	0.50000	1.54(aM)
61	Ethylbenzene	106	7.799	7.799	(1.017)	2144	0.50000	0.57(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	605	0.50000	1.59(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	6620	0.50000	0.58(a)
62	m,p-Xylenes	106	7.914	7.914	(1.032)	5392	1.00000	1.18(a)
87	n-Butylbenzene	91	9.998	9.998	(1.035)	4435	0.50000	0.60(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	7797	0.50000	0.62(a)
92	Naphthalene	128	11.567	11.567	(1.197)	795	0.50000	0.48(a)
63	o-Xylene	106	8.244	8.244	(1.075)	2416	0.50000	0.54(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	6535	0.50000	0.62(a)
64	Styrene	104	8.272	8.272	(1.078)	4394	0.50000	0.57(a)
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	4334	0.50000	0.57(aM)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1303	0.50000	0.54(a)
50	Toluene	91	6.460	6.460	(0.842)	6225	0.50000	0.58(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1384	0.50000	0.57(a)
51	trans-1,3-Dichloropropene	75	6.696	6.696	(1.347)	2163	0.50000	0.54(a)
38	Trichloroethene	130	5.221	5.221	(1.050)	1714	0.50000	0.59(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	2348	0.50000	0.55(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1998	0.50000	0.54(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

QC Flag Legend

M - Compound response manually integrated.



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Date : 11-MAY-2020 14:00
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051103.D
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 11-MAY-2020 14:24
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:00 Cal File: X051103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

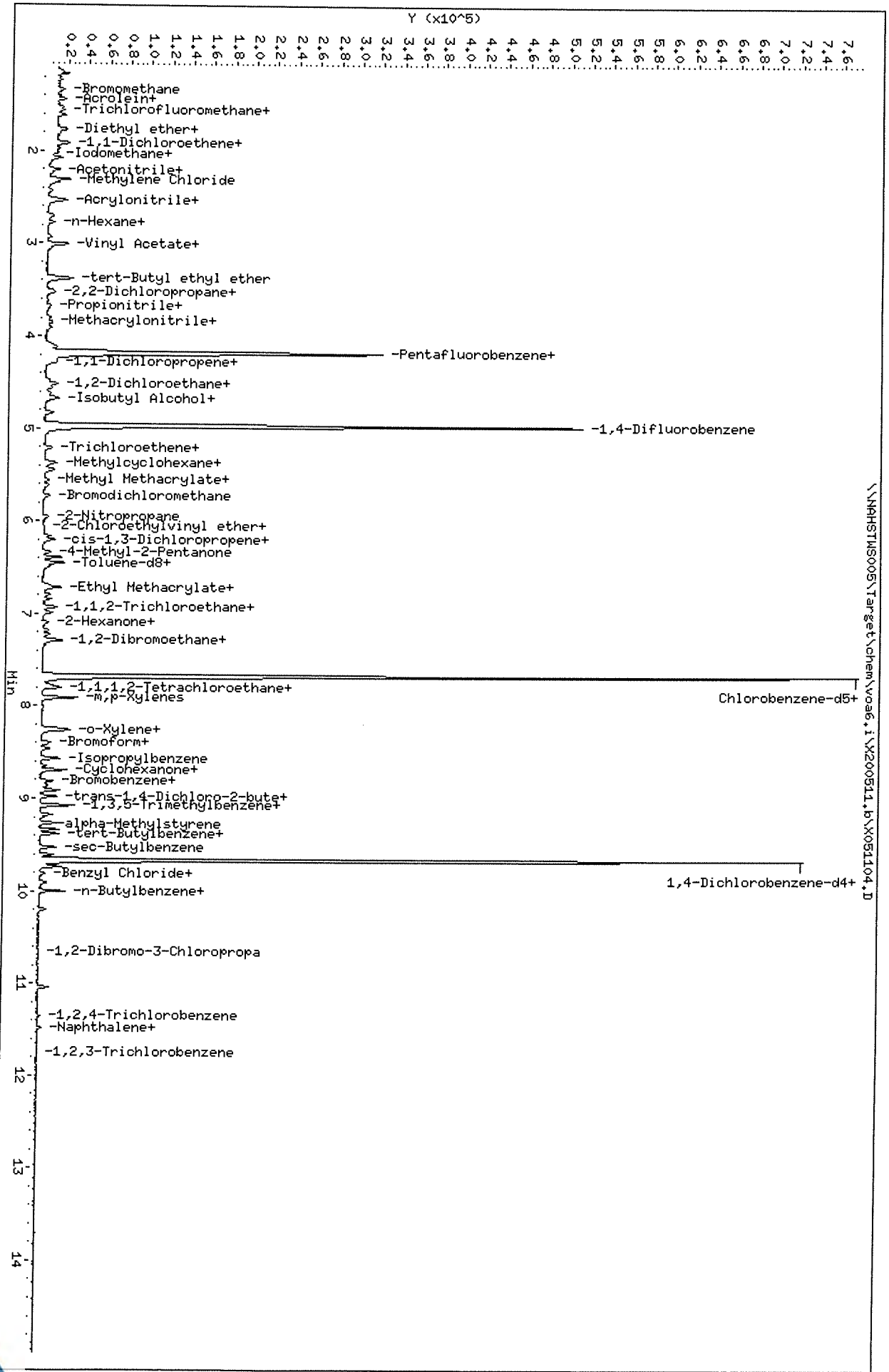
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	275272	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	406059	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	364006	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	178611	50.0000	
$	30 Dibromofluoromethane	113	4.111	4.111	(0.983)	3147	1.00000	0.90(a)
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	3902	1.00000	1.11
$	48 Toluene-d8	98	6.396	6.396	(0.834)	10982	1.00000	0.74(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	6819	1.00000	1.22(M)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2921	1.00000	1.02(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	4385	1.00000	0.99(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	2901	1.00000	1.01(aM)
	138 Freon TF	101	1.919	1.919	(0.459)	2064	1.00000	0.97(a)
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	1834	1.00000	0.90(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6103	1.00000	1.02
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	2222	1.00000	1.01(a)
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	3792	1.00000	1.02(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.753	(1.216)	431	1.00000	0.38(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	2246	1.00000	0.90(aM)
	90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	762	1.00000	3.20(aM)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	8175	1.00000	0.87(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	128	1.00000	1.90(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	2246	1.00000	0.86(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	4805	1.00000	0.96(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	3942	1.00000	0.93(a)
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	3276	1.00000	0.99(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	8480	1.00000	0.91(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	5149	1.00000	0.94(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	3905	1.00000	0.92(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	5222	1.00000	0.92(a)
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	4652	1.00000	1.06(a)
24 2-Butanone	43	3.616	3.616	(0.865)	2014	2.00000	1.62(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	8499	1.00000	1.06(a)
52 2-Hexanone	43	7.097	7.097	(0.925)	3544	2.00000	1.57(a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	9489	1.00000	1.03(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	7748	1.00000	0.82(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	5818	2.00000	1.77(a)
37 Benzene	78	4.519	4.519	(0.909)	10698	1.00000	1.03
74 Bromobenzene	156	8.809	8.809	(0.911)	3242	1.00000	0.96(a)
29 Bromochloromethane	128	3.810	3.810	(0.911)	1724	1.00000	1.07(aM)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	3508	1.00000	0.92(aM)
66 Bromoform	173	8.415	8.415	(1.097)	1878	1.00000	0.90(Ta)
6 Bromomethane	94	1.338	1.338	(0.320)	2788	1.00000	0.65(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	14075	2.00000	1.88(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	4264	1.00000	1.04(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	6626	1.00000	0.91(a)
7 Chloroethane	64	1.403	1.403	(0.336)	2214	1.00000	0.72(aM)
28 Chloroform	83	3.917	3.917	(0.937)	4419	1.00000	0.89(a)
3 Chloromethane	50	1.073	1.073	(0.257)	4677	1.00000	1.69(a)
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	2598	1.00000	0.89(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	4354	1.00000	0.98(a)
55 Dibromochloromethane	129	7.183	7.183	(0.937)	2769	1.00000	0.93(a)
44 Dibromomethane	93	5.557	5.557	(1.118)	1516	1.00000	0.84(a)
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	2633	1.00000	1.86(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	3595	1.00000	0.94(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	736	1.00000	1.70(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	10828	1.00000	0.95(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	8477	2.00000	1.84(a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	3655	1.00000	0.30(aM)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	5888	1.00000	0.77(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	11772	1.00000	0.91(a)
92 Naphthalene	128	11.567	11.567	(1.196)	1462	1.00000	0.86(a)
63 o-Xylene	106	8.244	8.244	(1.075)	4297	1.00000	0.96(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	9307	1.00000	0.86(a)
64 Styrene	104	8.265	8.265	(1.078)	7774	1.00000	1.00
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	7608	1.00000	0.97(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	2384	1.00000	0.99(a)
50 Toluene	91	6.453	6.453	(0.841)	10333	1.00000	0.95(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	2248	1.00000	0.89(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	3756	1.00000	0.93(a)
38 Trichloroethene	130	5.221	5.221	(1.050)	2673	1.00000	0.91(a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	4149	1.00000	0.93(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	3583	1.00000	0.93(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051104.D
Date : 11-MAY-2020 14:24
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

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 11-MAY-2020 14:48
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:24 Cal File: X051104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

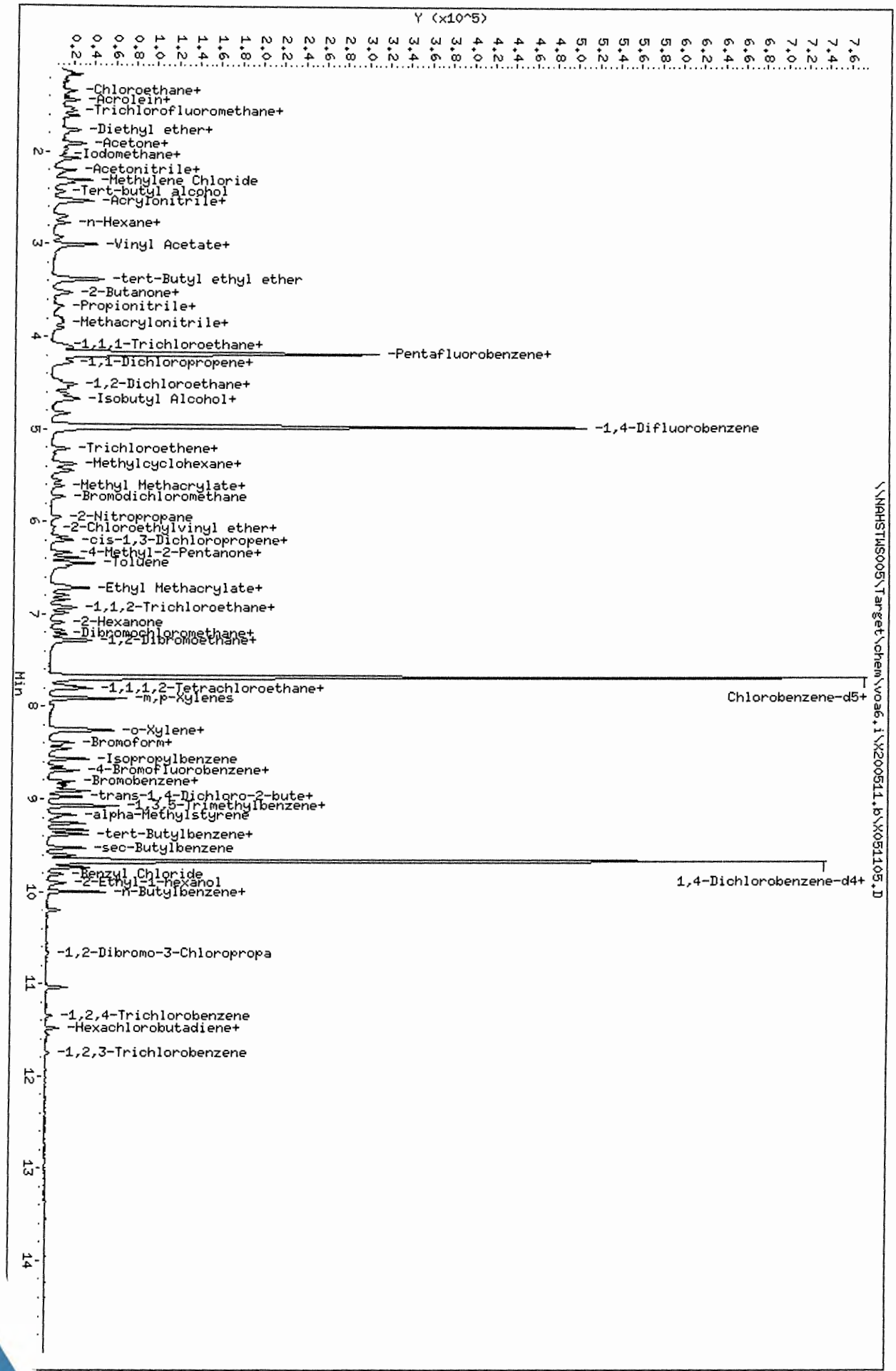
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	263591	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	396279	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	351963	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	178242	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	5198	2.00000	1.74
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	7290	2.00000	2.20
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	18430	2.00000	1.63
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8380	2.00000	1.75
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	5459	2.00000	1.97(a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	8079	2.00000	1.91
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6293	2.00000	2.19(aM)
138 Freon TF	101	1.919	1.919	(0.459)	4120	2.00000	2.02(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4127	2.00000	2.10(a)
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	11643	2.00000	2.03
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3905	2.00000	1.86(a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	7360	2.00000	2.02(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	1047	2.00000	1.52(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	5909	2.00000	2.37(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	1924	2.00000	4.05(a)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	17865	2.00000	1.91(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.104)	532	2.00000	3.27(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	5252	2.00000	2.10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	10304	2.00000	2.07(a)
33	1,2-Dichloroethane	62	4.569	4.569	(0.919)	7567	2.00000	1.83
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	6309	2.00000	1.95(aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	18199	2.00000	1.97(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	10710	2.00000	1.97(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	8570	2.00000	2.10(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	10744	2.00000	1.90(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	8610	2.00000	2.06(a)
24	2-Butanone	43	3.595	3.595	(0.860)	3931	4.00000	3.30
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	15622	2.00000	1.96(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	9844	4.00000	4.52(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	17906	2.00000	1.95(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	17190	2.00000	1.83(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	14181	4.00000	4.46(a)
10	Acetone	43	1.969	1.969	(0.471)	5040	4.00000	2.97(a)
37	Benzene	78	4.519	4.519	(0.909)	19710	2.00000	1.94
74	Bromobenzene	156	8.810	8.810	(0.912)	6636	2.00000	1.98(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	3004	2.00000	1.96(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	7310	2.00000	1.97(a)
66	Bromoform	173	8.416	8.416	(1.097)	4311	2.00000	2.13(Ta)
6	Bromomethane	94	1.339	1.339	(0.320)	5327	2.00000	2.04(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	27764	4.00000	3.88(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	7736	2.00000	1.94(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	14195	2.00000	2.03
7	Chloroethane	64	1.403	1.403	(0.336)	3636	2.00000	1.54(a)
28	Chloroform	83	3.917	3.917	(0.937)	9385	2.00000	1.99
3	Chloromethane	50	1.074	1.074	(0.257)	8356	2.00000	2.61(a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	6149	2.00000	2.21(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8237	2.00000	1.90(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	5789	2.00000	2.03(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	3352	2.00000	1.91(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	5304	2.00000	2.75(a)
61	Ethylbenzene	106	7.800	7.800	(1.017)	7402	2.00000	2.02
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	2177	2.00000	3.15(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	20273	2.00000	1.84(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	17933	4.00000	4.03
17	Methylene Chloride	84	2.306	2.306	(0.551)	6641	2.00000	1.54(aM)
87	n-Butylbenzene	91	9.999	9.999	(1.035)	13137	2.00000	1.73(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	23793	2.00000	1.85(a)
92	Naphthalene	128	11.553	11.553	(1.196)	2896	2.00000	1.72(a)
63	o-Xylene	106	8.244	8.244	(1.075)	9179	2.00000	2.12
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	21323	2.00000	1.97(a)
64	Styrene	104	8.265	8.265	(1.078)	15041	2.00000	2.00
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	15079	2.00000	1.92(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	4860	2.00000	2.09
50	Toluene	91	6.453	6.453	(0.841)	21432	2.00000	2.05
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4704	2.00000	1.96(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	7614	2.00000	1.93(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	5425	2.00000	1.90
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	7899	2.00000	1.86(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	7135	2.00000	1.95(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200511,b\X051105,D
Date : 11-MAY-2020 14:48
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\X200511.b\X051106.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 11-MAY-2020 15:12
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 14:48 Cal File: X051105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

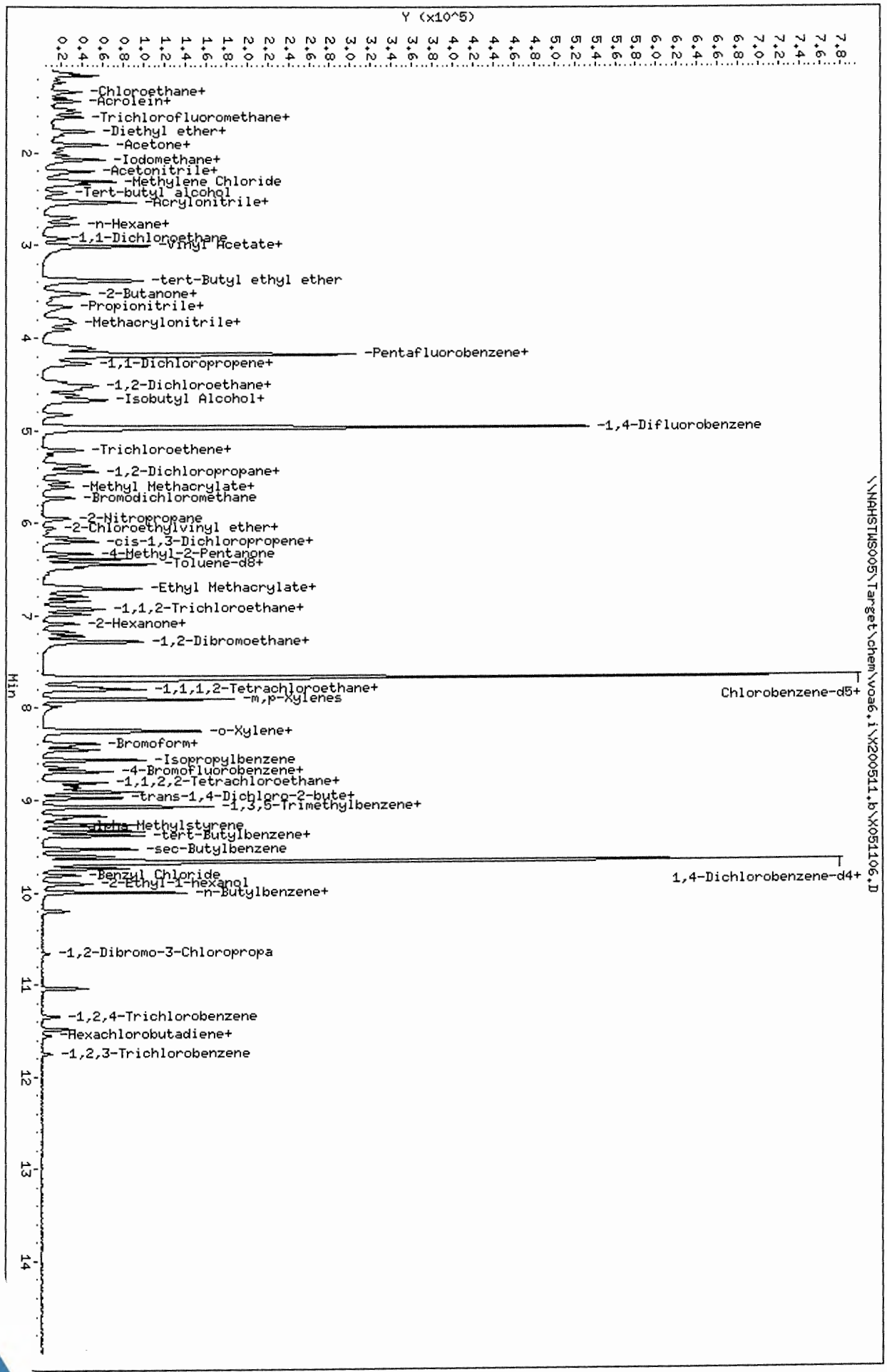
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	260790	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	393985	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	352401	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	175544	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.983)	14036	5.00000	5.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	17135	5.00000	5.29
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	47142	5.00000	4.91
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	19241	5.00000	5.03
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	13494	5.00000	4.87(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	20093	5.00000	4.81
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	14006	5.00000	4.96(a)
138 Freon TF	101	1.911	1.911	(0.457)	9855	5.00000	4.88(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	10314	5.00000	5.26
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	28324	5.00000	4.99
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	9809	5.00000	4.72(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	17168	5.00000	4.75(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	3164	5.00000	5.50
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	11655	5.00000	4.76(aM)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	5746	5.00000	6.93
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	44767	5.00000	4.86(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	1596	5.00000	6.97
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	12610	5.00000	5.03

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051106.D Page 2
Report Date: 01-Jun-2020 15:33

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	23909	5.00000	4.88(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	20100	5.00000	4.89
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	15911	5.00000	4.96(a)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	45927	5.00000	5.06
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	26279	5.00000	4.91(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	20663	5.00000	5.07
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	27091	5.00000	4.88(a)
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	20032	5.00000	4.85(a)
24	2-Butanone	43	3.588	3.588	(0.858)	11452	10.0000	9.74
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	38693	5.00000	4.93(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	21406	10.0000	9.82
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	42965	5.00000	4.75(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	44464	5.00000	4.82(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	32131	10.0000	10.09
10	Acetone	43	1.976	1.976	(0.473)	9390	10.0000	7.93
37	Benzene	78	4.519	4.519	(0.909)	47662	5.00000	4.73
74	Bromobenzene	156	8.809	8.809	(0.911)	15558	5.00000	4.72(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	7793	5.00000	5.15
39	Bromodichloromethane	83	5.729	5.729	(1.153)	18153	5.00000	4.93(a)
66	Bromoform	173	8.416	8.416	(1.097)	10062	5.00000	4.98(a)
6	Bromomethane	94	1.338	1.338	(0.320)	11539	5.00000	5.35(M)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	68909	10.0000	9.74
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	18629	5.00000	4.70(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	34696	5.00000	4.96
7	Chloroethane	64	1.403	1.403	(0.336)	10011	5.00000	5.05
28	Chloroform	83	3.910	3.910	(0.935)	24061	5.00000	5.16
3	Chloromethane	50	1.073	1.073	(0.257)	19497	5.00000	5.31
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	13752	5.00000	4.99(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	21020	5.00000	4.88(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	13999	5.00000	4.90(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	8792	5.00000	5.05
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	13068	5.00000	5.26
61	Ethylbenzene	106	7.800	7.800	(1.017)	17464	5.00000	4.76
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	5460	5.00000	6.55
67	Isopropylbenzene	105	8.566	8.566	(1.117)	54621	5.00000	4.97(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	43516	10.0000	9.78
17	Methylene Chloride	84	2.305	2.305	(0.551)	14433	5.00000	4.67(aM)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	36372	5.00000	4.88(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	61681	5.00000	4.88(a)
92	Naphthalene	128	11.546	11.546	(1.194)	7604	5.00000	4.60(a)
63	o-Xylene	106	8.244	8.244	(1.075)	21272	5.00000	4.91
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	53044	5.00000	4.98(a)
64	Styrene	104	8.265	8.265	(1.078)	36239	5.00000	4.83
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	38878	5.00000	5.05
56	Tetrachloroethene	164	6.933	6.933	(0.904)	11417	5.00000	4.91
50	Toluene	91	6.446	6.446	(0.840)	52487	5.00000	5.03
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	11735	5.00000	4.94(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	19122	5.00000	4.89(a)
38	Trichloroethene	130	5.206	5.206	(1.048)	13453	5.00000	4.75
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	19847	5.00000	4.73(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	17119	5.00000	4.73(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Date : 11-MAY-2020 15:12
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 11-MAY-2020 15:36
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 15:12 Cal File: X051106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

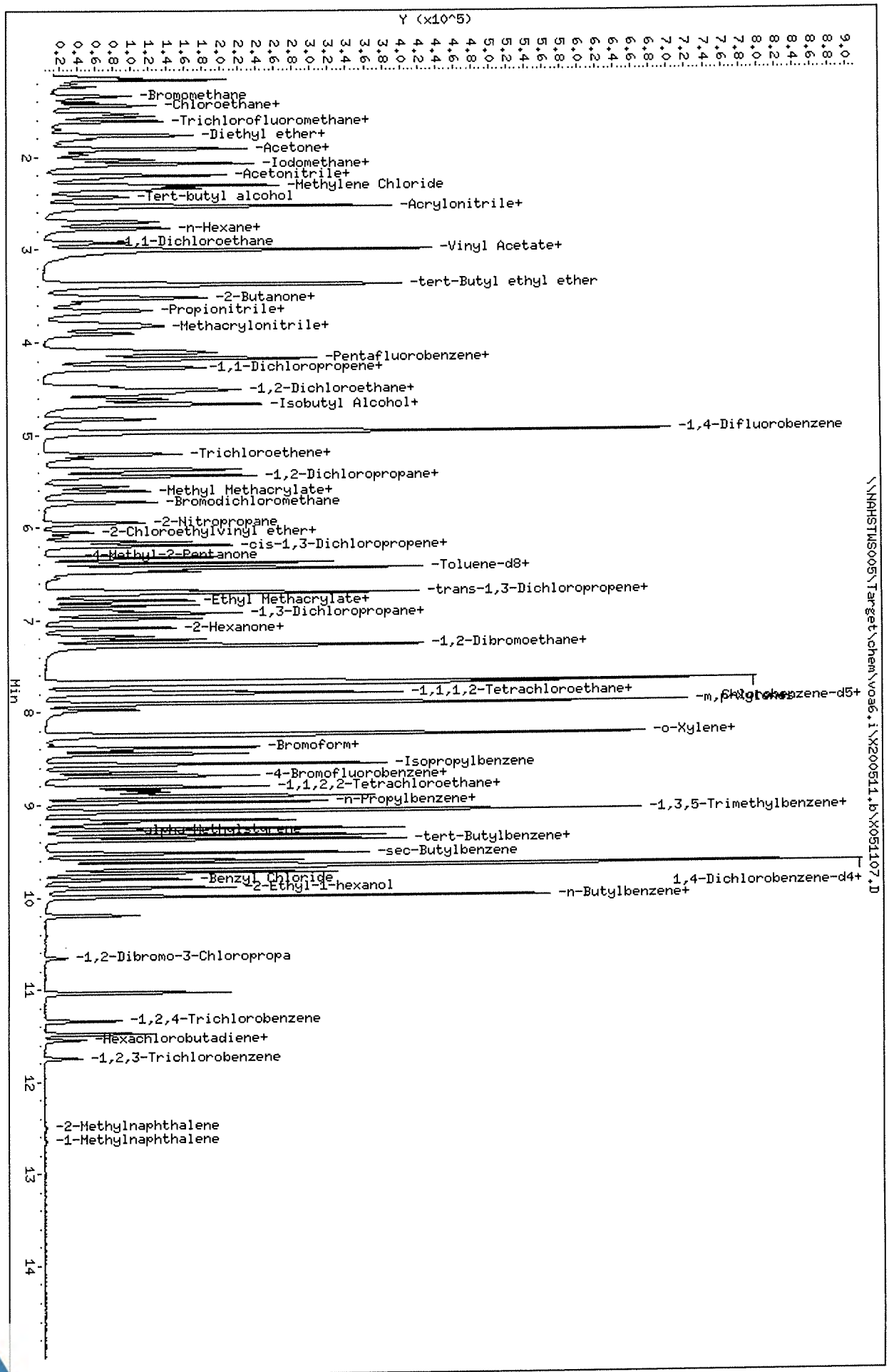
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	255700	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	378254	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	339256	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	171130	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	51294	20.0000	19.96
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	62012	20.0000	19.65
$	48 Toluene-d8	98	6.388	6.388	(0.833)	176771	20.0000	20.47
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	69563	20.0000	21.02
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	52095	20.0000	19.53
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	79732	20.0000	19.47
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	53986	20.0000	19.63
	138 Freon TF	101	1.919	1.919	(0.459)	38765	20.0000	19.61
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	36817	20.0000	19.50
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	107343	20.0000	19.31
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	39440	20.0000	19.38
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	66167	20.0000	19.10
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	11186	20.0000	20.71
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	45232	20.0000	18.96(M)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	23261	20.0000	20.47
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	177262	20.0000	19.74
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	5237	20.0000	20.01
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	49329	20.0000	20.46

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051107.D Page 2
Report Date: 01-Jun-2020 15:33

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.991	9.991	(1.034)	91741	20.0000	19.24
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	79106	20.0000	20.08
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	60696	20.0000	19.71
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	173374	20.0000	19.62
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	103242	20.0000	19.79
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	78846	20.0000	20.09
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	102094	20.0000	18.87
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	78288	20.0000	19.33
24 2-Butanone	43	3.580	3.580	(0.856)	49330	40.0000	42.80
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	143786	20.0000	18.82
52 2-Hexanone	43	7.090	7.090	(0.924)	83306	40.0000	39.70
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	170619	20.0000	19.37
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	178794	20.0000	19.89
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	122401	40.0000	39.95
10 Acetone	43	1.969	1.969	(0.471)	35665	40.0000	38.28
37 Benzene	78	4.512	4.512	(0.908)	190323	20.0000	19.68
74 Bromobenzene	156	8.809	8.809	(0.912)	62061	20.0000	19.34
29 Bromochloromethane	128	3.795	3.795	(0.908)	28180	20.0000	18.99
39 Bromodichloromethane	83	5.729	5.729	(1.153)	69054	20.0000	19.55
66 Bromoform	173	8.415	8.415	(1.097)	38468	20.0000	19.79
6 Bromomethane	94	1.338	1.338	(0.320)	40170	20.0000	20.93
19 Carbon Disulfide	76	2.069	2.069	(0.495)	269383	40.0000	38.86
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	69941	20.0000	18.40
59 Chlorobenzene	112	7.699	7.699	(1.004)	130918	20.0000	19.47
7 Chloroethane	64	1.403	1.403	(0.336)	35750	20.0000	19.50
28 Chloroform	83	3.910	3.910	(0.935)	90107	20.0000	19.71
3 Chloromethane	50	1.073	1.073	(0.257)	77009	20.0000	19.49
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	54813	20.0000	20.32
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	81116	20.0000	19.61
55 Dibromochloromethane	129	7.176	7.176	(0.936)	53715	20.0000	19.56
44 Dibromomethane	93	5.557	5.557	(1.118)	32219	20.0000	19.29
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	55700	20.0000	19.32
61 Ethylbenzene	106	7.799	7.799	(1.017)	69660	20.0000	19.74
91 Hexachlorobutadiene	225	11.481	11.481	(1.188)	21311	20.0000	23.33
67 Isopropylbenzene	105	8.566	8.566	(1.117)	209344	20.0000	19.78
62 m,p-Xylenes	106	7.907	7.907	(1.031)	170236	40.0000	39.75
17 Methylene Chloride	84	2.305	2.305	(0.551)	52520	20.0000	20.24
87 n-Butylbenzene	91	9.998	9.998	(1.035)	146592	20.0000	20.21
73 n-Propylbenzene	91	8.917	8.917	(0.923)	239282	20.0000	19.44
92 Naphthalene	128	11.546	11.546	(1.195)	31970	20.0000	19.84
63 o-Xylene	106	8.244	8.244	(1.075)	83788	20.0000	20.11
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	201174	20.0000	19.40
64 Styrene	104	8.258	8.258	(1.077)	143940	20.0000	19.93
78 tert-Butylbenzene	119	9.339	9.339	(0.967)	147263	20.0000	19.62
56 Tetrachloroethene	164	6.933	6.933	(0.904)	43566	20.0000	19.46
50 Toluene	91	6.446	6.446	(0.840)	201457	20.0000	20.06
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	46791	20.0000	20.11
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	73152	20.0000	19.50
38 Trichloroethene	130	5.206	5.206	(1.048)	52492	20.0000	19.34
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	79846	20.0000	19.40
5 Vinyl Chloride	62	1.138	1.138	(0.272)	69422	20.0000	19.58

QC Flag Legend

M - Compound response manually integrated.



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Date : 11-MAY-2020 15:36
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

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-MAY-2020 16:00
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 15:36 Cal File: X051107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

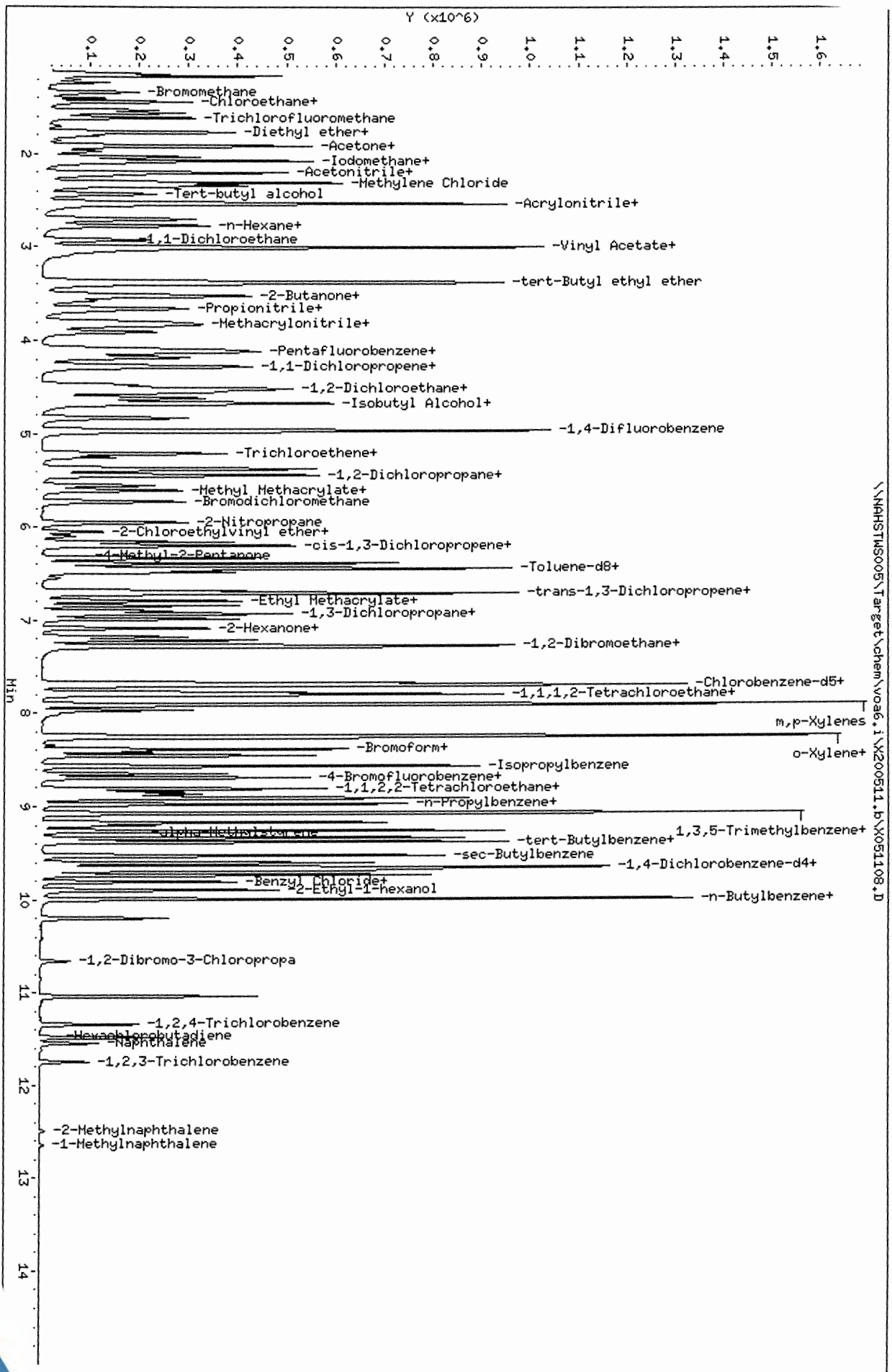
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	244879	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	357125	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	326341	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	163130	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	118264	50.0000	48.40
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	143586	50.0000	47.57
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	410250	50.0000	50.05
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	152557	50.0000	48.91
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	124113	50.0000	48.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	187573	50.0000	47.83
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	121679	50.0000	46.41
138 Freon TF	101	1.911	1.911	(0.457)	94407	50.0000	49.88
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	87053	50.0000	47.95
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	249560	50.0000	46.89
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	94156	50.0000	48.32
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	153095	50.0000	46.82
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	27245	50.0000	51.83
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	111062	50.0000	48.85 (M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	54809	50.0000	46.70
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	419671	50.0000	49.04
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	12187	50.0000	46.74
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	114686	50.0000	49.46

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	216357	50.0000	47.60
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	188212	50.0000	50.61
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	141074	50.0000	48.53
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	410269	50.0000	48.70
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	238547	50.0000	47.98
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	182269	50.0000	48.29
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	242693	50.0000	47.06
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	180990	50.0000	46.68
24 2-Butanone	43	3.573	3.573	(0.854)	128765	100.000	116.67
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	337693	50.0000	46.37
52 2-Hexanone	43	7.083	7.083	(0.923)	198319	100.000	98.27
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	394561	50.0000	47.00
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	420632	50.0000	49.08
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	280968	100.000	95.35
10 Acetone	43	1.969	1.969	(0.471)	95313	100.000	111.54
37 Benzene	78	4.512	4.512	(0.908)	440626	50.0000	48.26
74 Bromobenzene	156	8.809	8.809	(0.911)	147210	50.0000	48.13
29 Bromochloromethane	128	3.795	3.795	(0.908)	67372	50.0000	47.41
39 Bromodichloromethane	83	5.729	5.729	(1.153)	163351	50.0000	49.00
66 Bromoform	173	8.415	8.415	(1.097)	89604	50.0000	47.92
6 Bromomethane	94	1.338	1.338	(0.320)	86417	50.0000	47.95
19 Carbon Disulfide	76	2.069	2.069	(0.495)	646964	100.000	97.46
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	167086	50.0000	46.56
59 Chlorobenzene	112	7.699	7.699	(1.004)	309412	50.0000	47.85
7 Chloroethane	64	1.403	1.403	(0.336)	85402	50.0000	49.28
28 Chloroform	83	3.910	3.910	(0.935)	210954	50.0000	48.20
3 Chloromethane	50	1.073	1.073	(0.257)	185773	50.0000	48.15
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	126004	50.0000	48.77
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	193147	50.0000	49.47
55 Dibromochloromethane	129	7.176	7.176	(0.936)	129345	50.0000	48.96
44 Dibromomethane	93	5.557	5.557	(1.118)	77674	50.0000	49.26
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	135443	50.0000	47.41
61 Ethylbenzene	106	7.799	7.799	(1.017)	165225	50.0000	48.68
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	41952	50.0000	47.15
67 Isopropylbenzene	105	8.566	8.566	(1.117)	489328	50.0000	48.08
62 m,p-Xylenes	106	7.907	7.907	(1.031)	402602	100.000	97.74
17 Methylene Chloride	84	2.305	2.305	(0.551)	120730	50.0000	50.09
87 n-Butylbenzene	91	9.998	9.998	(1.034)	347792	50.0000	50.30
73 n-Propylbenzene	91	8.917	8.917	(0.922)	565315	50.0000	48.20
92 Naphthalene	128	11.546	11.546	(1.194)	75806	50.0000	49.35
63 o-Xylene	106	8.244	8.244	(1.075)	194330	50.0000	48.49
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	468460	50.0000	47.41
64 Styrene	104	8.258	8.258	(1.077)	337378	50.0000	48.57
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	340560	50.0000	47.61
56 Tetrachloroethene	164	6.933	6.933	(0.904)	104173	50.0000	48.39
50 Toluene	91	6.446	6.446	(0.840)	467021	50.0000	48.35
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	109110	50.0000	48.98
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	173577	50.0000	49.02
38 Trichloroethene	130	5.206	5.206	(1.048)	124926	50.0000	48.75
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	194926	50.0000	49.47
5 Vinyl Chloride	62	1.138	1.138	(0.272)	167564	50.0000	49.36

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051108.D
Date : 11-MAY-2020 16:00
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 11-MAY-2020 16:24
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

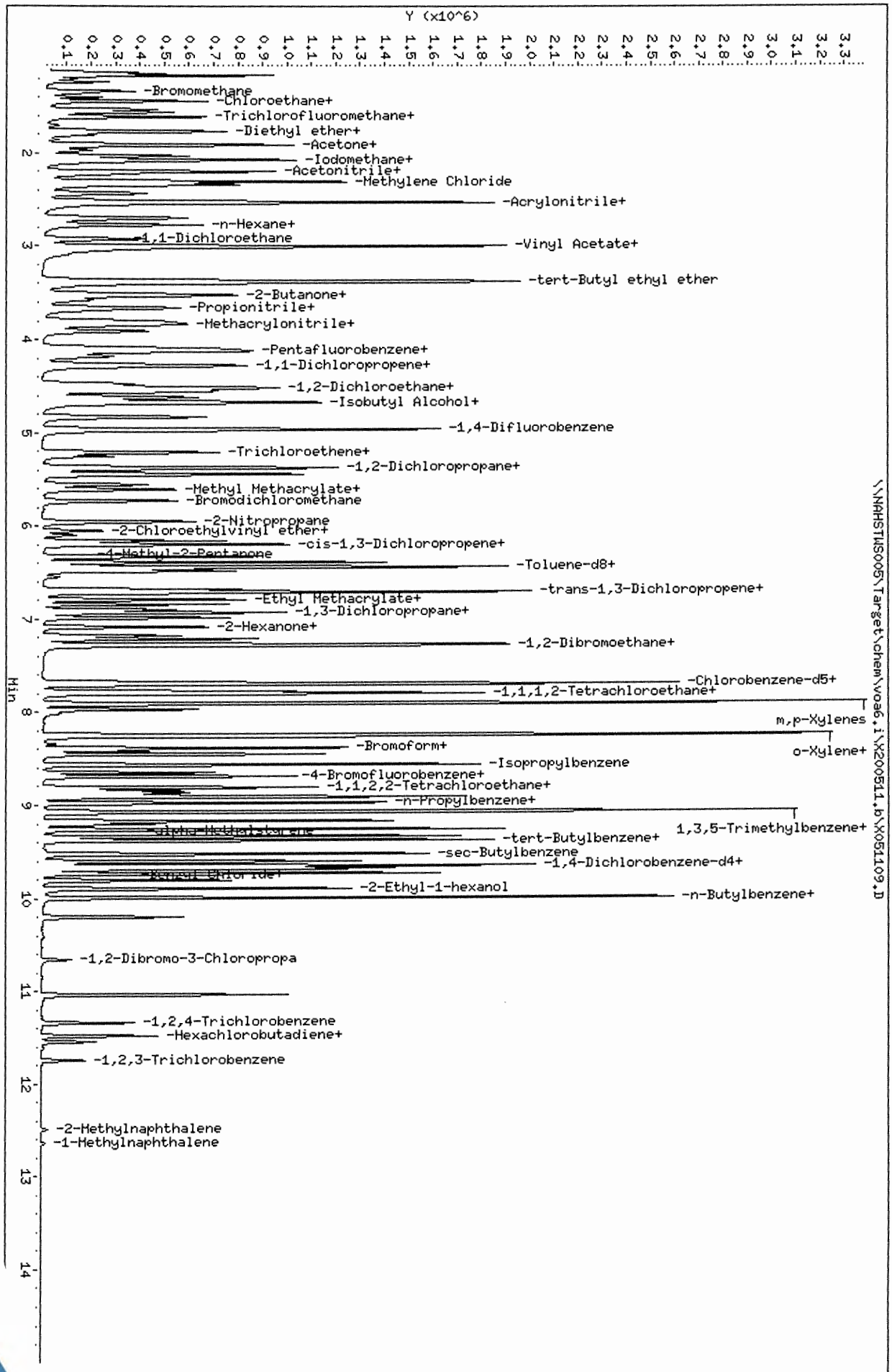
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	226332	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	331288	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	309250	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	155032	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	228909	100.000	101.63
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	281127	100.000	100.81
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	778769	100.000	100.73
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	294185	100.000	100.33
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	239360	100.000	98.47
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	360299	100.000	99.40
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	232257	100.000	93.22
138 Freon TF	101	1.912	1.912	(0.457)	185402	100.000	105.99
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	165216	100.000	96.04
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	473292	100.000	96.21
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	180100	100.000	100.01
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	299678	100.000	98.81
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	50765	100.000	96.62
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	207372	100.000	95.98(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	103966	100.000	90.59
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	815497	100.000	100.27
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	23938	100.000	95.05
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	217918	100.000	99.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051109.D Page 2
Report Date: 01-Jun-2020 15:33

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.991	9.991	(1.033)	414523	100.000	95.97
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	349387	100.000	101.29(A)
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	264442	100.000	98.06
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	810286	100.000	101.22
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	465093	100.000	98.44
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	344709	100.000	96.39
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	467125	100.000	95.32
26 2,2-Dichloropropane	77	3.509	3.509	(0.839)	341084	100.000	95.17
24 2-Butanone	43	3.573	3.573	(0.854)	229095	200.000	224.59(A)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	666346	100.000	96.29
52 2-Hexanone	43	7.090	7.090	(0.924)	374858	200.000	196.01
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	767875	100.000	96.25
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	830752	100.000	102.01
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	545954	200.000	195.52
10 Acetone	43	1.969	1.969	(0.471)	157042	200.000	200.90
37 Benzene	78	4.512	4.512	(0.908)	832105	100.000	98.26
74 Bromobenzene	156	8.810	8.810	(0.911)	281193	100.000	96.74
29 Bromochloromethane	128	3.795	3.795	(0.908)	121892	100.000	92.82
39 Bromodichloromethane	83	5.729	5.729	(1.153)	308906	100.000	99.89
66 Bromoform	173	8.416	8.416	(1.097)	175012	100.000	98.77
6 Bromomethane	94	1.331	1.331	(0.318)	166042	100.000	100.49
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1236060	200.000	201.47(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	324110	100.000	97.37
59 Chlorobenzene	112	7.699	7.699	(1.004)	595488	100.000	97.18
7 Chloroethane	64	1.396	1.396	(0.334)	162411	100.000	101.85
28 Chloroform	83	3.910	3.910	(0.935)	397623	100.000	98.30
3 Chloromethane	50	1.073	1.073	(0.257)	352150	100.000	98.11
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	238323	100.000	99.81
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	364351	100.000	100.60
55 Dibromochloromethane	129	7.176	7.176	(0.936)	253688	100.000	101.35
44 Dibromomethane	93	5.558	5.558	(1.118)	146927	100.000	100.45
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	264084	100.000	98.85
61 Ethylbenzene	106	7.800	7.800	(1.017)	323615	100.000	100.63(A)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	77175	100.000	90.37
67 Isopropylbenzene	105	8.566	8.566	(1.117)	969801	100.000	100.56
62 m,p-Xylenes	106	7.907	7.907	(1.031)	769824	200.000	197.22
17 Methylene Chloride	84	2.306	2.306	(0.551)	224234	100.000	101.75
87 n-Butylbenzene	91	9.999	9.999	(1.034)	687209	100.000	104.59
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1109073	100.000	99.50
92 Naphthalene	128	11.546	11.546	(1.194)	148845	100.000	101.97
63 o-Xylene	106	8.244	8.244	(1.075)	372835	100.000	98.17
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	938229	100.000	99.91
64 Styrene	104	8.258	8.258	(1.077)	648150	100.000	98.47
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	675938	100.000	99.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	201864	100.000	98.95
50 Toluene	91	6.446	6.446	(0.840)	886141	100.000	96.82
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	207011	100.000	100.54
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	333810	100.000	101.63
38 Trichloroethene	130	5.207	5.207	(1.048)	243052	100.000	102.24(A)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	376917	100.000	103.50
5 Vinyl Chloride	62	1.138	1.138	(0.272)	323682	100.000	103.16

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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Date : 11-MAY-2020 16:24
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\X200511.b\X051110.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 11-MAY-2020 16:47
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\X200511.b\8260W.m
Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:24 Cal File: X051109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

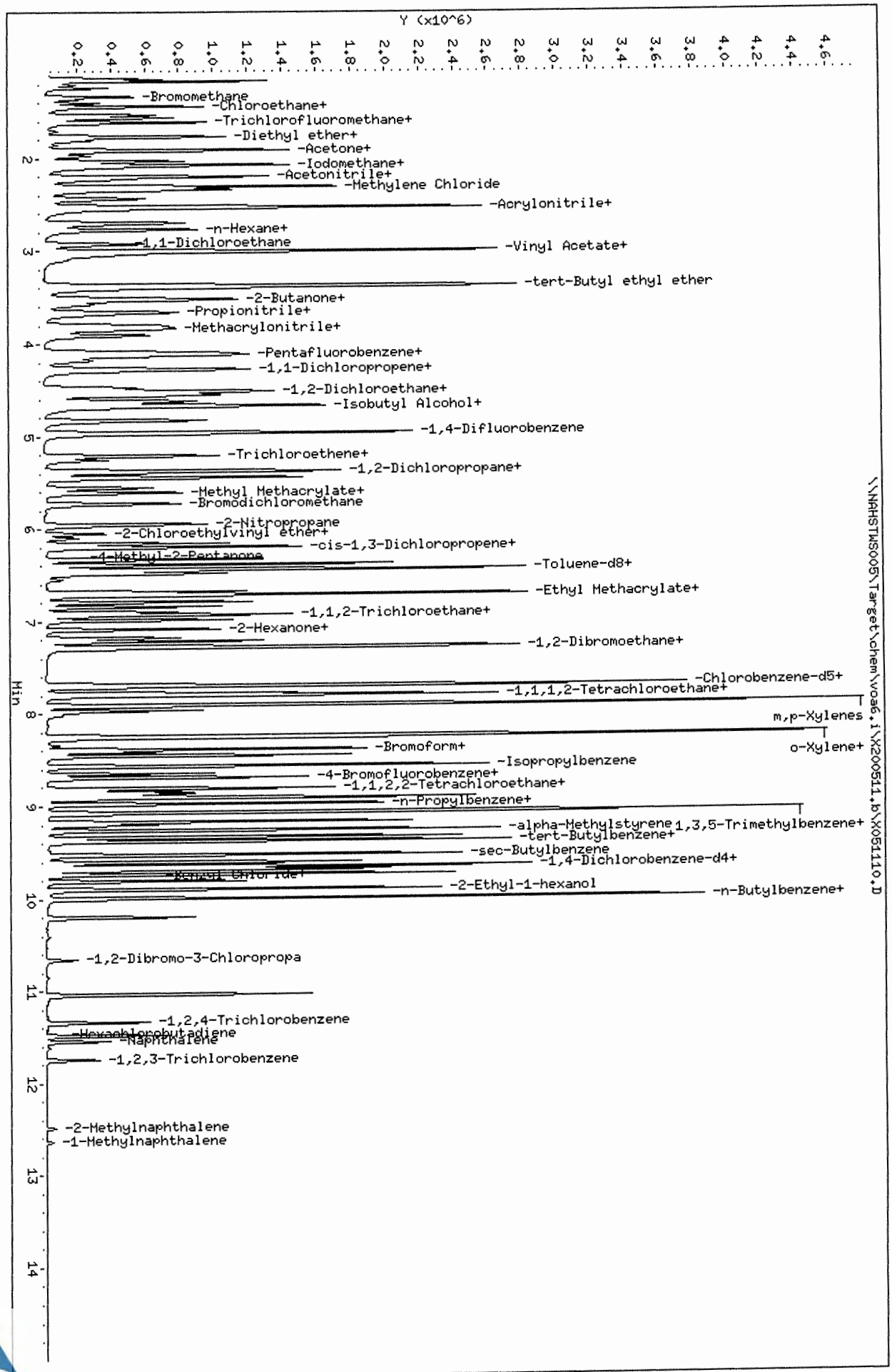
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	210896	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	312188	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	295010	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	147624	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	320906	150.000	153.02
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	402302	150.000	154.85
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1109628	150.000	150.69
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	420723	150.000	150.80
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	342668	150.000	147.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	514515	150.000	152.34(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	334626	150.000	141.04
138 Freon TF	101	1.911	1.911	(0.457)	260990	150.000	160.13
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	235212	150.000	143.33
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	664765	150.000	145.03(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	257690	150.000	153.58
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	423104	150.000	148.04
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	82626	150.000	152.12
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	290589	150.000	141.25(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	161556	150.000	146.17
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1176422	150.000	151.92
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	35913	150.000	148.91
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	315920	150.000	150.73(A)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	602146	150.000	146.41
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	496703	150.000	152.80(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	369792	150.000	145.52
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1156269	150.000	151.69
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	674171	150.000	149.86
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	493264	150.000	144.59
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	672004	150.000	144.01
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	486844	150.000	145.79
24	2-Butanone	43	3.573	3.573	(0.854)	320319	300.000	337.00(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	949403	150.000	144.08
52	2-Hexanone	43	7.090	7.090	(0.924)	531716	300.000	291.45
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	1091030	150.000	143.62
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1196736	150.000	154.33
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	784939	300.000	294.68
10	Acetone	43	1.969	1.969	(0.471)	214208	300.000	295.31
37	Benzene	78	4.512	4.512	(0.908)	1182839	150.000	148.22(A)
74	Bromobenzene	156	8.809	8.809	(0.911)	403596	150.000	145.82
29	Bromochloromethane	128	3.795	3.795	(0.908)	172062	150.000	140.61
39	Bromodichloromethane	83	5.729	5.729	(1.153)	446504	150.000	153.22
66	Bromoform	173	8.415	8.415	(1.097)	252342	150.000	149.29
6	Bromomethane	94	1.331	1.331	(0.318)	236806	150.000	154.21
19	Carbon Disulfide	76	2.069	2.069	(0.495)	1753146	300.000	306.68(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	464237	150.000	148.00
59	Chlorobenzene	112	7.699	7.699	(1.004)	852770	150.000	145.89(A)
7	Chloroethane	64	1.396	1.396	(0.334)	229270	150.000	154.52
28	Chloroform	83	3.910	3.910	(0.935)	562576	150.000	149.27(A)
3	Chloromethane	50	1.073	1.073	(0.257)	510038	150.000	152.15
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	337533	150.000	151.71(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	521162	150.000	152.70
55	Dibromochloromethane	129	7.176	7.176	(0.936)	360158	150.000	150.83
44	Dibromomethane	93	5.557	5.557	(1.118)	209387	150.000	151.91
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	377623	150.000	151.12
61	Ethylbenzene	106	7.799	7.799	(1.017)	454714	150.000	148.22(A)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	122993	150.000	150.61
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1380555	150.000	150.06
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1094132	300.000	293.84(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	318789	150.000	155.81
87	n-Butylbenzene	91	9.998	9.998	(1.034)	990914	150.000	158.38
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1587708	150.000	149.59
92	Naphthalene	128	11.546	11.546	(1.194)	240798	150.000	173.25
63	o-Xylene	106	8.244	8.244	(1.075)	535459	150.000	147.80(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1337568	150.000	149.59
64	Styrene	104	8.265	8.265	(1.078)	912591	150.000	145.34(A)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	965175	150.000	149.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	286458	150.000	147.20(A)
50	Toluene	91	6.446	6.446	(0.840)	1251009	150.000	143.28(A)
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	291868	150.000	152.13
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	484238	150.000	156.45
38	Trichloroethene	130	5.206	5.206	(1.048)	343427	150.000	153.31(A)
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	533118	150.000	157.11
5	Vinyl Chloride	62	1.138	1.138	(0.272)	457160	150.000	156.37

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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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

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 11-MAY-2020 17:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
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Comment :
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Meth Date : 01-Jun-2020 15:33 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:47 Cal File: X051110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

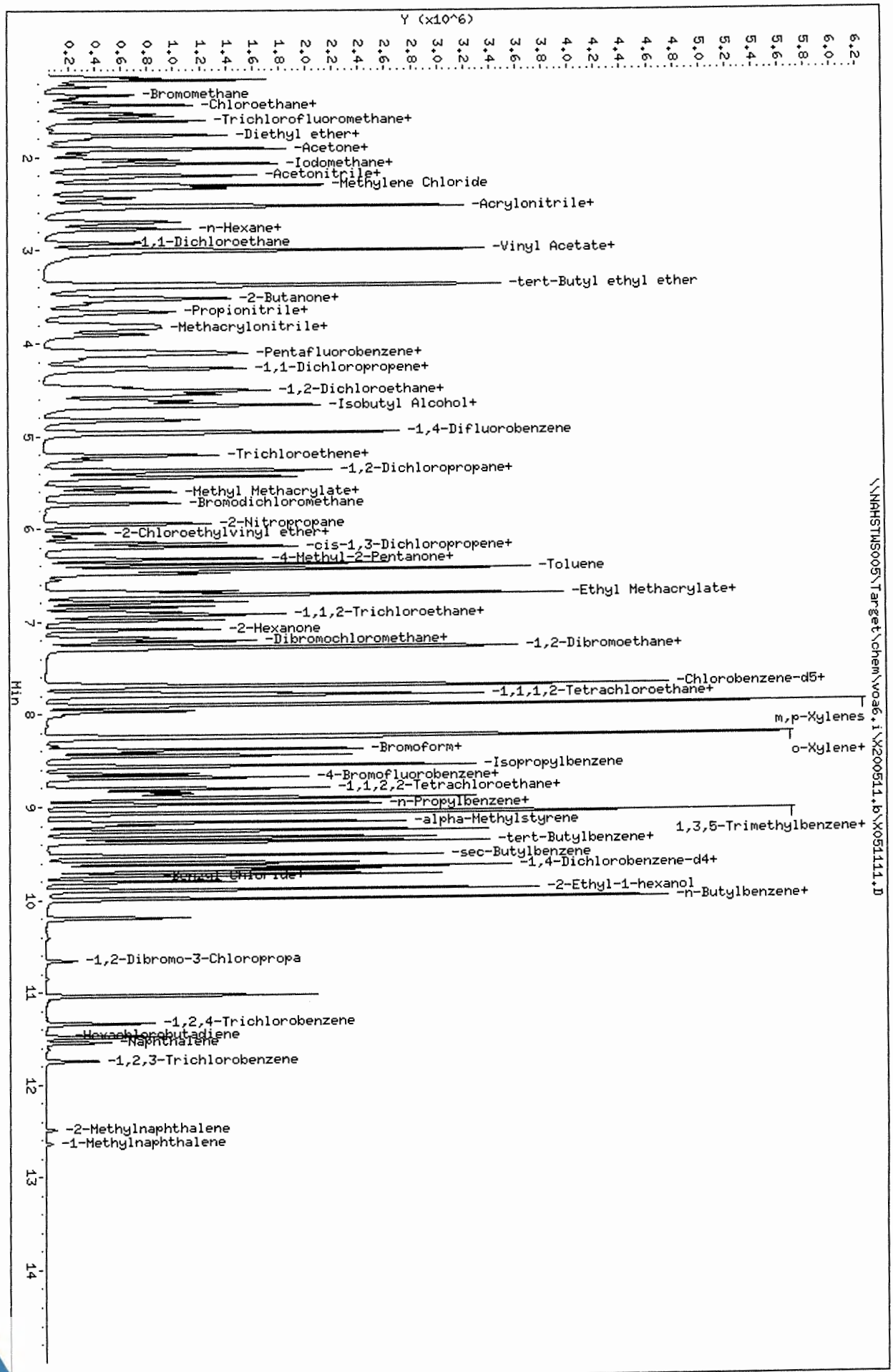
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	210247	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	305929	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	285371	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	141643	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	412124	200.000	197.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	508534	200.000	196.36
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1416689	200.000	199.04
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	537390	200.000	199.37
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	439976	200.000	196.15
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	664524	200.000	197.36(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	431093	200.000	189.38
138 Freon TF	101	1.911	1.911	(0.457)	333443	200.000	205.22(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	299144	200.000	188.44
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	844374	200.000	184.79(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	331210	200.000	198.00
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	539478	200.000	192.62
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	114644	200.000	199.45
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	372645	200.000	188.79(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	221042	200.000	207.32(A)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1480057	200.000	199.20
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	47270	200.000	203.73(A)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	397489	200.000	196.05(A)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	751691	200.000	190.50
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	633747	200.000	198.95(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	470477	200.000	188.93
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1464802	200.000	200.28(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	854514	200.000	197.97
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	628497	200.000	190.45
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	856803	200.000	191.37
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	616758	200.000	185.27
24	2-Butanone	43	3.573	3.573	(0.854)	404738	400.000	427.13(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	1200031	200.000	189.81
52	2-Hexanone	43	7.090	7.090	(0.924)	681249	400.000	386.03
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1390472	200.000	190.77
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1535054	200.000	206.32(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	992720	400.000	385.28
10	Acetone	43	1.969	1.969	(0.471)	258020	400.000	357.35
37	Benzene	78	4.512	4.512	(0.908)	1515661	200.000	193.82(A)
74	Bromobenzene	156	8.810	8.810	(0.911)	524098	200.000	197.35
29	Bromochloromethane	128	3.795	3.795	(0.908)	217972	200.000	178.68
39	Bromodichloromethane	83	5.729	5.729	(1.153)	568861	200.000	199.20
66	Bromoform	173	8.416	8.416	(1.097)	324965	200.000	198.75
6	Bromomethane	94	1.324	1.324	(0.317)	301011	200.000	196.83
19	Carbon Disulfide	76	2.069	2.069	(0.495)	2243154	400.000	393.61(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	601378	200.000	195.64
59	Chlorobenzene	112	7.699	7.699	(1.004)	1083798	200.000	191.68(A)
7	Chloroethane	64	1.396	1.396	(0.334)	289295	200.000	195.69
28	Chloroform	83	3.910	3.910	(0.935)	722440	200.000	192.28(A)
3	Chloromethane	50	1.073	1.073	(0.257)	668216	200.000	199.75
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	430307	200.000	194.01(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	665512	200.000	198.99
55	Dibromochloromethane	129	7.176	7.176	(0.936)	459803	200.000	199.07
44	Dibromomethane	93	5.557	5.557	(1.118)	266444	200.000	197.26
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	499972	200.000	200.36(A)
61	Ethylbenzene	106	7.800	7.800	(1.017)	584558	200.000	196.99(A)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	160116	200.000	204.00(A)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1765878	200.000	198.43
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1392396	400.000	386.57(A)
17	Methylene Chloride	84	2.298	2.298	(0.550)	395941	200.000	194.38
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1253039	200.000	208.74(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2020256	200.000	198.39
92	Naphthalene	128	11.546	11.546	(1.194)	324019	200.000	242.98(A)
63	o-Xylene	106	8.244	8.244	(1.075)	671719	200.000	191.67(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1697221	200.000	197.83
64	Styrene	104	8.265	8.265	(1.078)	1162998	200.000	191.48(A)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1223524	200.000	197.03
56	Tetrachloroethene	164	6.933	6.933	(0.904)	364813	200.000	193.79(A)
50	Toluene	91	6.446	6.446	(0.840)	1593362	200.000	188.66(A)
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	373493	200.000	195.28
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	619261	200.000	204.17(A)
38	Trichloroethene	130	5.206	5.206	(1.048)	441183	200.000	200.98(A)
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	703498	200.000	207.96(A)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	586952	200.000	201.38(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.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Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
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Y (x10^6)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane
-Vinyl Acetate+
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone
-Dibromochloromethane+
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-2-Ethyl-1-hexanol
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D Page 1
Report Date: 01-Jun-2020 15:33

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D
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Smp Info : ICV;ICV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
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Cal Date : 11-MAY-2020 17:11 Cal File: X051111.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

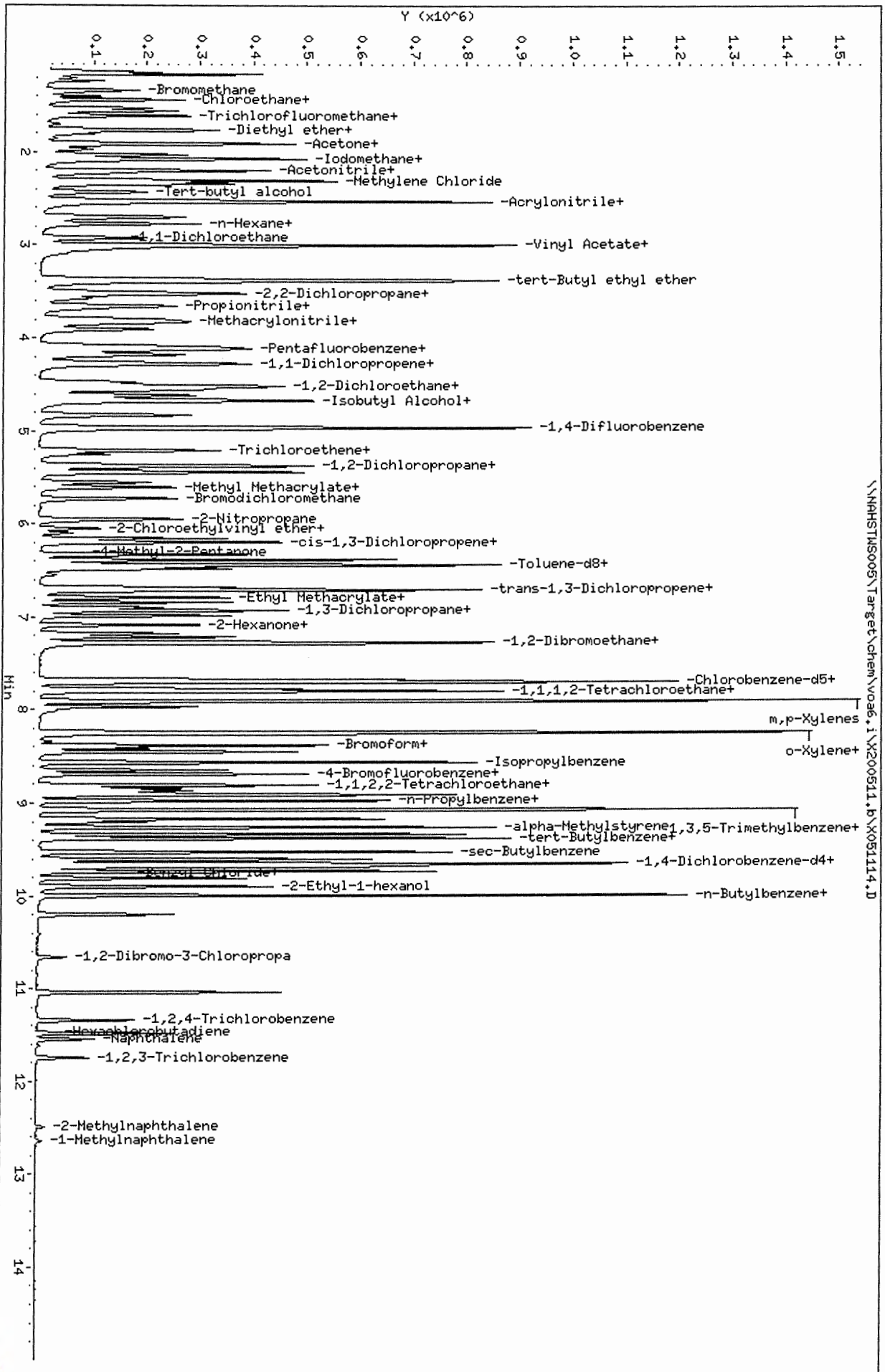
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	223155	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	318483	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	291498	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	148250	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	108653	48.8010	48.80
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	131529	47.8219	47.82
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	373137	50.9781	50.97
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	139766	50.1904	50.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	112251	48.9922	48.99
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	169785	47.5103	47.51
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	109996	46.1688	46.16
138 Freon TF	101	1.911	1.911	(0.457)	84460	48.9758	48.97
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	77614	47.8655	47.86
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	219255	45.2085	45.20
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	84626	47.6661	47.66
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	139963	48.0055	48.00
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	26202	54.6983	54.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96248	46.5901	46.59(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	50727	47.5210	47.52
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	387802	49.8683	49.86
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	10984	46.3748	46.37
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	104018	50.2268	50.22

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D Page 2
Report Date: 01-Jun-2020 15:33

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	200012	48.4298	48.42
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	164095	49.4853	49.48
42	1,2-Dichloropropane	63	5.436	5.443	(1.094)	123226	47.5336	47.53
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	380301	49.6820	49.68
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	220872	48.8921	48.89
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	162939	48.3385	48.33
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	223856	47.7723	47.77
26	2,2-Dichloropropane	77	3.509	3.509	(0.839)	167781	47.4860	47.48
24	2-Butanone	43	3.573	3.573	(0.854)	108411	107.793	107.79(H)
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	309354	46.7504	46.75
52	2-Hexanone	43	7.090	7.090	(0.924)	170807	94.7558	94.75
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	360081	47.2019	47.20
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	391936	50.3321	50.33
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	244532	92.9096	92.90
10	Acetone	43	1.969	1.969	(0.471)	75065	96.0427	96.04
37	Benzene	78	4.512	4.512	(0.908)	390116	47.9210	47.92
74	Bromobenzene	156	8.809	8.810	(0.912)	134325	48.3285	48.32
29	Bromochloromethane	128	3.795	3.795	(0.908)	61420	47.4371	47.43
39	Bromodichloromethane	83	5.729	5.729	(1.153)	144777	48.6994	48.69
66	Bromoform	173	8.415	8.416	(1.097)	83698	50.1152	50.11
6	Bromomethane	94	1.338	1.324	(0.320)	83523	50.9059	50.90
19	Carbon Disulfide	76	2.069	2.069	(0.495)	577912	95.5417	95.54
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	151724	47.4153	47.41
59	Chlorobenzene	112	7.699	7.699	(1.004)	282458	48.9065	48.90
7	Chloroethane	64	1.403	1.396	(0.336)	70901	44.8631	44.86
28	Chloroform	83	3.910	3.910	(0.935)	192179	48.1906	48.19
3	Chloromethane	50	1.073	1.073	(0.257)	154639	44.0442	44.04
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	112778	47.9068	47.90
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	172729	49.6114	49.61
55	Dibromochloromethane	129	7.176	7.176	(0.936)	117363	49.7444	49.74
44	Dibromomethane	93	5.557	5.557	(1.118)	70080	49.8406	49.84
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	122199	46.9573	46.95
61	Ethylbenzene	106	7.799	7.800	(1.017)	147940	48.8066	48.80
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	40239	49.7181	49.71
67	Isopropylbenzene	105	8.566	8.566	(1.117)	450333	49.5410	49.54
62	m,p-Xylenes	106	7.907	7.907	(1.031)	360956	98.1080	98.10
17	Methylene Chloride	84	2.305	2.298	(0.551)	104805	47.6717	47.67
87	n-Butylbenzene	91	9.999	9.999	(1.035)	318734	50.7307	50.73
73	n-Propylbenzene	91	8.917	8.917	(0.923)	511675	48.0076	48.00
92	Naphthalene	128	11.546	11.546	(1.195)	74280	53.2198	53.21
63	o-Xylene	106	8.244	8.244	(1.075)	175723	49.0898	49.08
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	435579	48.5089	48.50
64	Styrene	104	8.258	8.265	(1.077)	306849	49.4603	49.46
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	315264	48.5073	48.50
56	Tetrachloroethene	164	6.933	6.933	(0.904)	94634	49.2150	49.21
50	Toluene	91	6.446	6.446	(0.840)	420170	48.7050	48.70
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	97294	47.9280	47.92
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	157780	49.9712	49.97
38	Trichloroethene	130	5.206	5.206	(1.048)	112860	49.3869	49.38
8	Trichlorofluoromethane	101	1.560	1.553	(0.373)	174748	48.6710	48.67
5	Vinyl Chloride	62	1.138	1.138	(0.272)	143744	46.4673	46.46

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200511.b\X051114.D
Date : 11-MAY-2020 18:23
Client ID: ICV
Sample Info: ICV;ICV;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Lab File ID: X051402 BFB Injection Date: 05/14/20

Instrument ID: VOA6 BFB Injection Time: 1009

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	20.4
75	30.0 - 60.0% of mass 95	49.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	80.1
175	5.0 - 9.0% of mass 174	6.3 (7.9)1
176	95.0 - 101.0% of mass 174	78.7 (98.3)1
177	5.0 - 9.0% of mass 176	5.0 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X051403	05/14/20	1032
02	VLCSW-200514	VLCSW-200514	X051405	05/14/20	1158
03	VBLKW-200514	VBLKW-200514	X051407	05/14/20	1246
04	HS20050467-1	HS20050467-10	X051408	05/14/20	1310
05	HS20050467-0	HS20050467-01	X051409	05/14/20	1334
06	HS20050467-0	HS20050467-02	X051410	05/14/20	1358
07	HS20050467-0	HS20050467-03	X051411	05/14/20	1422
08	HS20050467-0	HS20050467-04	X051412	05/14/20	1446
09	HS20050467-0	HS20050467-05	X051413	05/14/20	1511
10	HS20050467-0	HS20050467-06	X051414	05/14/20	1535
11	HS20050467-0	HS20050467-07	X051415	05/14/20	1559
12	HS20050467-0	HS20050467-08	X051416	05/14/20	1623
13	HS20050467-0	HS20050467-09	X051417	05/14/20	1647
14	HS20050467-0	HS20050467-04M	X051418	05/14/20	1711
15	HS20050467-0	HS20050467-04M	X051419	05/14/20	1735
16	CCV-END	CCV-END	X051420	05/14/20	1759
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Instrument ID: VOA6 Calibration Date: 05/14/20 Time: 1032

Lab File ID: X051403 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	0.2900000	0.2668224	0.2668224	0.1	7.99	20.00	AVRG
Vinyl Chloride	0.6930000	0.5816857	0.5816857	0.1	16.06	20.00	AVRG
Chloromethane	40.455451	50.000000	0.6356877	0.1	19.09	20.00	LINR
Bromomethane	44.456354	50.000000	0.3275481	0.1	11.09	20.00	LINR
Chloroethane	42.399601	50.000000	0.3004365	0.1	15.20	20.00	LINR
Methylene Chloride	45.794677	50.000000	0.4515658	0.1	8.41	20.00	LINR
Acetone	90.353834	100.00000	0.1584935	0.1	9.65	20.00	LINR
1,1-Dichloroethene	0.3980000	0.3479454	0.3479454	0.1	12.58	20.00	AVRG
trans-1,2-Dichloroethene	0.4550000	0.4209699	0.4209699	0.1	7.48	20.00	AVRG
Carbon Tetrachloride	0.5020000	0.4366780	0.4366780	0.1	13.01	20.00	AVRG
1,1-Dichloroethane	1.0870000	0.9330731	0.9330731	0.2	14.16	20.00	AVRG
Bromodichloromethane	0.4670000	0.4443695	0.4443695	0.2	4.84	20.00	AVRG
1,2-Dichloropropane	0.4070000	0.3610175	0.3610175	0.1	11.30	20.00	AVRG
cis-1,3-Dichloropropene	0.5470000	0.5181895	0.5181895	0.2	5.27	20.00	AVRG
2-Butanone	0.2250000	0.2408784	0.2408784	0.1	-7.06	20.00	AVRG
Dibromochloromethane	0.4040000	0.3973468	0.3973468	0.1	1.65	20.00	AVRG
cis-1,2-Dichloroethene	0.5270000	0.4916165	0.4916165	0.1	6.71	20.00	AVRG
1,1,2-Trichloroethane	0.2780000	0.2711782	0.2711782	0.1	2.45	20.00	AVRG
Chloroform	0.8930000	0.8297258	0.8297258	0.2	7.08	20.00	AVRG
Benzene	1.2780000	1.1506338	1.1506338	0.5	9.97	20.00	AVRG
trans-1,3-Dichloropropene	0.4960000	0.4764548	0.4764548	0.1	3.94	20.00	AVRG
Bromoform	0.2860000	0.2891097	0.2891097	0.1	-1.09	20.00	AVRG
4-Methyl-2-Pentanone	0.4510000	0.4433607	0.4433607	0.1	1.69	20.00	AVRG
1,1,1-Trichloroethane	0.8000000	0.7196971	0.7196971	0.1	10.04	20.00	AVRG
2-Hexanone	0.3090000	0.3030506	0.3030506	0.1	1.92	20.00	AVRG
1,2-Dichloroethane	0.5200000	0.5236331	0.5236331	0.1	-0.70	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.8040000	0.7557934	0.7557934	0.3	6.00	20.00	AVRG
Trichloroethene	0.3590000	0.3234624	0.3234624	0.2	9.90	20.00	AVRG
Toluene	1.4800000	1.3446623	1.3446623	0.4	9.14	20.00	AVRG
Dichlorodifluoromethane	43.320120	50.000000	0.5041976	0.1	13.36	20.00	LINR
Trichlorofluoromethane	0.8040000	0.7357767	0.7357767	0.1	8.48	20.00	AVRG
Tetrachloroethene	0.3300000	0.2952647	0.2952647	0.2	10.52	20.00	AVRG
1,2-Dibromoethane	0.3550000	0.3532162	0.3532162	0.1	0.50	20.00	AVRG
Chlorobenzene	0.9900000	0.9208228	0.9208228	0.5	6.99	20.00	AVRG
1,3-Dichlorobenzene	1.5230000	1.3854789	1.3854789	0.6	9.03	20.00	AVRG
1,4-Dichlorobenzene	1.5800000	1.3921382	1.3921382	0.4	11.89	20.00	AVRG
1,2-Dichlorobenzene	1.3930000	1.2790598	1.2790598	0.4	8.18	20.00	AVRG
Ethylbenzene	0.5200000	0.4722917	0.4722917	0.1	9.17	20.00	AVRG
m,p-Xylenes	0.6310000	0.5631881	0.5631881	0.1	10.75	20.00	AVRG
o-Xylene	0.6140000	0.5654045	0.5654045	0.3	7.91	20.00	AVRG
Styrene	1.0640000	0.9681222	0.9681222	0.3	9.01	20.00	AVRG
Carbon Disulfide	1.3550000	1.1983322	1.1983322	0.1	11.56	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date: 05/14/20 Time: 1032

Lab File ID: X051403 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

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
2,2-Dichloropropane	0.7920000	0.7270001	0.7270001	0.1	8.21	20.00	AVRG
1,1-Dichloropropene	0.4580000	0.3929724	0.3929724	0.1	14.20	20.00	AVRG
Dibromomethane	0.2210000	0.2139606	0.2139606	0.1	3.18	20.00	AVRG
1,3-Dichloropropane	0.5780000	0.5499400	0.5499400	0.1	4.85	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3930000	0.3774531	0.3774531	0.1	3.96	20.00	AVRG
Isopropylbenzene	1.5590000	1.3732173	1.3732173	0.1	11.92	20.00	AVRG
Bromobenzene	0.9370000	0.8522130	0.8522130	0.1	9.05	20.00	AVRG
1,2,3-Trichloropropane	0.6970000	0.6706127	0.6706127	0.1	3.78	20.00	AVRG
n-Propylbenzene	3.5950000	2.9990152	2.9990152	0.1	16.58	20.00	AVRG
2-Chlorotoluene	2.2320000	1.9159281	1.9159281	0.1	14.16	20.00	AVRG
1,3,5-Trimethylbenzene	2.5820000	2.2512792	2.2512792	0.1	12.81	20.00	AVRG
4-Chlorotoluene	2.5730000	2.2492407	2.2492407	0.1	12.58	20.00	AVRG
tert-Butylbenzene	2.1920000	1.8165334	1.8165334	0.1	17.13	20.00	AVRG
1,2,4-Trimethylbenzene	2.6230000	2.3261299	2.3261299	0.1	11.32	20.00	AVRG
sec-Butylbenzene	3.0280000	2.4606326	2.4606326	0.1	18.74	20.00	AVRG
p-Isopropyltoluene	2.6260000	2.2262325	2.2262325	0.1	15.22	20.00	AVRG
n-Butylbenzene	2.1190000	1.8247629	1.8247629	0.5	13.88	20.00	AVRG
1,2-Dibromo-3-Chloropropane	53.434208	50.000000	8.57e-002	0.05	-6.87	20.00	LINR
1,2,4-Trichlorobenzene	46.258771	50.000000	0.3325483	0.2	7.48	20.00	LINR
Hexachlorobutadiene	42.402181	50.000000	0.2306951	0.1	15.20	20.00	LINR
Naphthalene	0.4710000	0.5321915	0.5321915	0.2	-12.99	20.00	AVRG
1,2,3-Trichlorobenzene	55.390366	50.000000	0.1791005	0.1	-10.78	20.00	2RDR
Freon TF	0.3860000	0.3437690	0.3437690	0.1	10.94	20.00	AVRG
Dibromofluoromethane	48.518215	50.000000	0.4840876	0.1	2.96	20.00	LINR
1,2-Dichloroethane-d4	48.907844	50.000000	0.6027799	0.1	2.18	20.00	LINR
Toluene-d8	49.777931	50.000000	1.2502032	0.1	0.44	20.00	LINR
4-Bromofluorobenzene	50.574663	50.000000	0.4830907	0.1	-1.15	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Instrument ID: VOA6 Calibration Date: 05/14/20 Time: 1759

Lab File ID: X051420 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Bromochloromethane	0.2900000	0.2917621	0.2917621	0.1	-0.61	20.00	AVRG	
Vinyl Chloride	0.6930000	0.7031500	0.7031500	0.1	-1.46	20.00	AVRG	
Chloromethane	48.808997	50.000000	0.7690164	0.1	2.38	20.00	LINR	
Bromomethane	49.165204	50.000000	0.3616689	0.1	1.67	20.00	LINR	
Chloroethane	50.697061	50.000000	0.3586527	0.1	-1.39	20.00	LINR	
Methylene Chloride	53.126013	50.000000	0.5222033	0.1	-6.25	20.00	LINR	
Acetone	106.54711	100.00000	0.1860953	0.1	-6.55	20.00	LINR	
1,1-Dichloroethene	0.3980000	0.4034100	0.4034100	0.1	-1.36	20.00	AVRG	
trans-1,2-Dichloroethene	0.4550000	0.4689116	0.4689116	0.1	-3.06	20.00	AVRG	
Carbon Tetrachloride	0.5020000	0.4683849	0.4683849	0.1	6.70	20.00	AVRG	
1,1-Dichloroethane	1.0870000	1.0644307	1.0644307	0.2	2.08	20.00	AVRG	
Bromodichloromethane	0.4670000	0.4678608	0.4678608	0.2	-0.18	20.00	AVRG	
1,2-Dichloropropane	0.4070000	0.3913301	0.3913301	0.1	3.85	20.00	AVRG	
cis-1,3-Dichloropropene	0.5470000	0.5426146	0.5426146	0.2	0.80	20.00	AVRG	
2-Butanone	0.2250000	0.2960457	0.2960457	0.1	-31.58	20.00	AVRG	<-
Dibromochloromethane	0.4040000	0.4034275	0.4034275	0.1	0.14	20.00	AVRG	
cis-1,2-Dichloroethene	0.5270000	0.5364475	0.5364475	0.1	-1.79	20.00	AVRG	
1,1,2-Trichloroethane	0.2780000	0.2784212	0.2784212	0.1	-0.15	20.00	AVRG	
Chloroform	0.8930000	0.9138055	0.9138055	0.2	-2.33	20.00	AVRG	
Benzene	1.2780000	1.2359337	1.2359337	0.5	3.29	20.00	AVRG	
trans-1,3-Dichloropropene	0.4960000	0.5125592	0.5125592	0.1	-3.34	20.00	AVRG	
Bromoform	0.2860000	0.2914751	0.2914751	0.1	-1.91	20.00	AVRG	
4-Methyl-2-Pentanone	0.4510000	0.4874947	0.4874947	0.1	-8.09	20.00	AVRG	
1,1,1-Trichloroethane	0.8000000	0.8063524	0.8063524	0.1	-0.79	20.00	AVRG	
2-Hexanone	0.3090000	0.3348323	0.3348323	0.1	-8.36	20.00	AVRG	
1,2-Dichloroethane	0.5200000	0.5503237	0.5503237	0.1	-5.83	20.00	AVRG	
1,1,2,2-Tetrachloroethane	0.8040000	0.7916460	0.7916460	0.3	1.54	20.00	AVRG	
Trichloroethene	0.3590000	0.3540648	0.3540648	0.2	1.37	20.00	AVRG	
Toluene	1.4800000	1.4160900	1.4160900	0.4	4.32	20.00	AVRG	
Dichlorodifluoromethane	49.686084	50.000000	0.5801573	0.1	0.63	20.00	LINR	
Trichlorofluoromethane	0.8040000	0.8491410	0.8491410	0.1	-5.61	20.00	AVRG	
Tetrachloroethene	0.3300000	0.3055356	0.3055356	0.2	7.41	20.00	AVRG	
1,2-Dibromoethane	0.3550000	0.3646607	0.3646607	0.1	-2.72	20.00	AVRG	
Chlorobenzene	0.9900000	0.9432863	0.9432863	0.5	4.72	20.00	AVRG	
1,3-Dichlorobenzene	1.5230000	1.4194764	1.4194764	0.6	6.80	20.00	AVRG	
1,4-Dichlorobenzene	1.5800000	1.4359896	1.4359896	0.4	9.11	20.00	AVRG	
1,2-Dichlorobenzene	1.3930000	1.3129634	1.3129634	0.4	5.74	20.00	AVRG	
Ethylbenzene	0.5200000	0.4920182	0.4920182	0.1	5.38	20.00	AVRG	
m,p-Xylenes	0.6310000	0.5912781	0.5912781	0.1	6.30	20.00	AVRG	
o-Xylene	0.6140000	0.5875388	0.5875388	0.3	4.31	20.00	AVRG	
Styrene	1.0640000	1.0379407	1.0379407	0.3	2.45	20.00	AVRG	
Carbon Disulfide	1.3550000	1.3572404	1.3572404	0.1	-0.16	20.00	AVRG	

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2005046

Instrument ID: VOA6 Calibration Date: 05/14/20 Time: 1759

Lab File ID: X051420 Init. Calib. Date(s): 05/11/20 05/11/20

Init. Calib. Times: 1312 1711

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
2,2-Dichloropropane	0.7920000	0.7305394	0.7305394	0.1	7.76	20.00	AVRG
1,1-Dichloropropene	0.4580000	0.4300745	0.4300745	0.1	6.10	20.00	AVRG
Dibromomethane	0.2210000	0.2250366	0.2250366	0.1	-1.83	20.00	AVRG
1,3-Dichloropropane	0.5780000	0.5820638	0.5820638	0.1	-0.70	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3930000	0.3778918	0.3778918	0.1	3.84	20.00	AVRG
Isopropylbenzene	1.5590000	1.4784426	1.4784426	0.1	5.17	20.00	AVRG
Bromobenzene	0.9370000	0.8748121	0.8748121	0.1	6.64	20.00	AVRG
1,2,3-Trichloropropane	0.6970000	0.6987036	0.6987036	0.1	-0.24	20.00	AVRG
n-Propylbenzene	3.5950000	3.2563191	3.2563191	0.1	9.42	20.00	AVRG
2-Chlorotoluene	2.2320000	2.0273349	2.0273349	0.1	9.17	20.00	AVRG
1,3,5-Trimethylbenzene	2.5820000	2.3822169	2.3822169	0.1	7.74	20.00	AVRG
4-Chlorotoluene	2.5730000	2.3472675	2.3472675	0.1	8.77	20.00	AVRG
tert-Butylbenzene	2.1920000	2.0032136	2.0032136	0.1	8.61	20.00	AVRG
1,2,4-Trimethylbenzene	2.6230000	2.4373189	2.4373189	0.1	7.08	20.00	AVRG
sec-Butylbenzene	3.0280000	2.7098350	2.7098350	0.1	10.51	20.00	AVRG
p-Isopropyltoluene	2.6260000	2.4566972	2.4566972	0.1	6.45	20.00	AVRG
n-Butylbenzene	2.1190000	1.9888686	1.9888686	0.5	6.14	20.00	AVRG
1,2-Dibromo-3-Chloropropane	55.070460	50.000000	8.84e-002	0.05	-10.14	20.00	LINR
1,2,4-Trichlorobenzene	45.745871	50.000000	0.3286377	0.2	8.51	20.00	LINR
Hexachlorobutadiene	42.830886	50.000000	0.2330819	0.1	14.34	20.00	LINR
Naphthalene	0.4710000	0.5217111	0.5217111	0.2	-10.77	20.00	AVRG
1,2,3-Trichlorobenzene	53.509998	50.000000	0.1727013	0.1	-7.02	20.00	2RDR
Freon TF	0.3860000	0.3962271	0.3962271	0.1	-2.65	20.00	AVRG
Dibromofluoromethane	52.415005	50.000000	0.5227738	0.1	-4.83	20.00	LINR
1,2-Dichloroethane-d4	53.365019	50.000000	0.6576725	0.1	-6.73	20.00	LINR
Toluene-d8	49.518248	50.000000	1.2437415	0.1	0.96	20.00	LINR
4-Bromofluorobenzene	50.077436	50.000000	0.4784125	0.1	-0.15	20.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Lab File ID (Standard): X051403 Date Analyzed: 05/14/20

Instrument ID: VOA6 Time Analyzed: 1032

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	212381	4.18	306963	4.97	279285	7.67
	UPPER LIMIT	424762	4.68	613926	5.47	558570	8.17
	LOWER LIMIT	106191	3.68	153482	4.47	139643	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-200514	220255	4.18	323240	4.97	289824	7.67
02	VBLKW-200514	261667	4.18	356529	4.97	304152	7.67
03	HS20050467-10	270690	4.18	369556	4.97	321718	7.67
04	HS20050467-01	271470	4.18	376200	4.97	321586	7.67
05	HS20050467-02	272458	4.18	380429	4.97	327309	7.67
06	HS20050467-03	277415	4.18	382146	4.97	328735	7.67
07	HS20050467-04	272003	4.18	379118	4.97	323312	7.67
08	HS20050467-05	274408	4.18	384298	4.97	328225	7.67
09	HS20050467-06	273578	4.18	383138	4.97	321789	7.67
10	HS20050467-07	276036	4.18	382584	4.97	332880	7.67
11	HS20050467-08	285879	4.18	392428	4.97	340709	7.67
12	HS20050467-09	285272	4.18	393519	4.97	336880	7.67
13	HS20050467-04	267522	4.18	370623	4.97	321959	7.67
14	HS20050467-04	262948	4.18	371826	4.97	323407	7.67
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20050467

Lab File ID (Standard): X051403 Date Analyzed: 05/14/20

Instrument ID: VOA6 Time Analyzed: 1032

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	145209	9.67				
	UPPER LIMIT	290418	10.17				
	LOWER LIMIT	72605	9.17				
	CLIENT SAMPLE NO.						
01	VLCSW-200514	146625	9.67				
02	VBLKW-200514	139528	9.67				
03	HS20050467-10	159213	9.67				
04	HS20050467-01	157452	9.67				
05	HS20050467-02	154236	9.67				
06	HS20050467-03	164049	9.67				
07	HS20050467-04	151793	9.67				
08	HS20050467-05	164755	9.67				
09	HS20050467-06	147913	9.67				
10	HS20050467-07	166944	9.67				
11	HS20050467-08	162741	9.67				
12	HS20050467-09	158075	9.66				
13	HS20050467-04	162693	9.67				
14	HS20050467-04	163354	9.67				
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

MSVOA06 -Logbook

Batch: 40536
Date: 05-14-2020
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-14-2020 09:45 am	1.00	50 mL	50 mL	X051401a.D	Liquid	Y	NA
	Auto find/ purged									
2	BFB	TUNE	05-14-2020 10:09 am	1.00	50 mL	50 mL	X051402.D	Liquid	Y	NA
	Auto find /purged									
3	CCV	CCV	05-14-2020 10:32 am	1.00	50 mL	50 mL	X051403.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	05-14-2020 10:57 am	1.00	50 mL	50 mL	X051404.D	Liquid	Y	NA
5	VLCSW-200514	LCS	05-14-2020 11:58 am	1.00	50 mL	50 mL	X051405.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLANK	SAMP	05-14-2020 12:22 pm	1.00	50 mL	50 mL	X051406.D	Liquid	Y	NA
7	VBLKW-200514	MBLK	05-14-2020 12:46 pm	1.00	50 mL	50 mL	X051407.D	Liquid	Y	NA
8	HS20050467-10	SAMP	05-14-2020 01:10 pm	1.00	50 mL	50 mL	X051408.D	Liquid	Y	<2
9	HS20050467-01	SAMP	05-14-2020 01:34 pm	1.00	50 mL	50 mL	X051409.D	Liquid	Y	<2
10	HS20050467-02	SAMP	05-14-2020 01:58 pm	1.00	50 mL	50 mL	X051410.D	Liquid	Y	<2
11	HS20050467-03	SAMP	05-14-2020 02:22 pm	1.00	50 mL	50 mL	X051411.D	Liquid	Y	<2
12	HS20050467-04	SAMP	05-14-2020 02:46 pm	1.00	50 mL	50 mL	X051412.D	Liquid	Y	<2
13	HS20050467-05	SAMP	05-14-2020 03:11 pm	1.00	50 mL	50 mL	X051413.D	Liquid	Y	<2
14	HS20050467-06	SAMP	05-14-2020 03:35 pm	1.00	50 mL	50 mL	X051414.D	Liquid	Y	<2
15	HS20050467-07	SAMP	05-14-2020 03:59 pm	1.00	50 mL	50 mL	X051415.D	Liquid	Y	<2
16	HS20050467-08	SAMP	05-14-2020 04:23 pm	1.00	50 mL	50 mL	X051416.D	Liquid	Y	<2
17	HS20050467-09	SAMP	05-14-2020 04:47 pm	1.00	50 mL	50 mL	X051417.D	Liquid	Y	<2
18	HS20050467-04MS	MS	05-14-2020 05:11 pm	1.00	50 mL	50 mL	X051418.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
19	HS20050467-04MSD	MSD	05-14-2020 05:35 pm	1.00	50 mL	50 mL	X051419.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
20	CCV-END	CCV	05-14-2020 05:59 pm	1.00	50 mL	50 mL	X051420.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
21	HS20050247-09	SAMP	05-14-2020 06:23 pm	10.00	5 mL	50 mL	X051421.D	Liquid	Y	<2
22	HS20050407-06	SAMP	05-14-2020 06:47 pm	1.00	50 mL	50 mL	X051422.D	Liquid	Y	<2
23	HS20050465-21	SAMP	05-14-2020 07:11 pm	1.00	50 mL	50 mL	X051423.D	Liquid	Y	<2
24	HS20050465-17	SAMP	05-14-2020 07:35 pm	1.00	50 mL	50 mL	X051424.D	Liquid	Y	<2
25	HS20050465-18	SAMP	05-14-2020 07:59 pm	1.00	50 mL	50 mL	X051425.D	Liquid	Y	<2
26	HS20050465-19	SAMP	05-14-2020 08:23 pm	1.00	50 mL	50 mL	X051426.D	Liquid	Y	<2
27	HS20050465-20	SAMP	05-14-2020 08:47 pm	1.00	50 mL	50 mL	X051427.D	Liquid	Y	<2
28	HS20050435-02	SAMP	05-14-2020 09:11 pm	1.00	50 mL	50 mL	X051428.D	Liquid	Y	<2
29	HS20050439-01	SAMP	05-14-2020 09:35 pm	1.00	50 mL	50 mL	X051429.D	Liquid	Y	<2
30	HS20050470-05	SAMP	05-14-2020 09:59 pm	1.00	50 mL	50 mL	X051430.D	Liquid	Y	<2
31	BFB	TUNE	05-14-2020 10:23 pm	1.00	50 mL	50 mL	Y051401.D	Liquid	Y	NA
	Auto find/ purged									
32	CCV	CCV	05-14-2020 10:47 pm	1.00	50 mL	50 mL	Y051402a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
33	CCV	CCV	05-14-2020 11:11 pm	1.00	50 mL	50 mL	Y051403.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
34	CCB	SAMP	05-14-2020 11:35 pm	1.00	50 mL	50 mL	Y051404.D	Liquid	Y	NA
35	VLCSW-200514	LCS	05-14-2020 11:59 pm	1.00	50 mL	50 mL	Y051405.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	BLANK	SAMP	05-15-2020 12:23 am	1.00	50 mL	50 mL	Y051406.D	Liquid	Y	NA
37	VBLKW-200514	MBLK	05-15-2020 12:47 am	1.00	50 mL	50 mL	Y051407.D	Liquid	Y	NA
38	HS20050464-01	SAMP	05-15-2020 01:11 am	1.00	50 mL	50 mL	Y051408.D	Liquid	Y	<2
39	HS20050464-09	SAMP	05-15-2020 01:35 am	1.00	50 mL	50 mL	Y051409.D	Liquid	Y	<2
40	HS20050416-03	SAMP	05-15-2020 01:59 am	10.00	5 mL	50 mL	Y051410.D	Liquid	Y	<2
41	HS20050464-09MS	MS	05-15-2020 02:23 am	1.00	50 mL	50 mL	Y051411.D	Liquid	Y	<2
	3.5 uL cal std450 mL samp									
42	HS20050464-09MSD	MSD	05-15-2020 02:47 am	1.00	50 mL	50 mL	Y051412.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
43	HS20050416-03	SAMP	05-15-2020 03:11 am	100.0(	500 µL	50 mL	Y051413.D	Liquid	Y	<2
44	HS20050354-01	SAMP	05-15-2020 03:36 am	10.00	5 mL	50 mL	Y051414.D	Liquid	Y	<2
45	HS20050354-02	SAMP	05-15-2020 04:00 am	10.00	5 mL	50 mL	Y051415.D	Liquid	Y	<2
46	HS20050354-03	SAMP	05-15-2020 04:24 am	10.00	5 mL	50 mL	Y051416.D	Liquid	Y	<2
47	HS20050464-02	SAMP	05-15-2020 04:48 am	1.00	50 mL	50 mL	Y051417.D	Liquid	Y	<2
48	HS20050464-03	SAMP	05-15-2020 05:12 am	1.00	50 mL	50 mL	Y051418.D	Liquid	Y	<2
49	HS20050464-04	SAMP	05-15-2020 05:36 am	1.00	50 mL	50 mL	Y051419.D	Liquid	Y	<2
50	HS20050464-05	SAMP	05-15-2020 06:00 am	1.00	50 mL	50 mL	Y051420.D	Liquid	Y	<2
51	HS20050464-06	SAMP	05-15-2020 06:24 am	1.00	50 mL	50 mL	Y051421.D	Liquid	Y	<2
52	HS20050464-07	SAMP	05-15-2020 06:48 am	1.00	50 mL	50 mL	Y051422.D	Liquid	Y	<2
53	HS20050464-08	SAMP	05-15-2020 07:12 am	1.00	50 mL	50 mL	Y051423.D	Liquid	Y	<2
54	HS20050464-10	SAMP	05-15-2020 07:36 am	1.00	50 mL	50 mL	Y051424.D	Liquid	Y	<2
55	HS20050458-10	SAMP	05-15-2020 08:00 am	1.00	50 mL	50 mL	Y051425.D	Liquid	Y	<2
56	MBLK-153480	MBLK	05-15-2020 08:24 am	20.00	2.5 mL	50 mL	Y051426.D	Liquid	Y	NA
	tclps									
57	HS20050418-01	SAMP	05-15-2020 08:48 am	100.0(	500 µL	50 mL	Y051427.D	Liquid	Y	NA
58	HS20050470-09	SAMP	05-15-2020 09:12 am	1.00	50 mL	50 mL	Y051428.D	Liquid	Y	<2
59	HS20050470-06	SAMP	05-15-2020 09:37 am	1.00	50 mL	50 mL	Y051429.D	Liquid	Y	NA
60	HS20050470-07	SAMP	05-15-2020 10:01 am	1.00	50 mL	50 mL	Y051430.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-26-06
IS ID	31106-26-06
CAL STD ID	31106-29-01/02
BFB ID	31106-26-06
pH Paper	634-64-11

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051402.D

Date : 14-MAY-2020 10:09

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

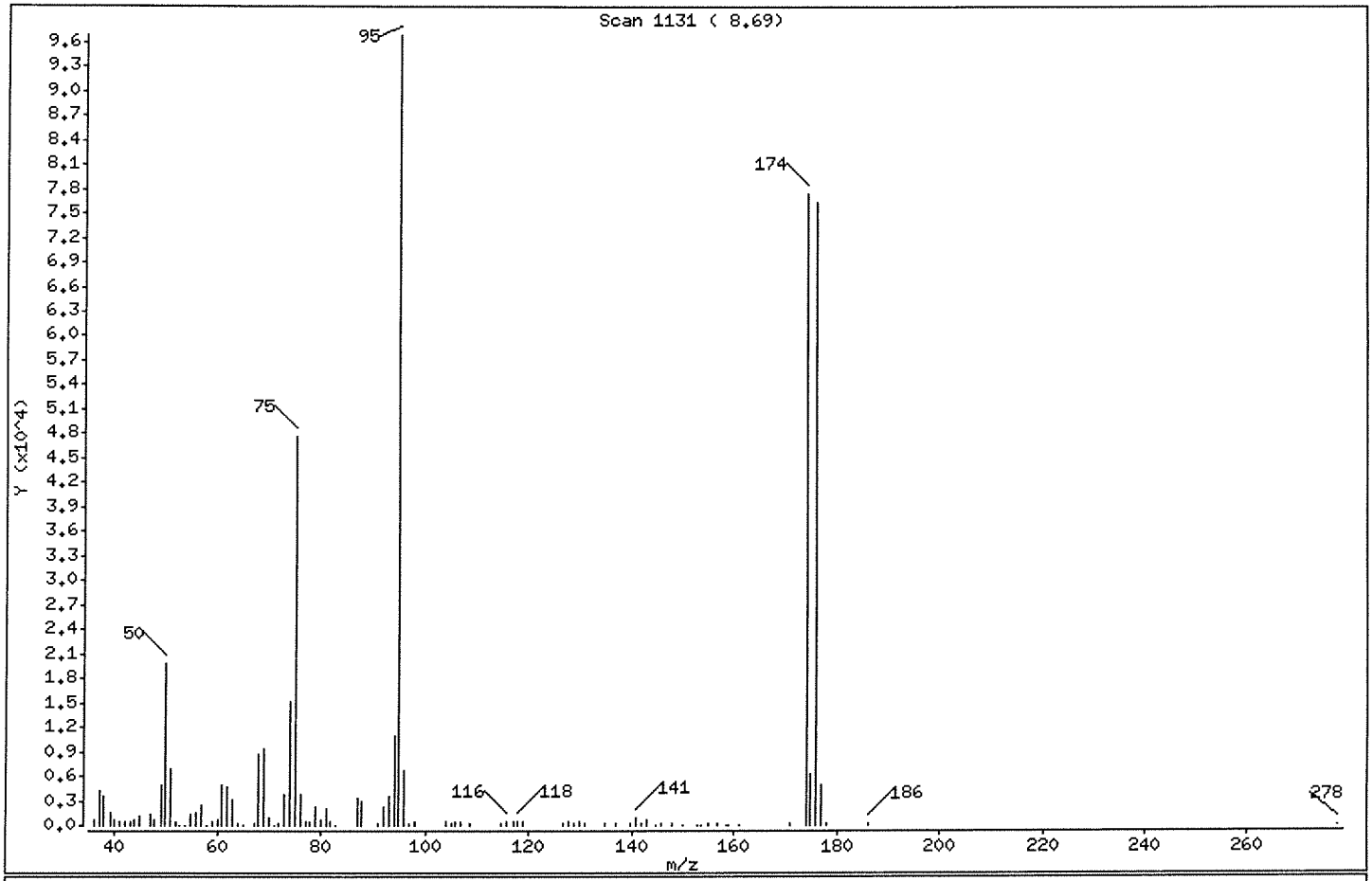
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.36
75	30.00 - 60.00% of mass 95	49.27
96	5.00 - 9.00% of mass 95	6.85
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	80.11
175	5.00 - 9.00% of mass 174	6.33 (7.90)
176	95.00 - 101.00% of mass 174	78.74 (98.30)
177	5.00 - 9.00% of mass 176	5.01 (6.37)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051402.D

Date : 14-MAY-2020 10:09

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: X051402.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 96

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	771	62.00	4667	93.00	3616	142.00	170
37.10	4296	63.00	3076	94.00	10876	142.90	737
38.00	3519	64.10	272	95.00	96840	144.70	95
39.10	1636	65.20	78	96.00	6631	145.90	156
39.90	617	67.10	183	97.00	317	147.80	269
40.90	407	68.00	8605	97.90	340	150.00	50
42.10	553	69.00	9337	103.90	371	152.80	95
43.10	420	70.10	838	105.00	268	153.60	58
44.00	634	71.20	69	105.70	386	155.00	296
45.00	1062	71.90	297	106.80	378	156.90	183
47.00	1412	73.00	3746	108.80	133	158.70	79
47.90	623	74.00	15222	114.80	154	159.00	88
49.00	4831	75.00	47712	115.80	387	160.90	88
50.00	19720	76.00	3855	117.00	392	171.10	144
51.00	6928	77.00	505	118.00	448	174.00	77576
52.10	355	78.00	444	118.90	428	175.00	6129
52.80	56	78.90	2302	126.80	185	176.00	76256
53.90	69	79.90	652	127.90	447	177.00	4854
55.00	1348	80.90	2098	128.80	251	178.10	141
55.90	1511	81.90	492	129.90	412	186.00	173
57.00	2527	82.90	94	130.80	143	277.90	78
58.10	65	86.90	3324	135.00	121		
59.00	556	87.90	2969	136.80	222		
60.00	775	90.90	256	139.90	115		
61.00	4893	92.00	2222	140.90	947		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051402.D

Date : 14-MAY-2020 10:09

Client ID: BFB

Instrument: voa6.i

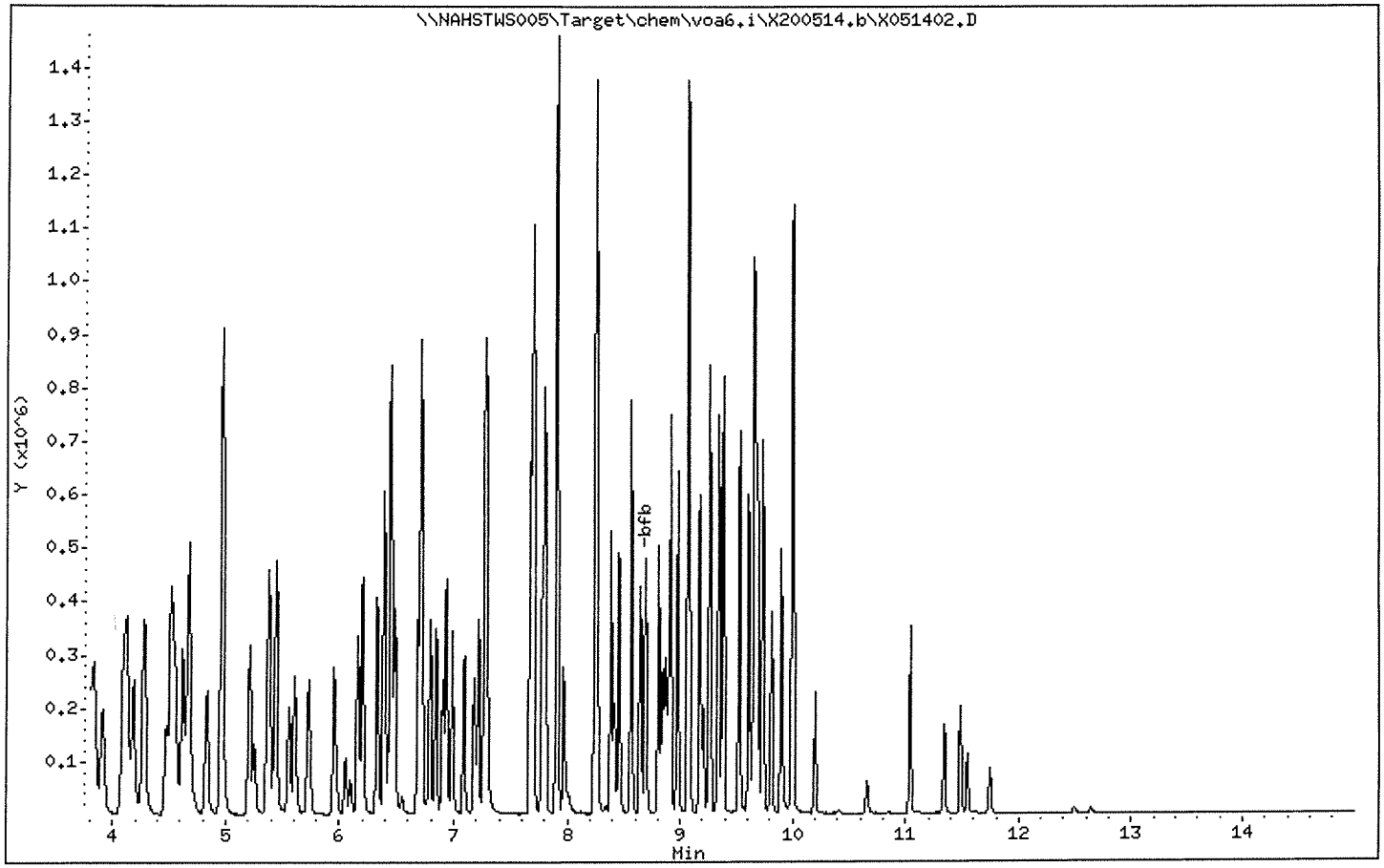
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051403.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051403.D
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Inj Date : 14-MAY-2020 10:32
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

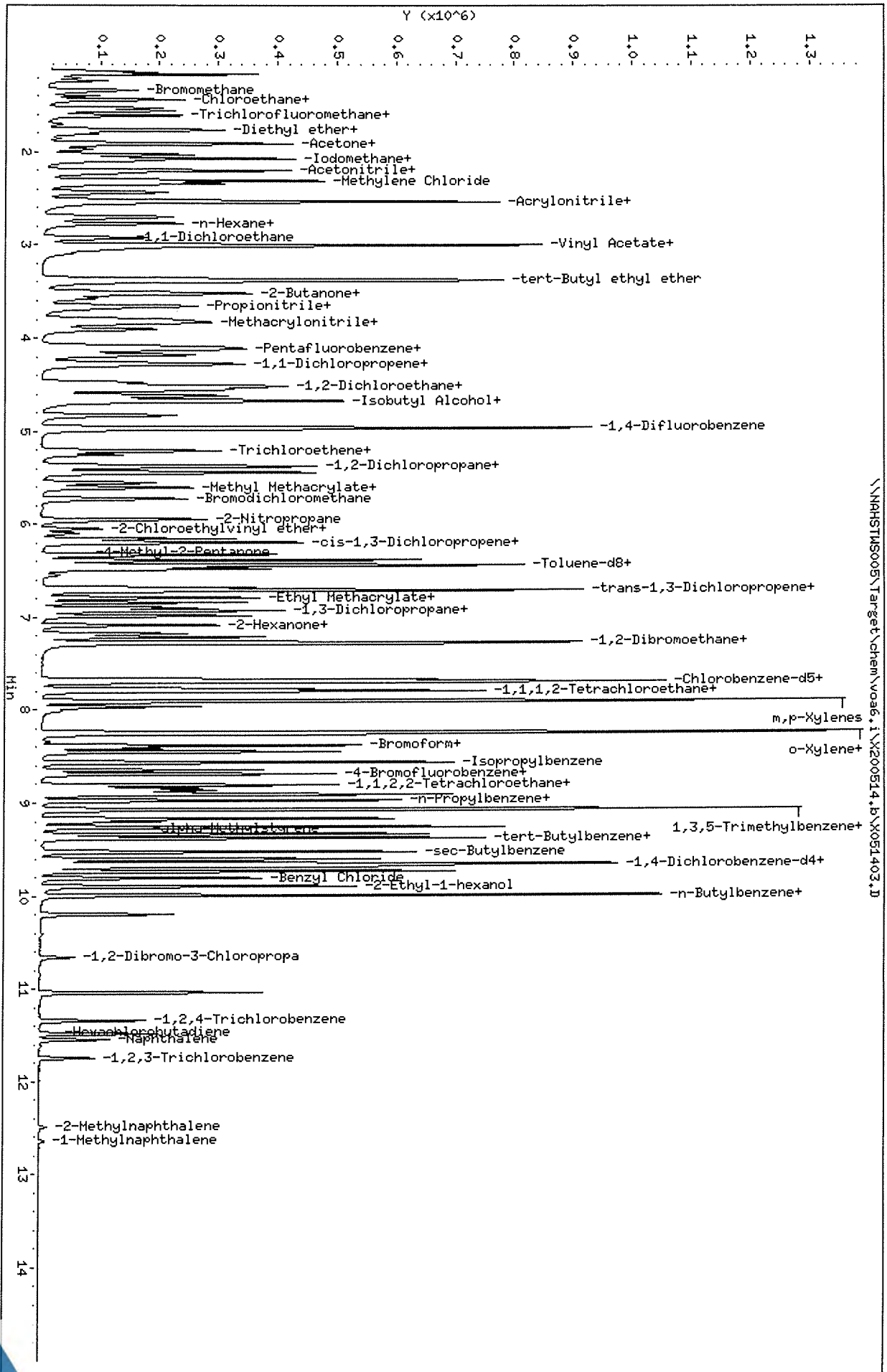
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	212381	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	306963	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	279285	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	145042	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	102811	50.0000	48.51
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	128019	50.0000	48.90
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	349163	50.0000	49.77
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	134920	50.0000	50.57
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	105417	50.0000	48.02
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	152712	50.0000	44.90
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	109748	50.0000	47.08
138 Freon TF	101	1.911	1.911	(0.457)	73010	50.0000	44.48
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	75736	50.0000	48.74
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	198167	50.0000	42.93
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	73897	50.0000	43.73
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	120628	50.0000	42.92
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	26007	50.0000	55.45
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	97379	50.0000	48.18(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	48289	50.0000	46.30
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	337775	50.0000	44.39
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	12450	50.0000	53.49
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	98648	50.0000	49.71

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051403.D Page 2
Report Date: 01-Jun-2020 15:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	186394	50.0000	46.13
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	160736	50.0000	50.29
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	110819	50.0000	44.35
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	326906	50.0000	43.65
83	1,3-Dichlorobenzene	146	9.604	9.604	(0.993)	201184	50.0000	45.51
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	153590	50.0000	47.55
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	202151	50.0000	44.09
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	153248	50.0000	45.57
24	2-Butanone	43	3.580	3.580	(0.856)	102316	100.000	106.89
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	278210	50.0000	42.97
52	2-Hexanone	43	7.090	7.090	(0.924)	169275	100.000	98.01
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	326610	50.0000	43.76
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	323269	50.0000	42.43
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	247648	100.000	98.20
10	Acetone	43	1.969	1.969	(0.471)	67229	100.000	90.22
37	Benzene	78	4.512	4.512	(0.908)	353202	50.0000	45.01
74	Bromobenzene	156	8.809	8.809	(0.911)	123749	50.0000	45.50
29	Bromochloromethane	128	3.795	3.795	(0.908)	56668	50.0000	45.98
39	Bromodichloromethane	83	5.729	5.729	(1.153)	136405	50.0000	47.60
66	Bromoform	173	8.415	8.415	(1.097)	80744	50.0000	50.46
6	Bromomethane	94	1.338	1.338	(0.320)	69565	50.0000	44.45
19	Carbon Disulfide	76	2.069	2.069	(0.495)	509006	100.000	88.41
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	134044	50.0000	43.46
59	Chlorobenzene	112	7.692	7.692	(1.003)	257172	50.0000	46.47
7	Chloroethane	64	1.403	1.403	(0.336)	64480	50.0000	42.85
28	Chloroform	83	3.910	3.910	(0.935)	176218	50.0000	46.42
3	Chloromethane	50	1.073	1.073	(0.257)	135008	50.0000	40.45
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	104410	50.0000	46.60
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	159065	50.0000	47.40
55	Dibromochloromethane	129	7.176	7.176	(0.936)	110973	50.0000	49.09
44	Dibromomethane	93	5.557	5.557	(1.118)	65678	50.0000	48.46
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	107082	50.0000	43.32
61	Ethylbenzene	106	7.799	7.799	(1.017)	131904	50.0000	45.41
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	33562	50.0000	42.52
67	Isopropylbenzene	105	8.566	8.566	(1.117)	383519	50.0000	44.03
62	m,p-Xylenes	106	7.907	7.907	(1.031)	314580	100.000	89.24
17	Methylene Chloride	84	2.305	2.305	(0.551)	95904	50.0000	45.79
87	n-Butylbenzene	91	9.998	9.998	(1.034)	264972	50.0000	43.10
73	n-Propylbenzene	91	8.917	8.917	(0.922)	435484	50.0000	41.76
92	Naphthalene	128	11.546	11.546	(1.194)	77279	50.0000	56.59
63	o-Xylene	106	8.243	8.243	(1.075)	157909	50.0000	46.04
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	357306	50.0000	40.67
64	Styrene	104	8.258	8.258	(1.077)	270382	50.0000	45.48
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	263777	50.0000	41.48
56	Tetrachloroethene	164	6.933	6.933	(0.904)	82463	50.0000	44.76
50	Toluene	91	6.446	6.446	(0.840)	375544	50.0000	45.43
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	89406	50.0000	46.27
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	146254	50.0000	48.05
38	Trichloroethene	130	5.206	5.206	(1.048)	99291	50.0000	45.07
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	156265	50.0000	45.73
5	Vinyl Chloride	62	1.138	1.138	(0.272)	123539	50.0000	41.96

QC Flag Legend

M - Compound response manually integrated.



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Instrument: voa6.i
Operator: PC
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Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051405.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051405.D
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Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

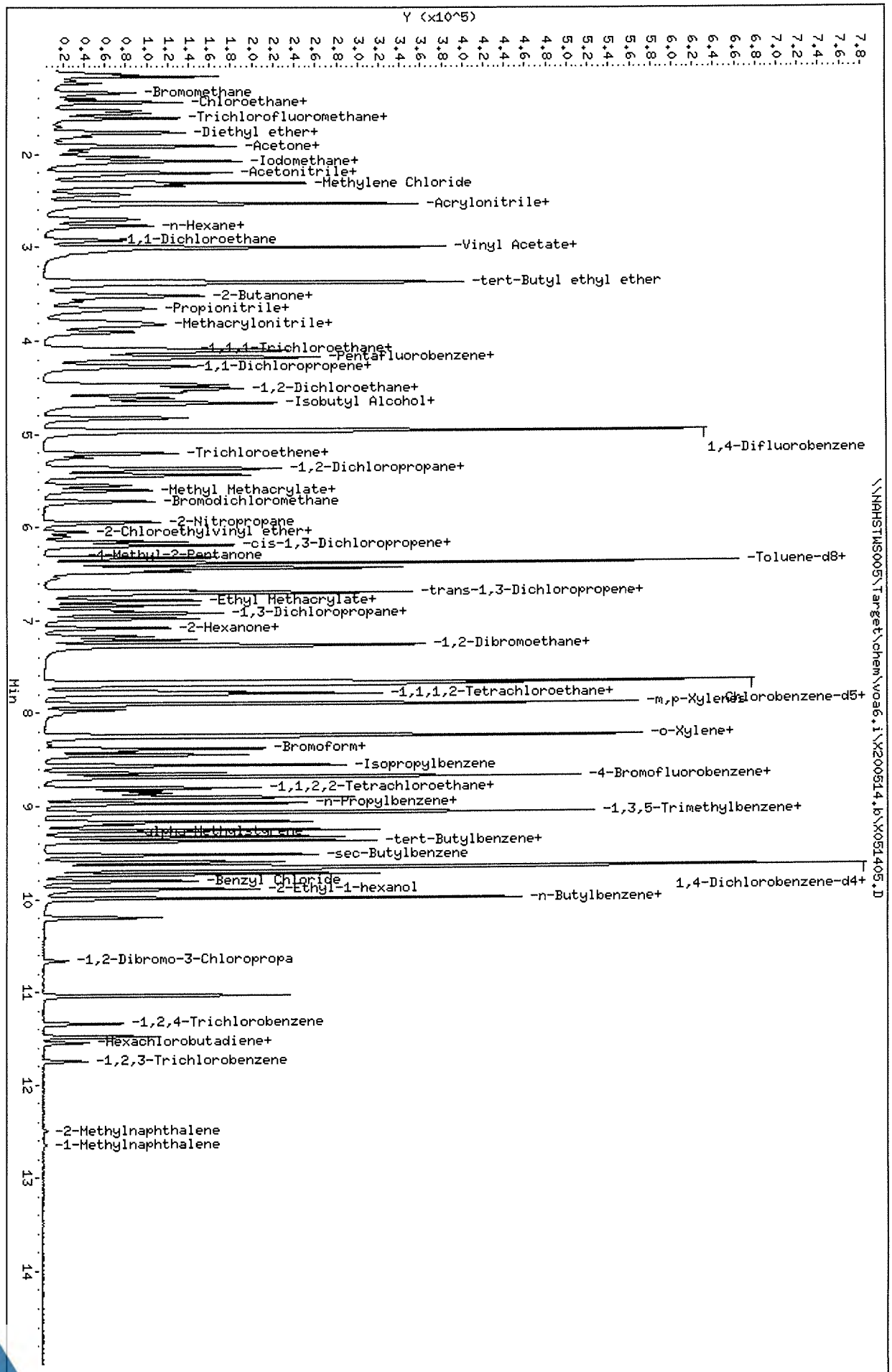
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	220255	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	323240	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	289824	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	146625	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	107398	48.8728	48.87
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	136446	50.2648	50.26
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	367626	50.5111	50.51
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	141241	51.0256	51.02
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	45032	19.7678	19.76
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	65872	18.6754	18.67
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	45296	19.2229	19.22
138 Freon TF	101	1.911	1.911	(0.457)	30088	17.6768	17.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	32000	19.8488	19.84
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	87793	18.3405	18.34
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	32150	18.3471	18.34
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	50937	17.2136	17.21
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	11321	24.4529	24.45
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	39385	19.2761	19.27(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	22083	22.3959	22.39
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	138910	18.0607	18.06
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	4839	21.4716	21.47
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	41996	20.3956	20.39

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051405.D Page 2
Report Date: 01-Jun-2020 15:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	75846	18.5685	18.56
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	70050	20.8138	20.81
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	50122	19.0497	19.04
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	133935	17.6910	17.69
83	1,3-Dichlorobenzene	146	9.605	9.604	(0.993)	83364	18.6579	18.65
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	67299	20.0807	20.08
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	81789	17.6477	17.64
26	2,2-Dichloropropane	77	3.509	3.516	(0.839)	66803	19.1558	19.15
24	2-Butanone	43	3.580	3.580	(0.856)	43550	43.8720	43.87
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	114020	17.4220	17.42
52	2-Hexanone	43	7.090	7.090	(0.924)	70225	39.1826	39.18
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	136023	18.0284	18.02
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	135562	17.6017	17.60
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	104981	40.1178	40.11
10	Acetone	43	1.969	1.969	(0.471)	30516	38.0113	38.01
37	Benzene	78	4.512	4.512	(0.908)	157411	19.0515	19.05
74	Bromobenzene	156	8.809	8.809	(0.911)	52154	18.9723	18.97
29	Bromochloromethane	128	3.795	3.795	(0.908)	24613	19.2599	19.25
39	Bromodichloromethane	83	5.729	5.729	(1.153)	60140	19.9319	19.93
66	Bromoform	173	8.415	8.415	(1.097)	33223	20.0076	20.00
6	Bromomethane	94	1.338	1.338	(0.320)	35600	21.5589	21.55
19	Carbon Disulfide	76	2.069	2.069	(0.495)	223061	37.3625	37.36
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	56861	17.5081	17.50
59	Chlorobenzene	112	7.699	7.692	(1.004)	108302	18.8604	18.86
7	Chloroethane	64	1.403	1.403	(0.336)	29312	18.5468	18.54
28	Chloroform	83	3.910	3.910	(0.935)	79105	20.0975	20.09
3	Chloromethane	50	1.073	1.073	(0.257)	62054	18.2791	18.27
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	45964	19.7821	19.78
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	69277	19.6050	19.60
55	Dibromochloromethane	129	7.176	7.176	(0.936)	47365	20.1917	20.19
44	Dibromomethane	93	5.550	5.557	(1.117)	28728	20.1306	20.13
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	47310	19.0662	19.06
61	Ethylbenzene	106	7.799	7.799	(1.017)	54271	18.0079	18.00
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	18405	23.5121	23.51
67	Isopropylbenzene	105	8.566	8.566	(1.117)	160129	17.7175	17.71
62	m,p-Xylenes	106	7.907	7.907	(1.031)	131935	36.0671	36.06
17	Methylene Chloride	84	2.298	2.305	(0.550)	45512	20.3736	20.37
87	n-Butylbenzene	91	9.998	9.998	(1.034)	115177	18.5351	18.53
73	n-Propylbenzene	91	8.917	8.917	(0.922)	182768	17.3381	17.33
92	Naphthalene	128	11.546	11.546	(1.194)	29080	21.0660	21.06
63	o-Xylene	106	8.244	8.243	(1.075)	64080	18.0047	18.00
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	150149	16.9069	16.90
64	Styrene	104	8.258	8.258	(1.077)	113629	18.4214	18.42
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	110713	17.2233	17.22
56	Tetrachloroethene	164	6.933	6.933	(0.904)	34450	18.0194	18.01
50	Toluene	91	6.446	6.446	(0.840)	162016	18.8889	18.88
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	39439	19.6838	19.68
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	63441	19.7970	19.79
38	Trichloroethene	130	5.206	5.206	(1.048)	43041	18.5573	18.55
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	66384	18.7328	18.73
5	Vinyl Chloride	62	1.138	1.138	(0.272)	54533	17.8607	17.86

QC Flag Legend

M - Compound response manually integrated.



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Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051407.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

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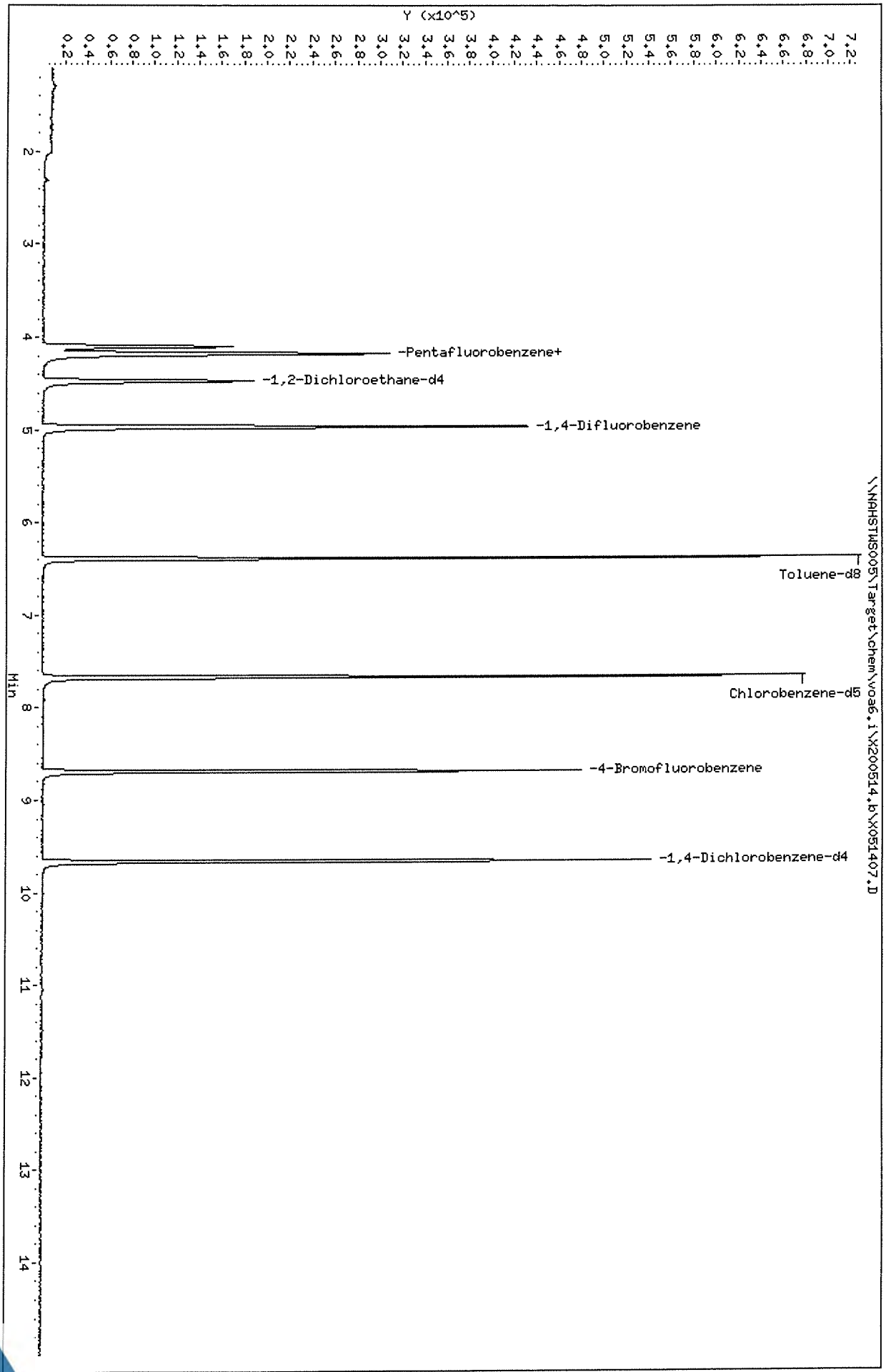
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	261667	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	356529	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	304152	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	139528	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	119840	45.8891	45.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	147354	45.6888	45.68
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	413729	54.2013	54.20
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	141409	48.6443	48.64



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Date : 14-MAY-2020 12:46
Client ID: VBLKW-200514
Sample Info: VBLKW-200514;VBLKW-200514;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051408.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051408.D
Lab Smp Id: HS20050467-10 Client Smp ID: HS20050467-10
Inj Date : 14-MAY-2020 13:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-10;HS20050467-10;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

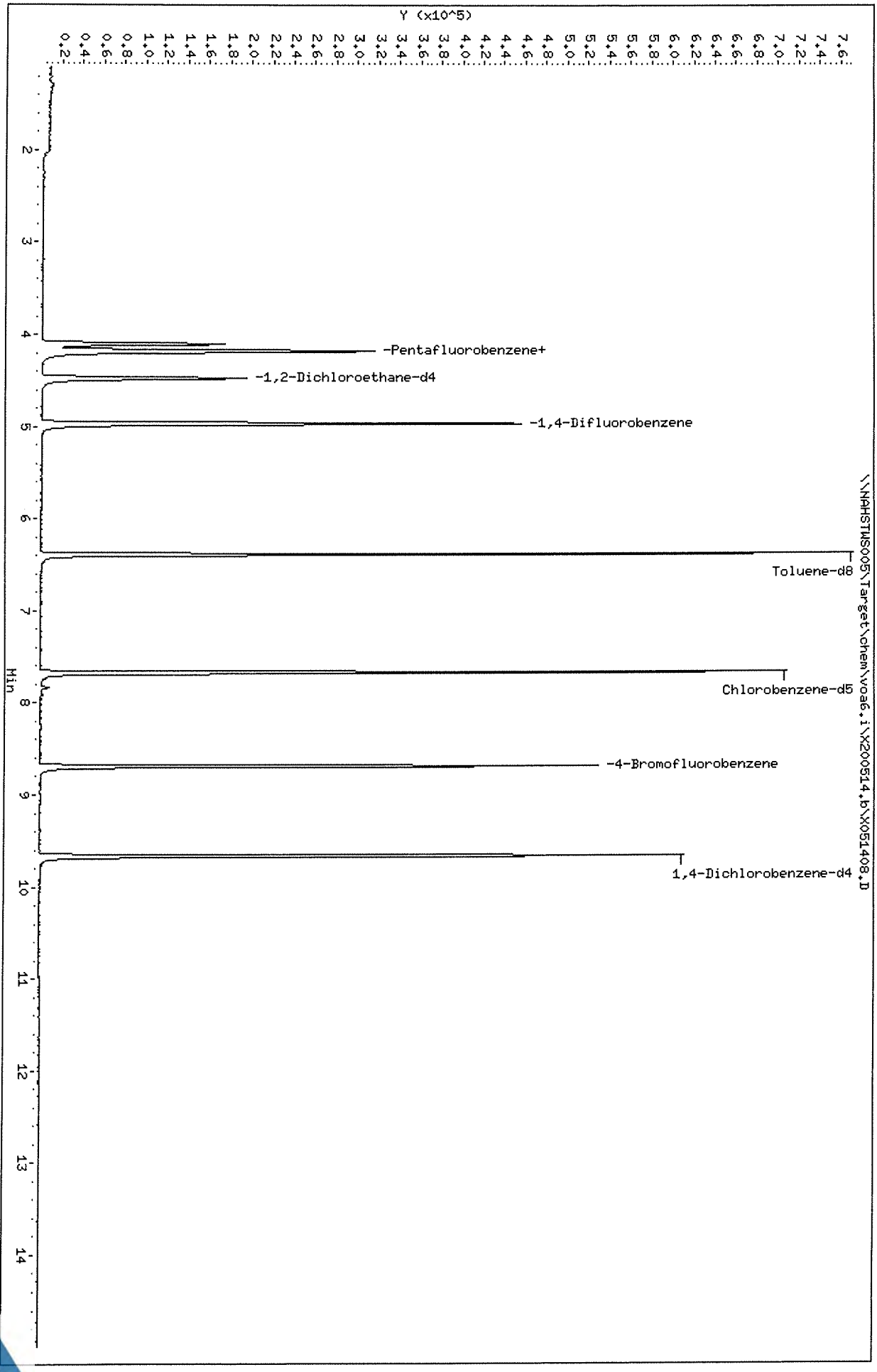
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	270690	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	369556	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	321718	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	159213	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124566	46.1100	46.11
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	150119	44.9940	44.99
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	432564	53.5693	53.56
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	154761	50.3573	50.35

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051408.D
Date : 14-MAY-2020 13:10
Client ID: HS20050467-10
Sample Info: HS20050467-10;HS20050467-10;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051409.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051409.D
Lab Smp Id: HS20050467-01 Client Smp ID: HS20050467-01
Inj Date : 14-MAY-2020 13:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-01;HS20050467-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

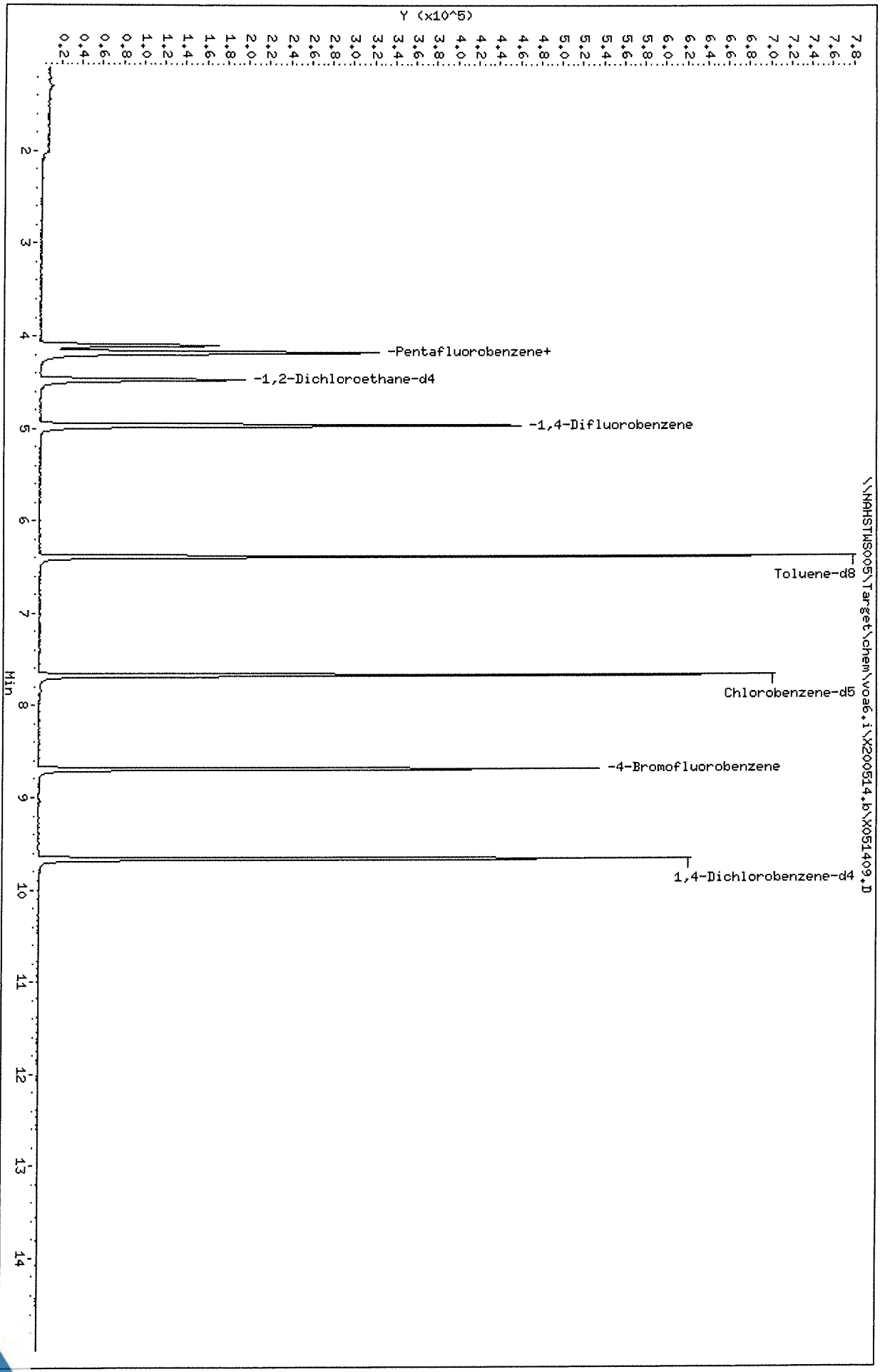
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	271470	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	376200	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	321586	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	157452	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	122757	45.3056	45.30
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	154182	46.0799	46.07
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	437259	54.1782	54.17
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	155873	50.7458	50.74

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051409.D
Date : 14-MAY-2020 13:34
Client ID: HS20050467-01
Sample Info: HS20050467-01;HS20050467-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051410.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051410.D
Lab Smp Id: HS20050467-02 Client Smp ID: HS20050467-02
Inj Date : 14-MAY-2020 13:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-02;HS20050467-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

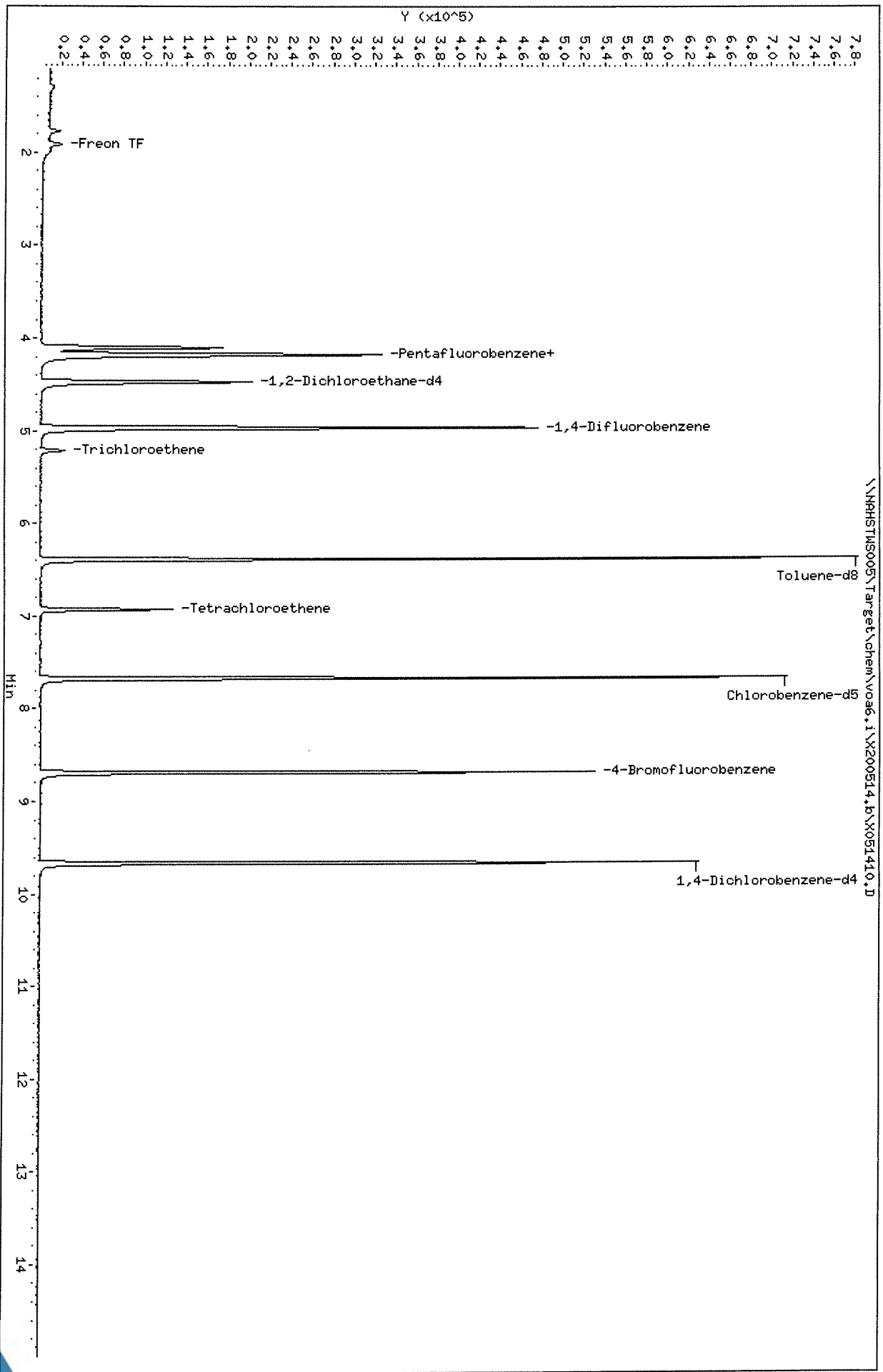
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	272458	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	380429	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	327309	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	154236	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	123751	45.5079	45.50
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	156364	46.5630	46.56
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	442849	53.9091	53.90
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	154591	49.4287	49.42
138 Freon TF	101	1.919	1.911	(0.459)	4543	2.15764	2.15(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	26409	12.2315	12.23
38 Trichloroethene	130	5.214	5.206	(1.049)	7878	2.88603	2.88

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051410.D
Date : 14-MAY-2020 13:58
Client ID: HS20050467-02
Sample Info: HS20050467-02;HS20050467-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051410.D

Date : 14-MAY-2020 13:58

Client ID: HS20050467-02

Instrument: voa6.i

Sample Info: HS20050467-02;HS20050467-02;;;

Purge Volume: 5.0

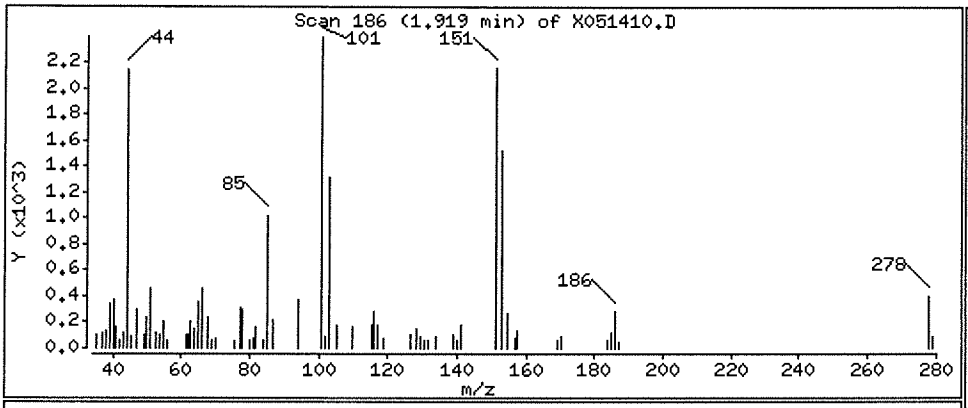
Operator: PC

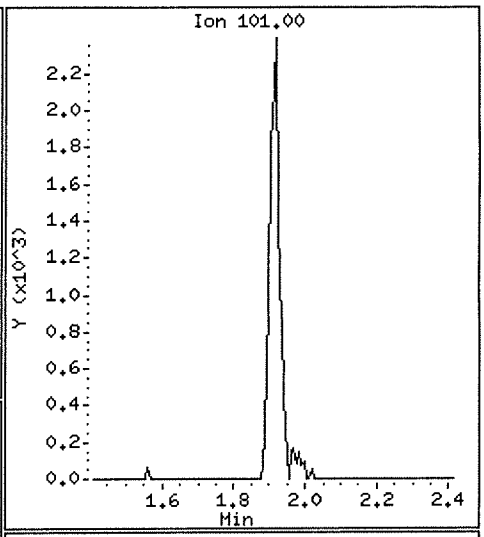
Column phase: DB624

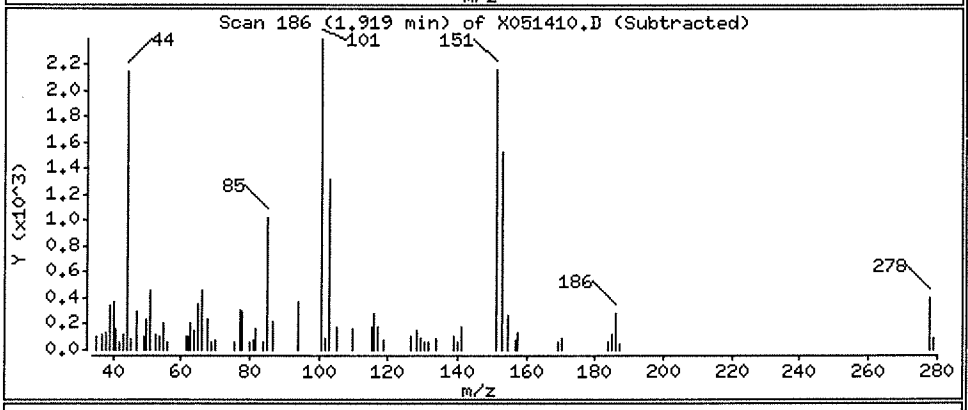
Column diameter: 0.18

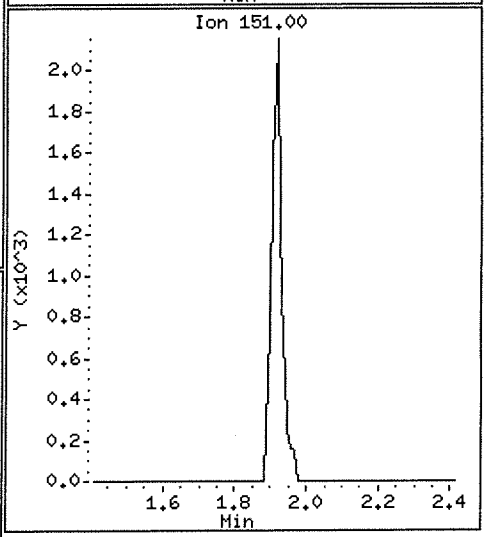
138 Freon TF

Concentration: 2.15 ug/l









Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051410.D

Date : 14-MAY-2020 13:58

Client ID: HS20050467-02

Instrument: voa6.i

Sample Info: HS20050467-02;HS20050467-02;;;

Purge Volume: 5.0

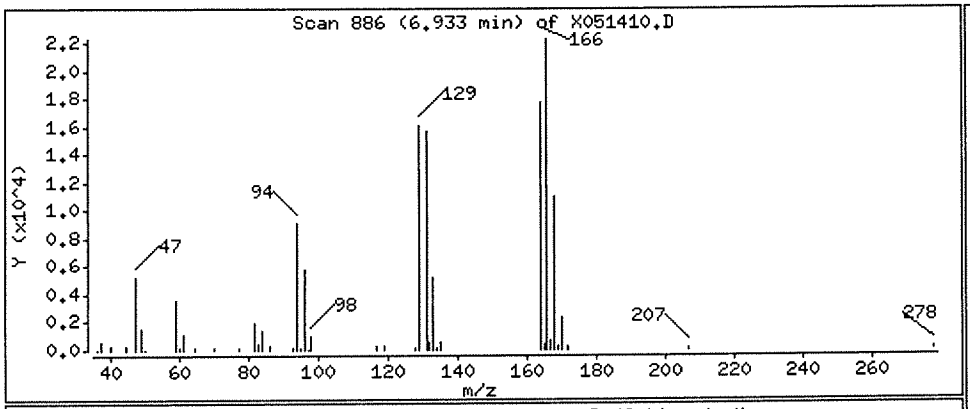
Operator: PC

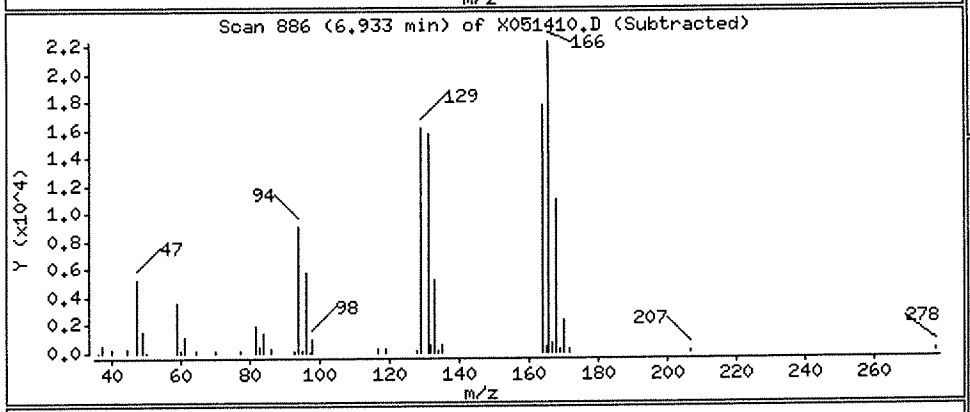
Column phase: DB624

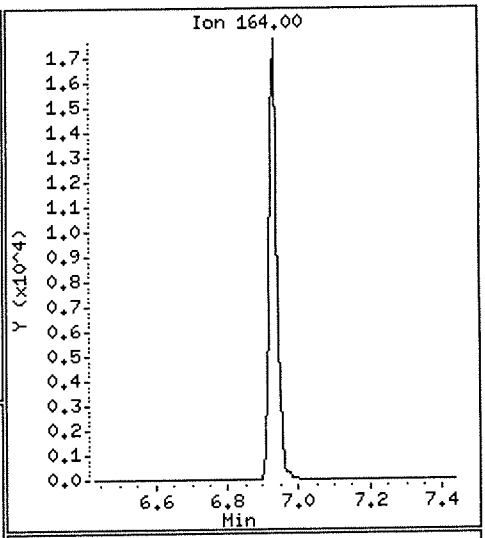
Column diameter: 0.18

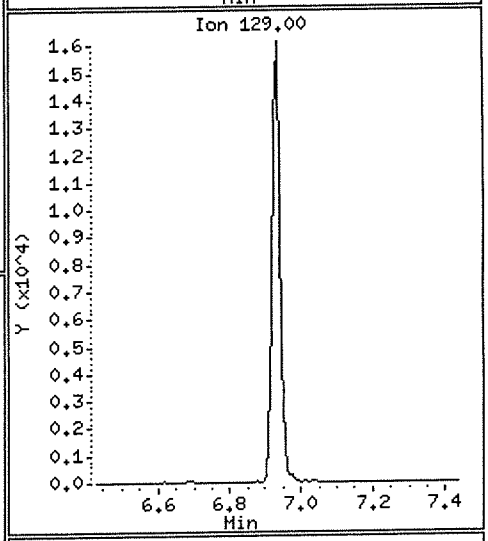
56 Tetrachloroethene

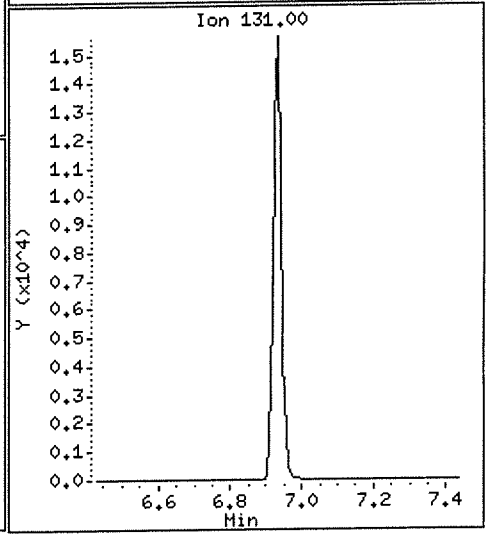
Concentration: 12.23 ug/l











Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051410.D Page 5

Date : 14-MAY-2020 13:58

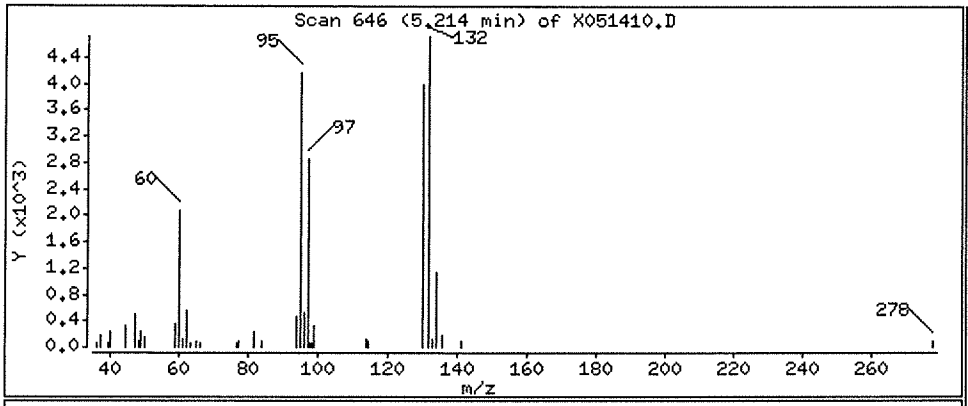
Client ID: HS20050467-02 Instrument: voa6.i

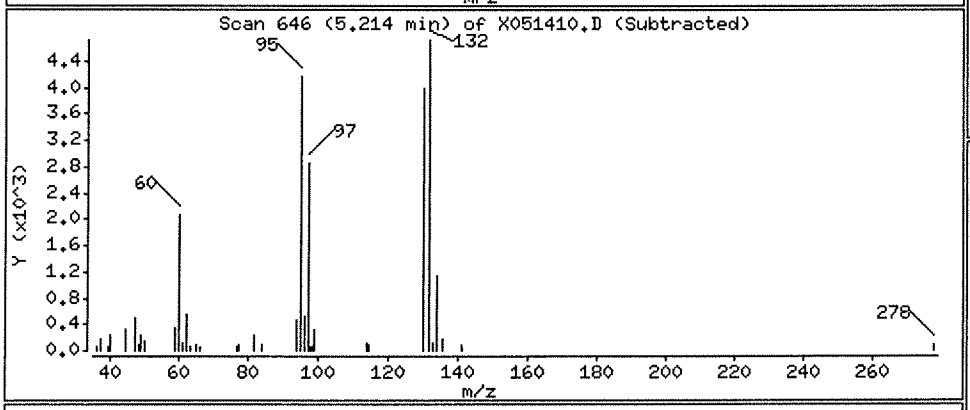
Sample Info: HS20050467-02;HS20050467-02;;;

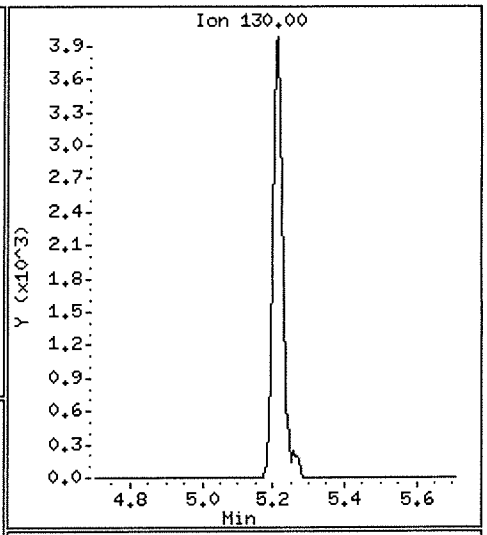
Purge Volume: 5.0 Operator: PC

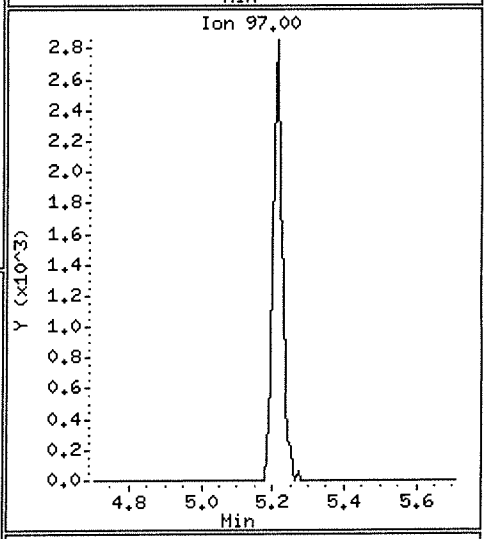
Column phase: DB624 Column diameter: 0.18

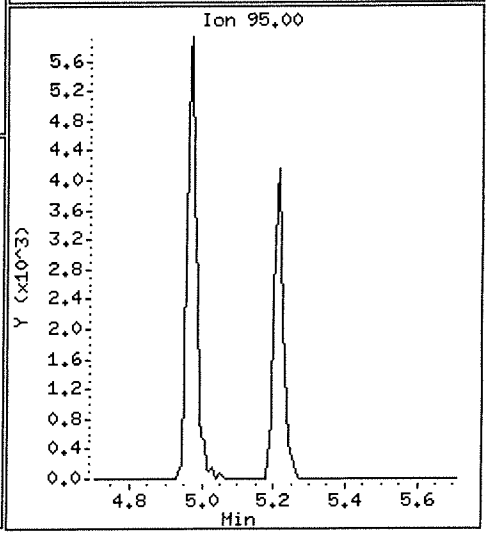
38 Trichloroethene Concentration: 2.88 ug/l











Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051411.D Page 1
Report Date: 01-Jun-2020 15:38

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051411.D
Lab Smp Id: HS20050467-03 Client Smp ID: HS20050467-03
Inj Date : 14-MAY-2020 14:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-03;HS20050467-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

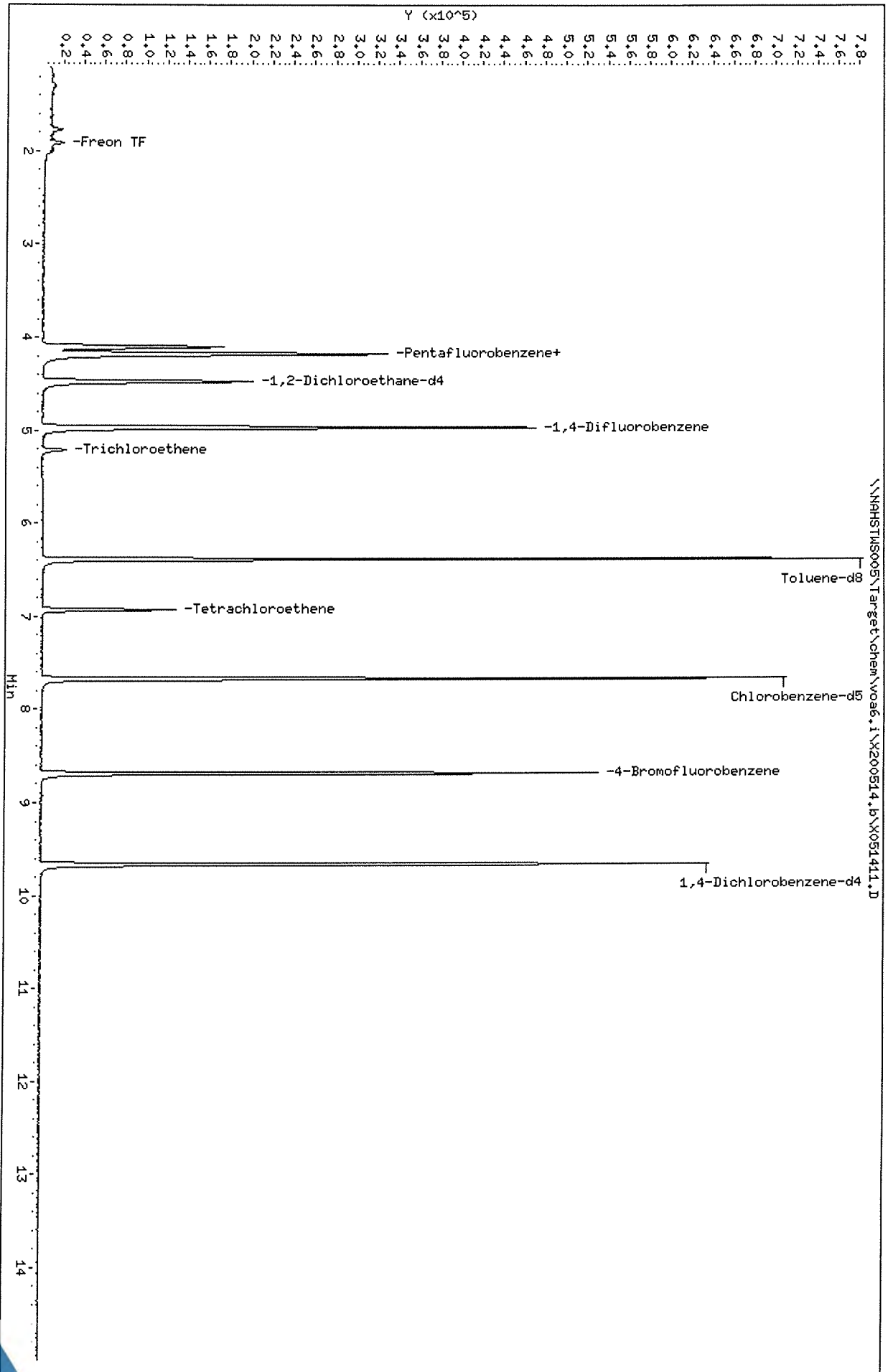
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	277415	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	382146	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	328735	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	164049	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124908	45.1105	45.11
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	157483	46.0578	46.05
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	443244	53.7216	53.72
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	157737	50.2281	50.22
138 Freon TF	101	1.912	1.911	(0.457)	4957	2.31220	2.31(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	25699	11.8510	11.85
38 Trichloroethene	130	5.214	5.206	(1.049)	8003	2.91865	2.91

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051411.D
Date : 14-MAY-2020 14:22
Client ID: HS20050467-03
Sample Info: HS20050467-03;HS20050467-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051411.D

Date : 14-MAY-2020 14:22

Client ID: HS20050467-03

Instrument: voa6.i

Sample Info: HS20050467-03;HS20050467-03;;;

Purge Volume: 5.0

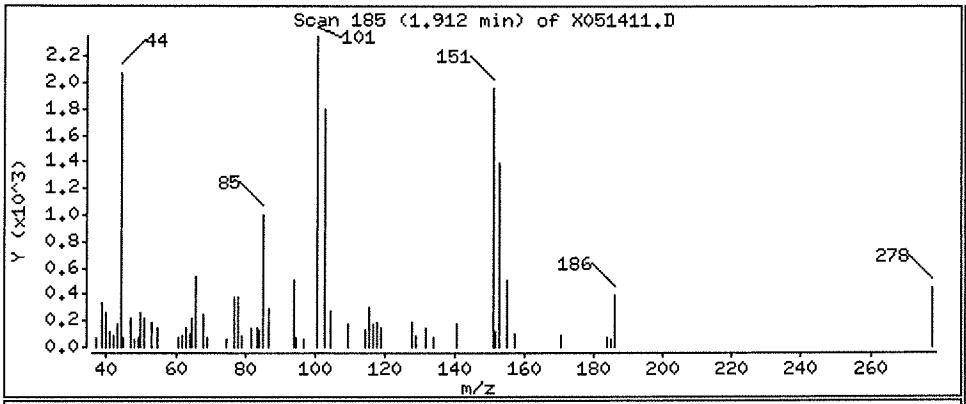
Operator: PC

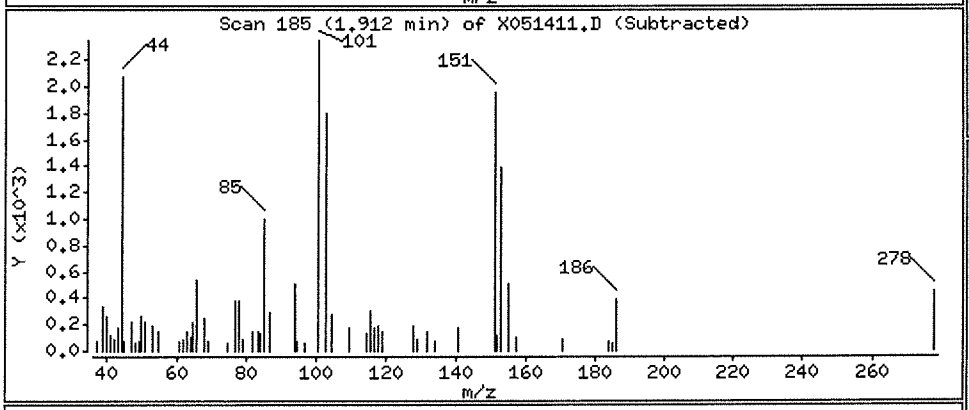
Column phase: DB624

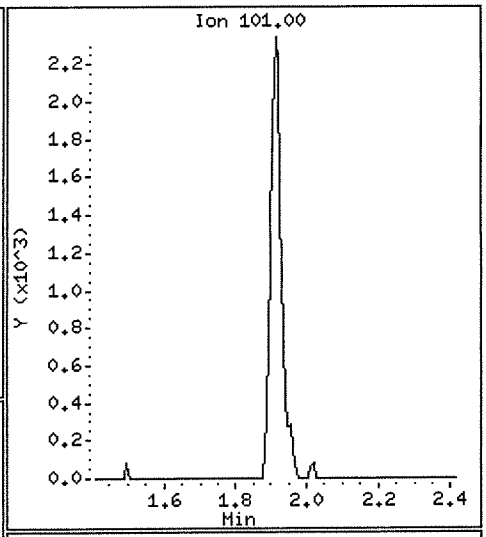
Column diameter: 0.18

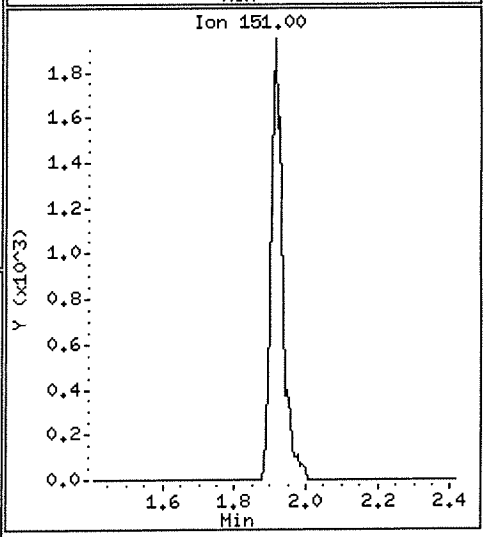
138 Freon TF

Concentration: 2.31 ug/l









Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051411.D Page 4

Date : 14-MAY-2020 14:22

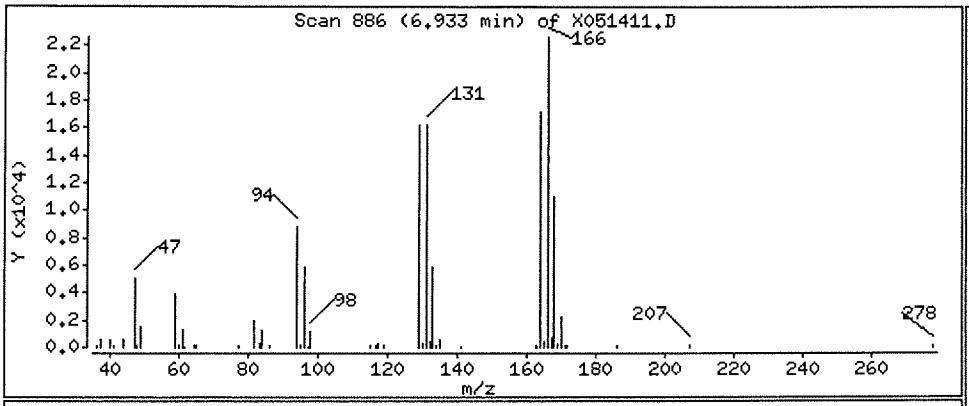
Client ID: HS20050467-03 Instrument: voa6.i

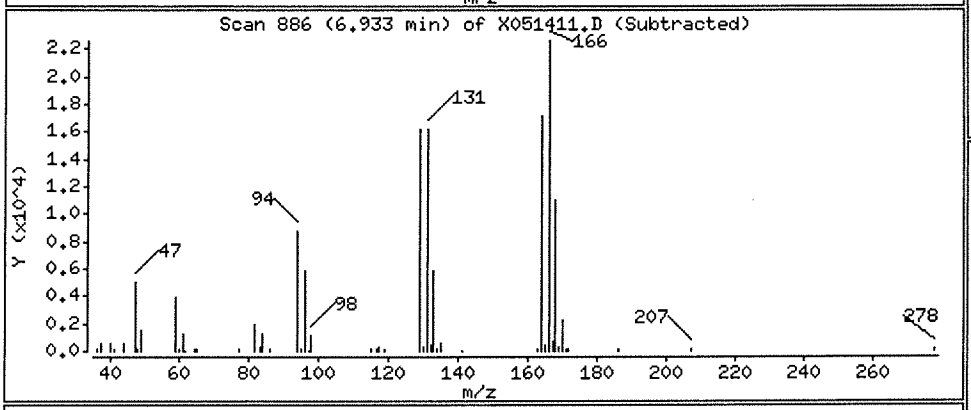
Sample Info: HS20050467-03;HS20050467-03;;;

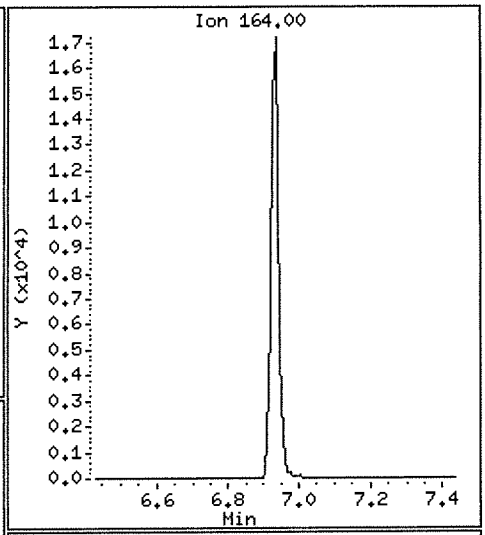
Purge Volume: 5.0 Operator: PC

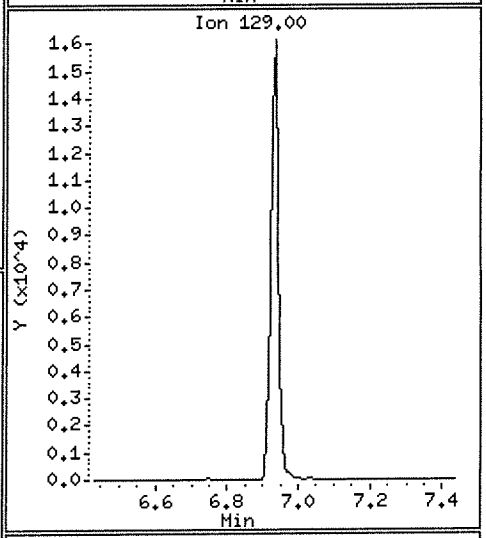
Column phase: DB624 Column diameter: 0.18

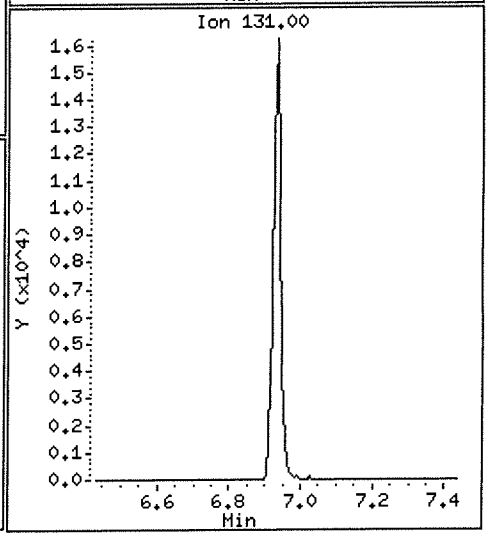
56 Tetrachloroethene Concentration: 11.85 ug/l











Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051411.D Page 5

Date : 14-MAY-2020 14:22

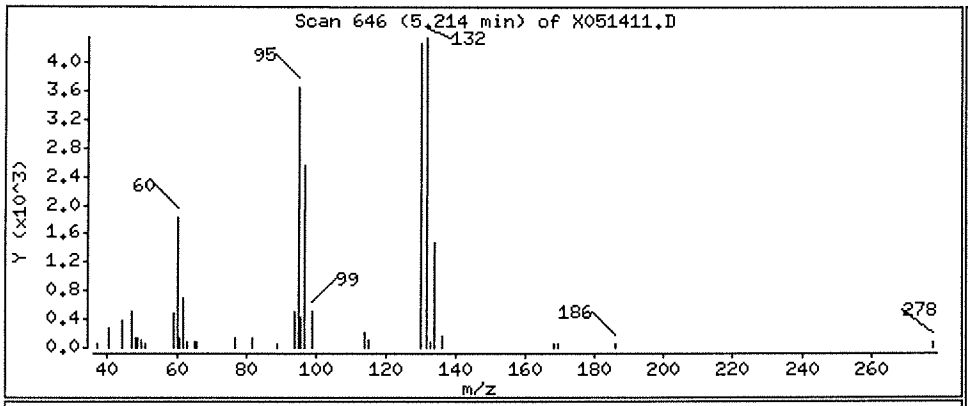
Client ID: HS20050467-03 Instrument: voa6.i

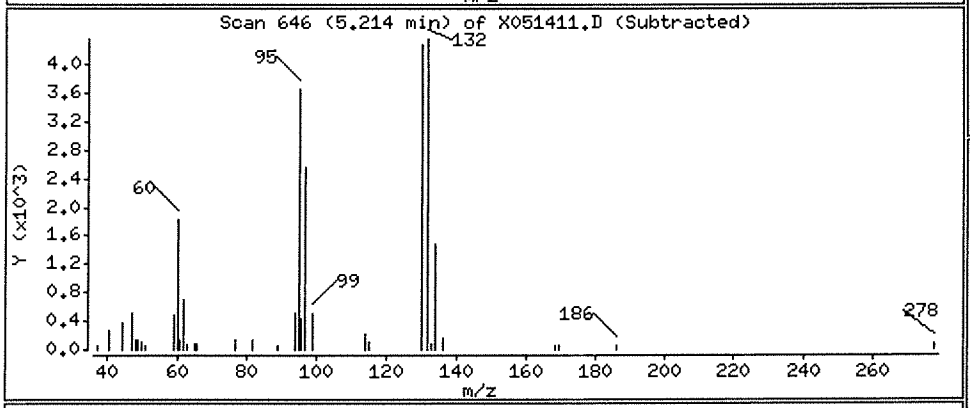
Sample Info: HS20050467-03;HS20050467-03;;;

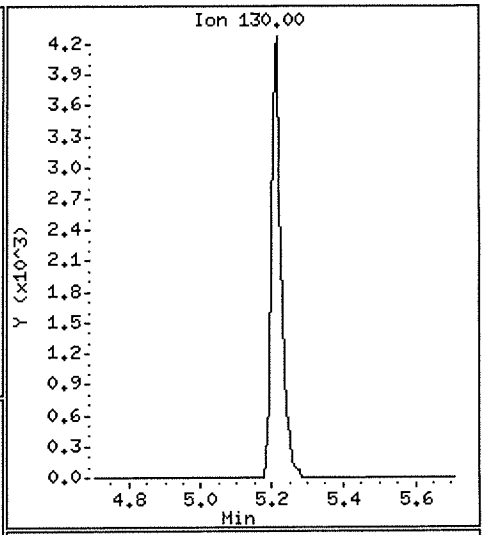
Purge Volume: 5.0 Operator: PC

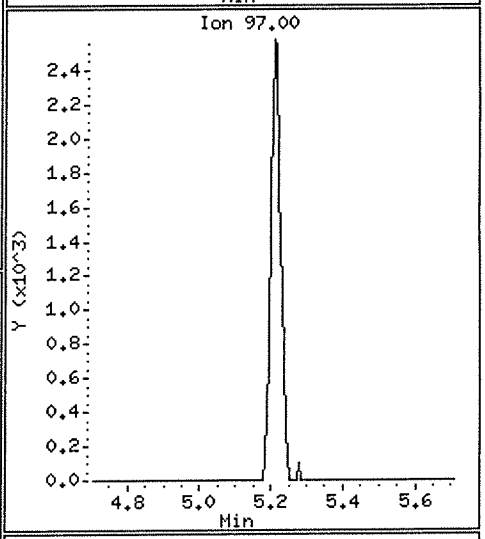
Column phase: DB624 Column diameter: 0.18

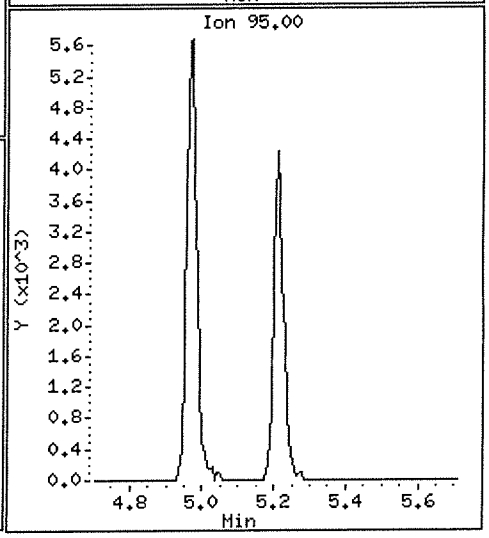
38 Trichloroethene Concentration: 2.91 ug/l











Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051412.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051412.D
Lab Smp Id: HS20050467-04 Client Smp ID: HS20050467-04
Inj Date : 14-MAY-2020 14:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-04;HS20050467-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

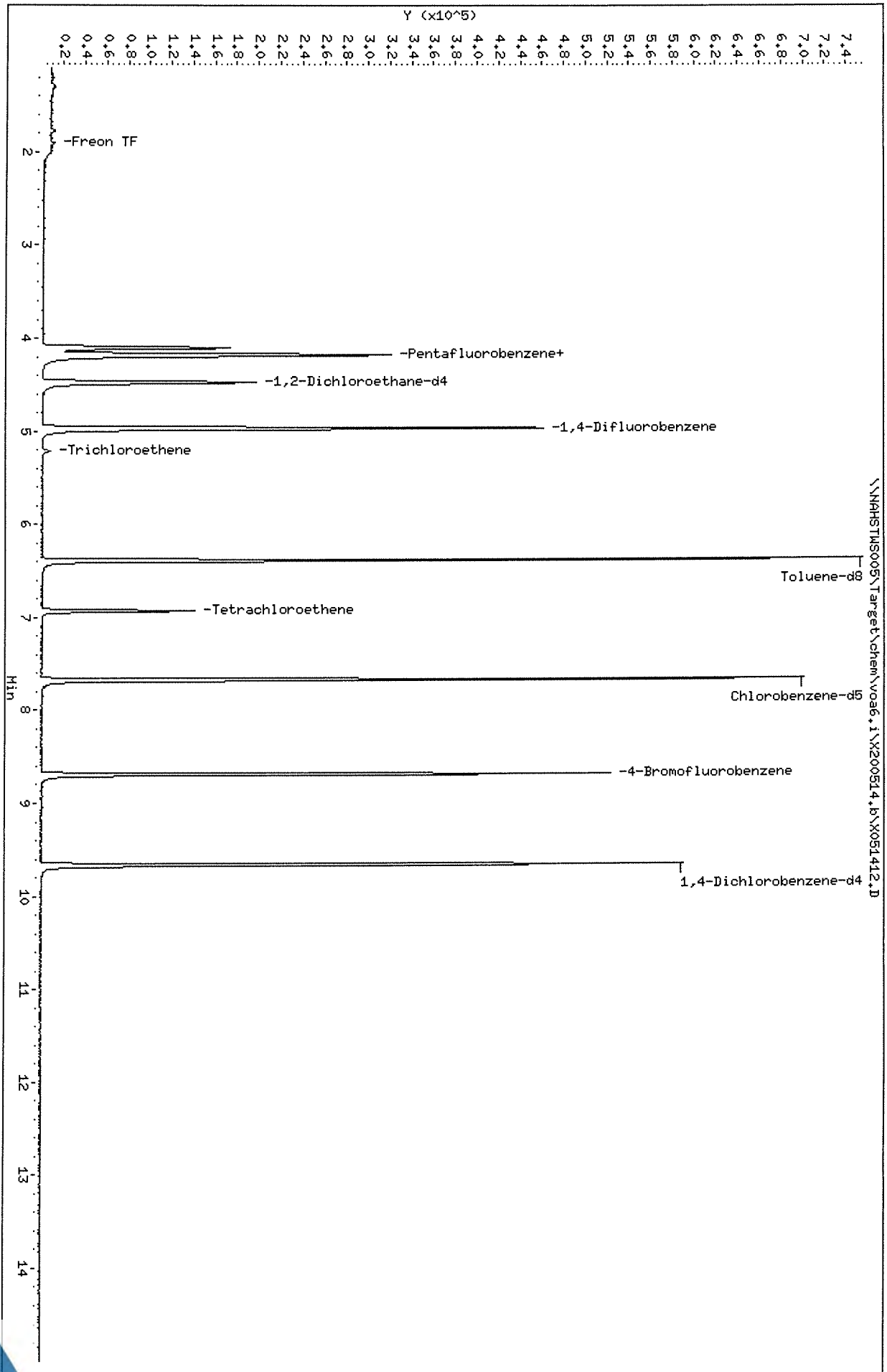
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	272003	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	379118	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	323312	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	151793	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	125423	46.2036	46.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	154033	45.9451	45.94
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	435615	53.6821	53.68
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	152798	49.4599	49.45
138 Freon TF	101	1.904	1.911	(0.455)	1383	0.65794	0.65(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	29180	13.6820	13.68
38 Trichloroethene	130	5.214	5.206	(1.049)	2390	0.87858	0.87(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051412.D
Date : 14-MAY-2020 14:46
Client ID: HS20050467-04
Sample Info: HS20050467-04;HS20050467-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051412.D

Date : 14-MAY-2020 14:46

Client ID: HS20050467-04

Instrument: voa6.i

Sample Info: HS20050467-04;HS20050467-04;;;

Purge Volume: 5.0

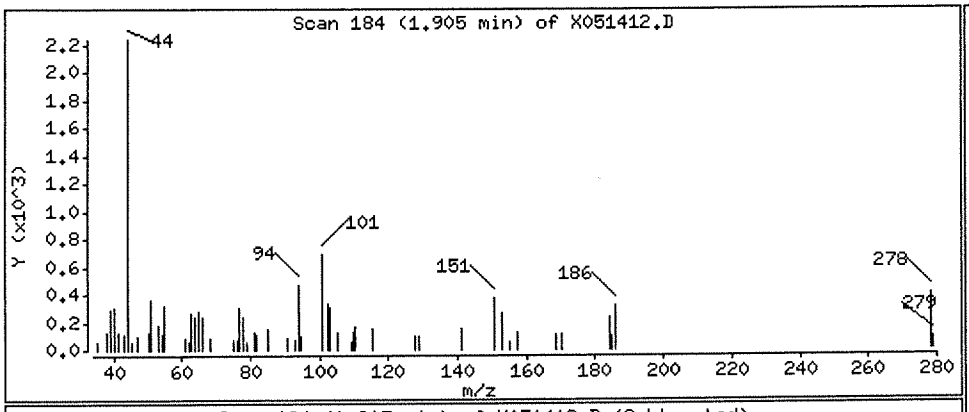
Operator: PC

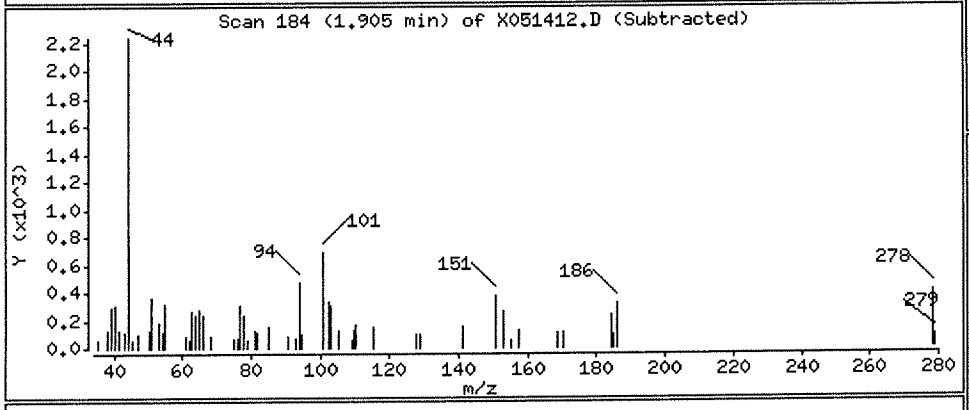
Column phase: DB624

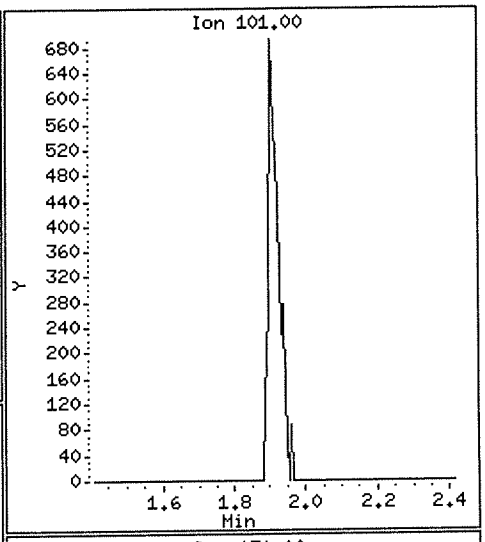
Column diameter: 0.18

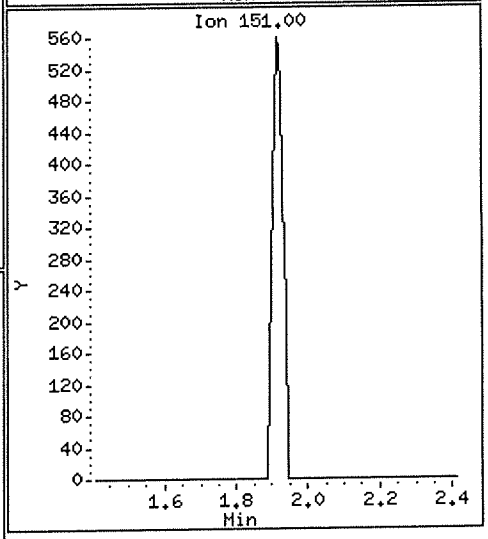
138 Freon TF

Concentration: 0.65 ug/l









Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051412.D

Date : 14-MAY-2020 14:46

Client ID: HS20050467-04

Instrument: voa6.i

Sample Info: HS20050467-04;HS20050467-04;;;

Purge Volume: 5.0

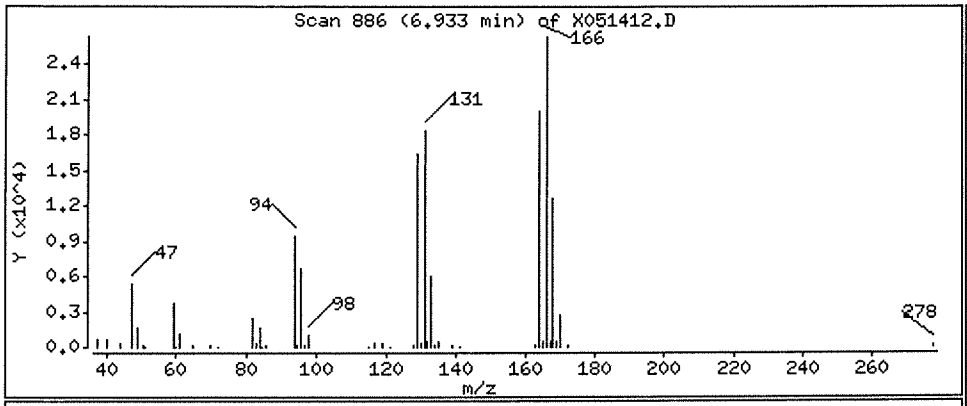
Operator: PC

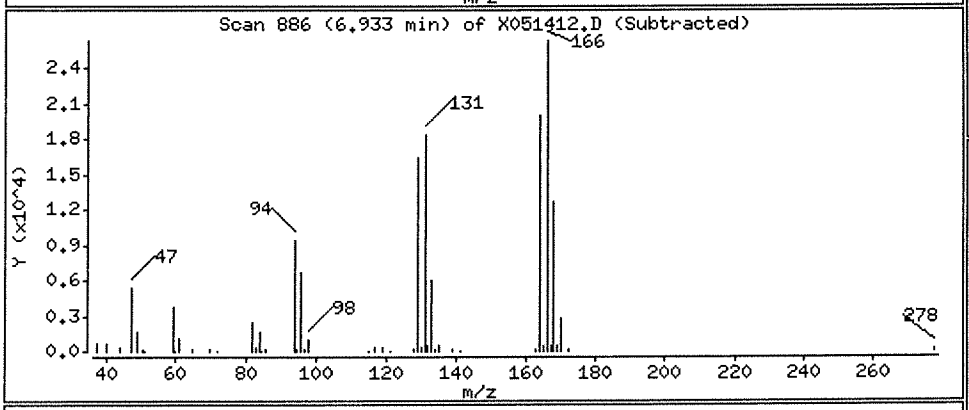
Column phase: DB624

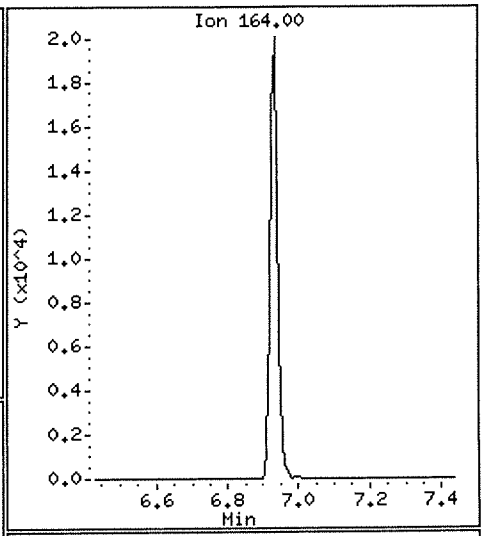
Column diameter: 0.18

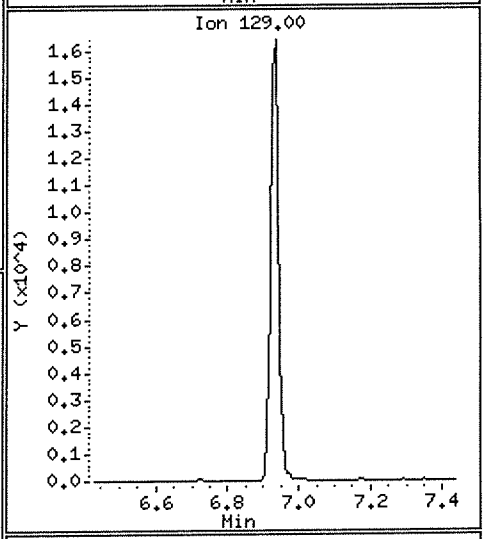
56 Tetrachloroethene

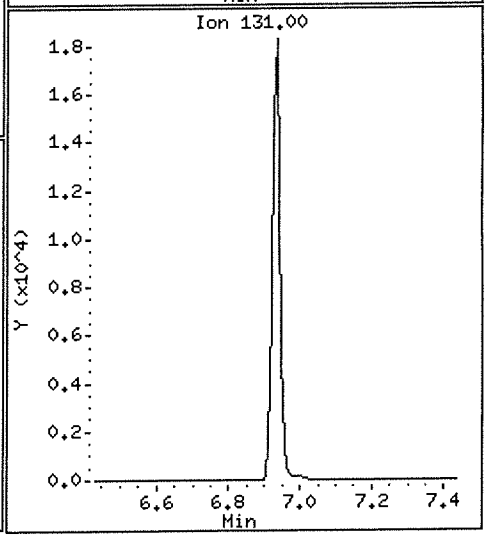
Concentration: 13.68 ug/l











Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051412.D

Date : 14-MAY-2020 14:46

Client ID: HS20050467-04

Instrument: voa6.i

Sample Info: HS20050467-04;HS20050467-04;;;

Purge Volume: 5.0

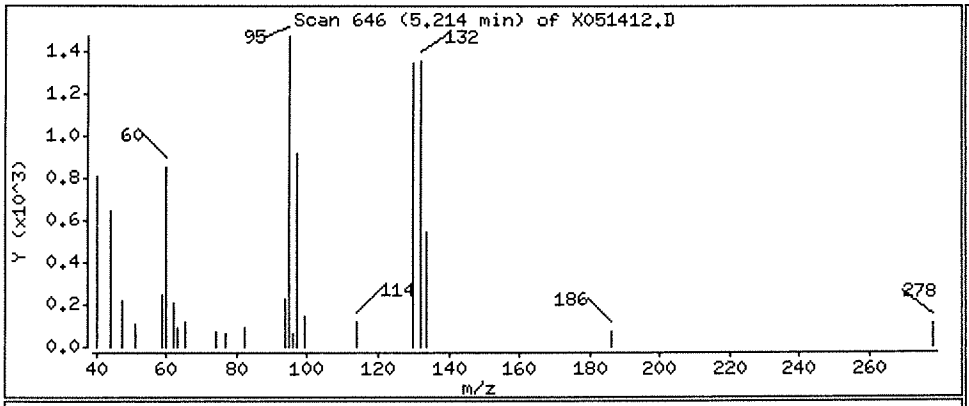
Operator: PC

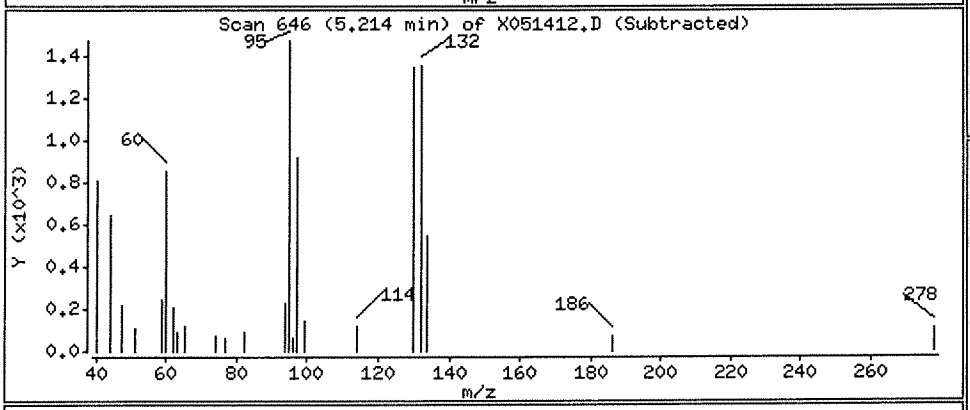
Column phase: DB624

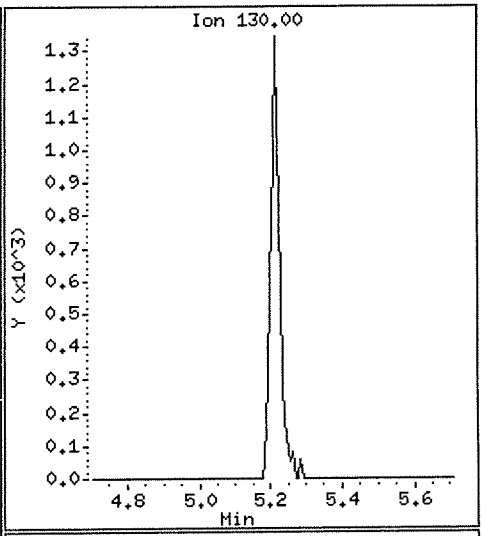
Column diameter: 0.18

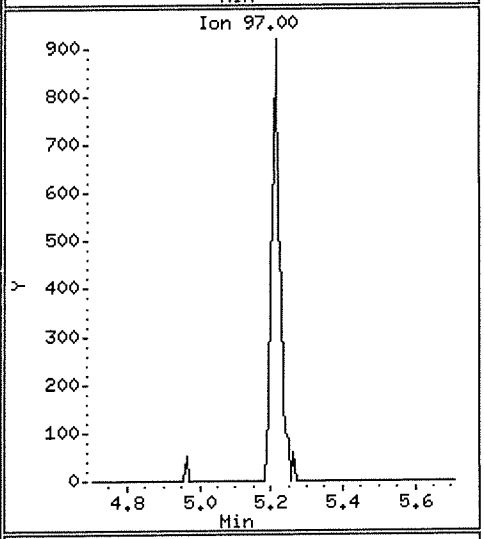
38 Trichloroethene

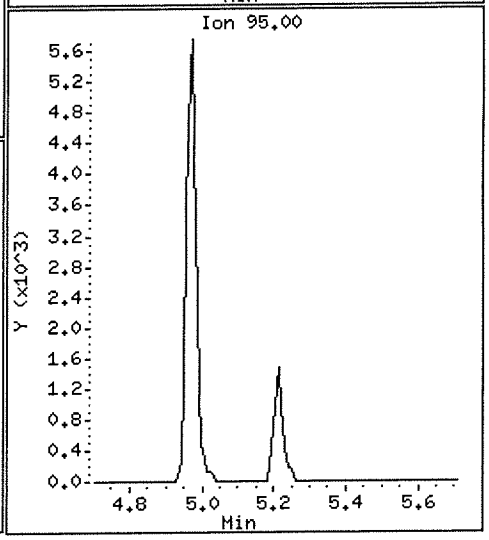
Concentration: 0.87 ug/l











Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051413.D Page 1
Report Date: 01-Jun-2020 15:38

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051413.D
Lab Smp Id: HS20050467-05 Client Smp ID: HS20050467-05
Inj Date : 14-MAY-2020 15:11
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-05;HS20050467-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

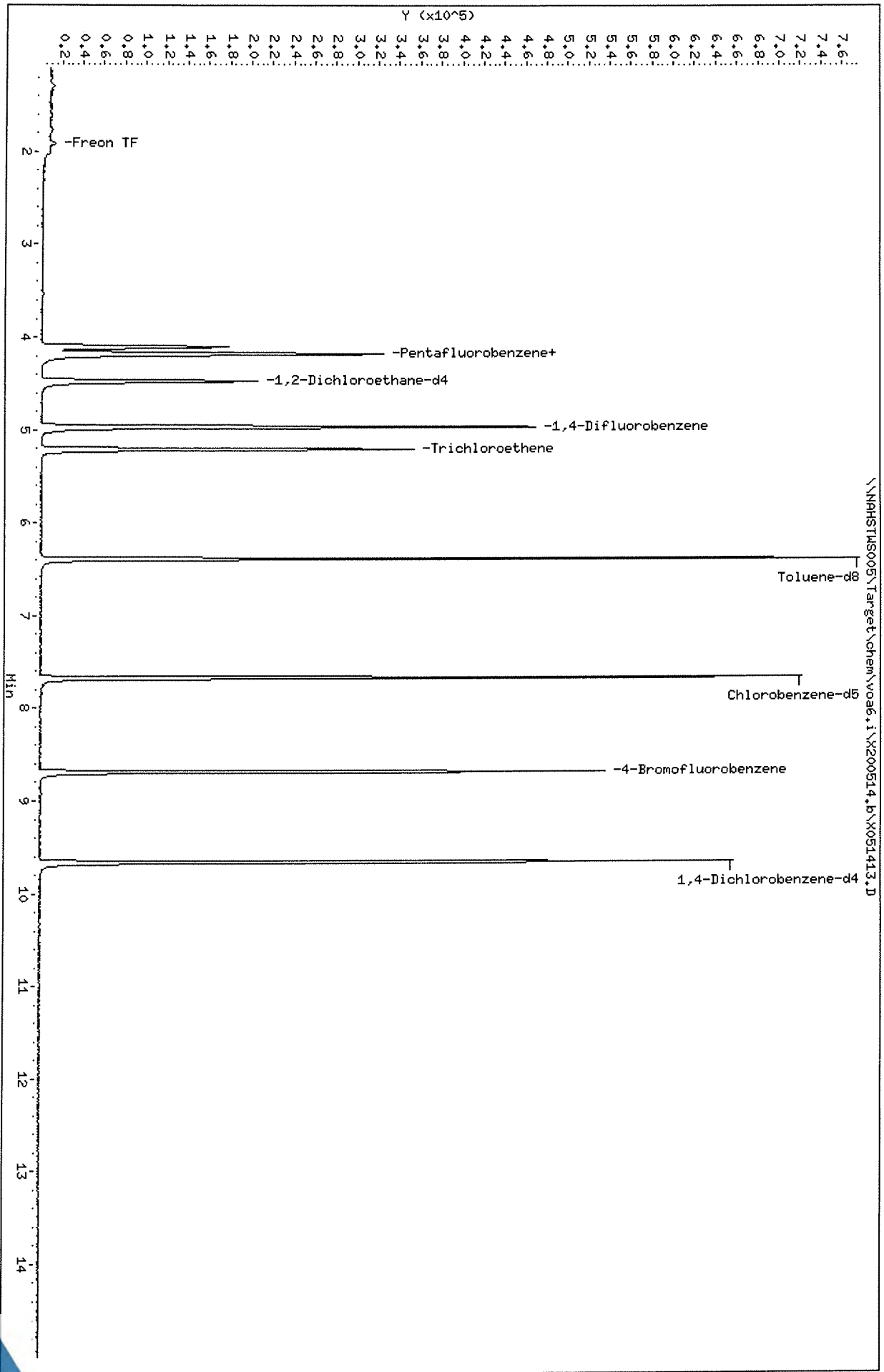
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	274408	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	384298	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	328225	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	164755	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	125743	45.9140	45.91
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	158422	46.8408	46.84
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	439373	53.3318	53.33
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	158373	50.5133	50.51
138 Freon TF	101	1.912	1.911	(0.457)	1572	0.74130	0.74(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	115614	41.9277	41.92

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051413.D
Date : 14-MAY-2020 15:11
Client ID: HS20050467-05
Sample Info: HS20050467-05;HS20050467-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051413.D

Date : 14-MAY-2020 15:11

Client ID: HS20050467-05

Instrument: voa6.i

Sample Info: HS20050467-05;HS20050467-05;;;

Purge Volume: 5.0

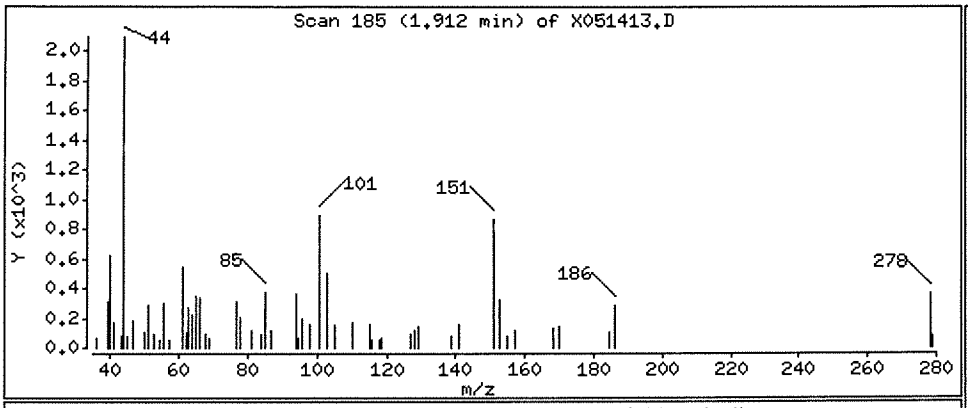
Operator: PC

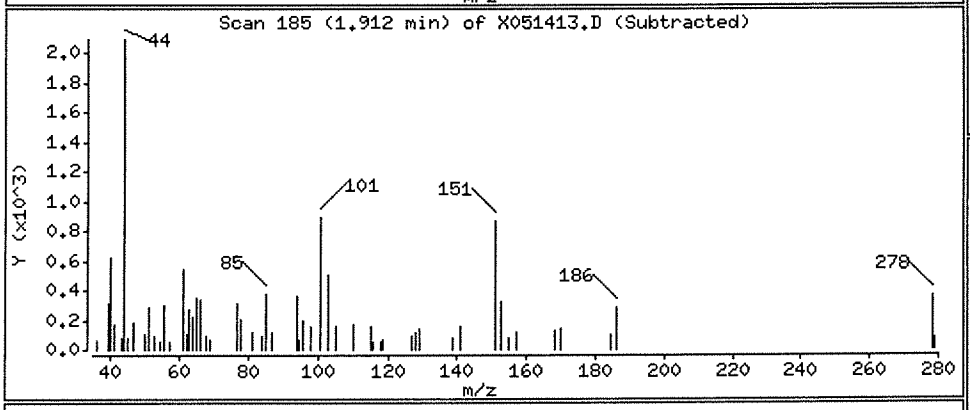
Column phase: DB624

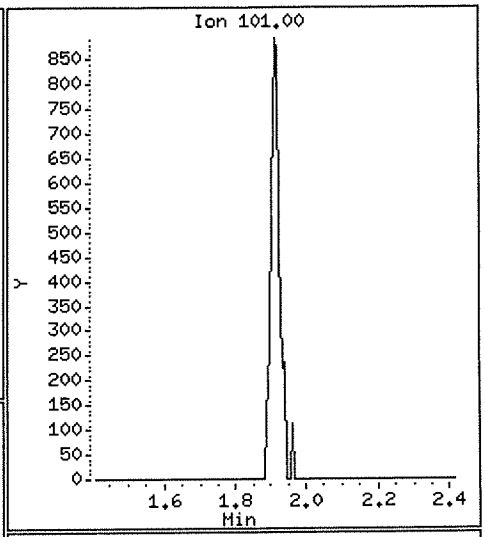
Column diameter: 0.18

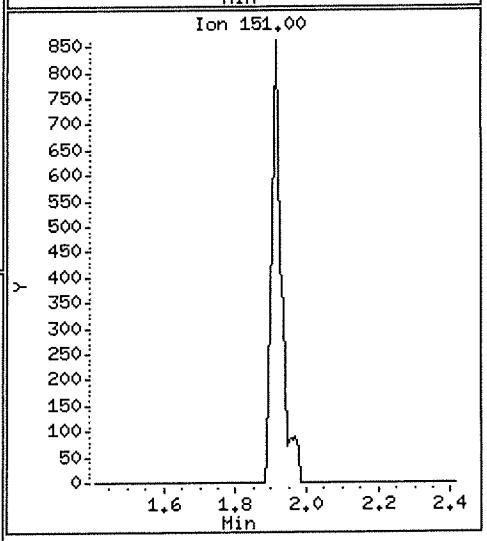
138 Freon TF

Concentration: 0.74 ug/l









Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051413.D

Date : 14-MAY-2020 15:11

Client ID: HS20050467-05

Instrument: voa6.i

Sample Info: HS20050467-05;HS20050467-05;;;

Purge Volume: 5.0

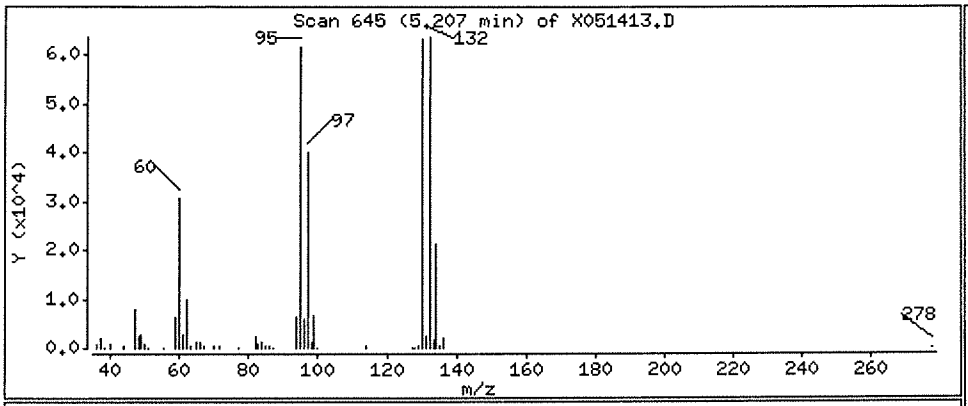
Operator: PC

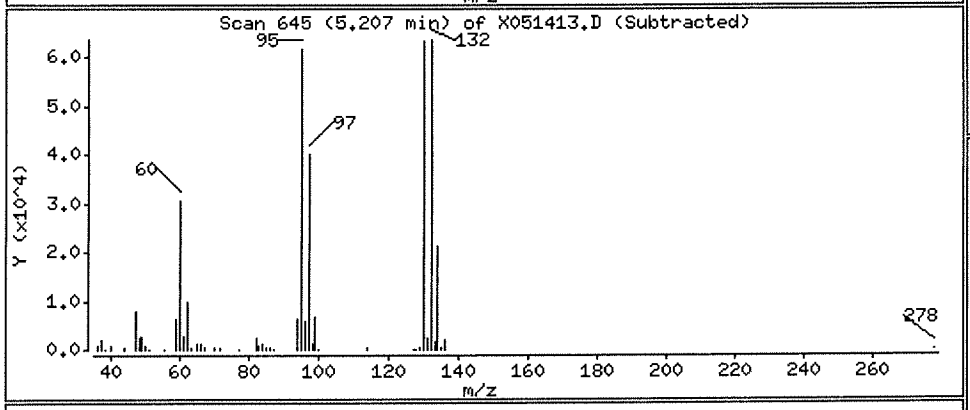
Column phase: DB624

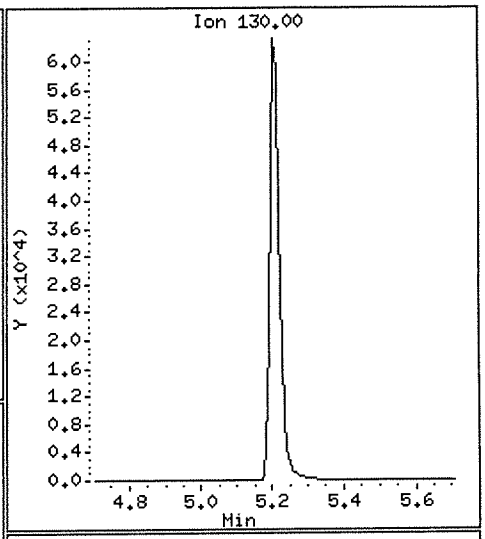
Column diameter: 0.18

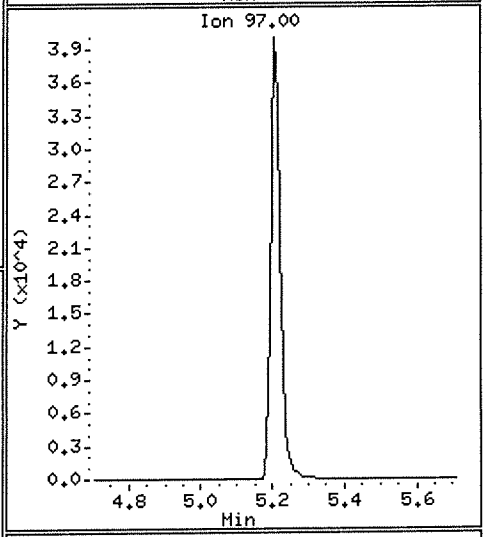
38 Trichloroethene

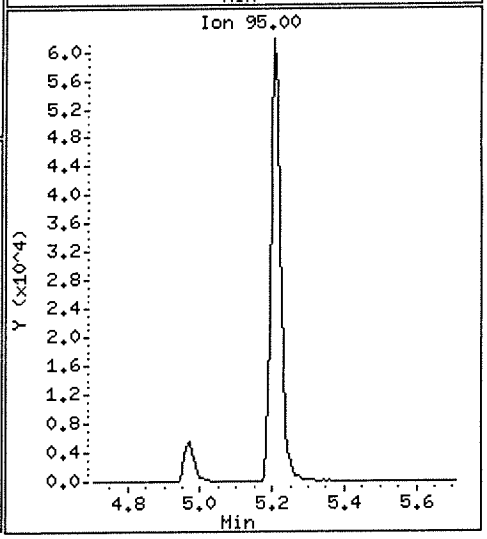
Concentration: 41.92 ug/l











ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051414.D
Lab Smp Id: HS20050467-06 Client Smp ID: HS20050467-06
Inj Date : 14-MAY-2020 15:35
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-06;HS20050467-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

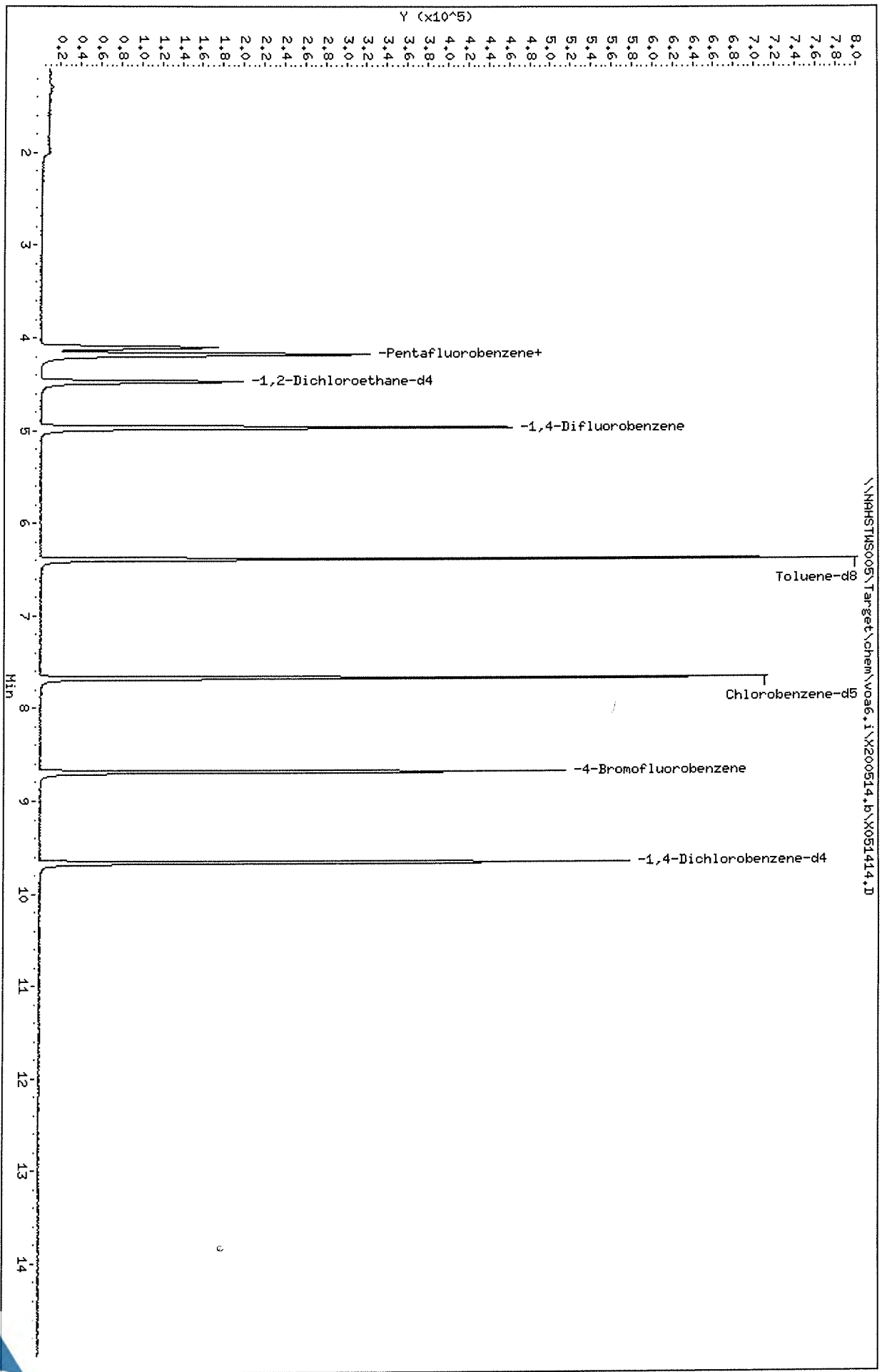
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	273578	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	383138	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	321789	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	147913	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	126525	46.3420	46.34
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	153006	45.3755	45.37
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	442295	54.7727	54.77
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	150104	48.8078	48.80

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051414.D
Date : 14-MAY-2020 15:35
Client ID: HS20050467-06
Sample Info: HS20050467-06;HS20050467-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051415.D Page 1
Report Date: 01-Jun-2020 15:39

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051415.D
Lab Smp Id: HS20050467-07 Client Smp ID: HS20050467-07
Inj Date : 14-MAY-2020 15:59
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-07;HS20050467-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

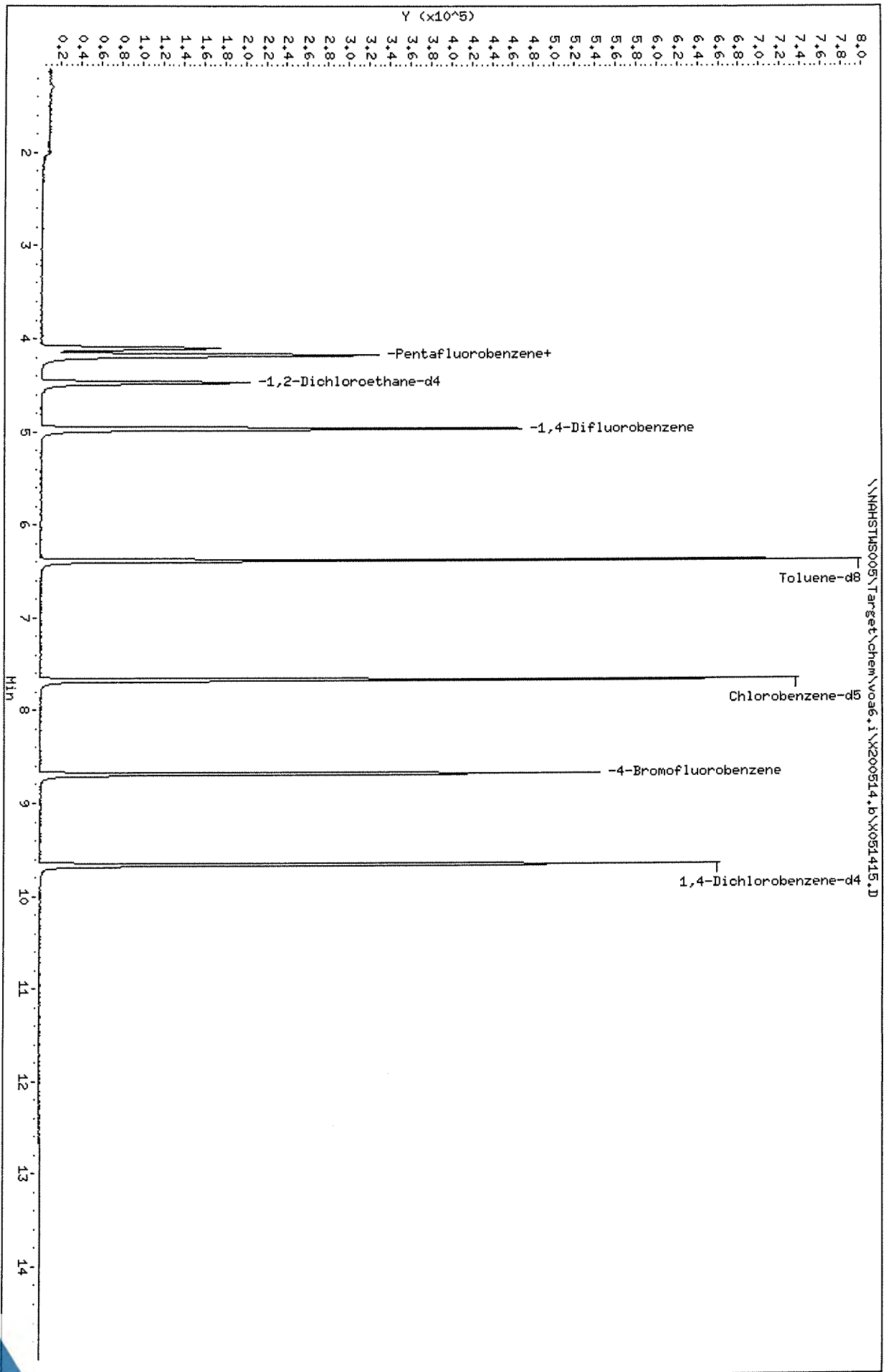
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	276036	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	382584	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	332880	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	166944	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	125518	45.5597	45.55
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	156457	45.9863	45.98
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	444642	53.2156	53.21
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	161349	50.7464	50.74

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051415.D
Date : 14-MAY-2020 15:59
Client ID: HS20050467-07
Sample Info: HS20050467-07;HS20050467-07;;;
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\X200514.b\X051416.D
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Inj Date : 14-MAY-2020 16:23
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-08;HS20050467-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

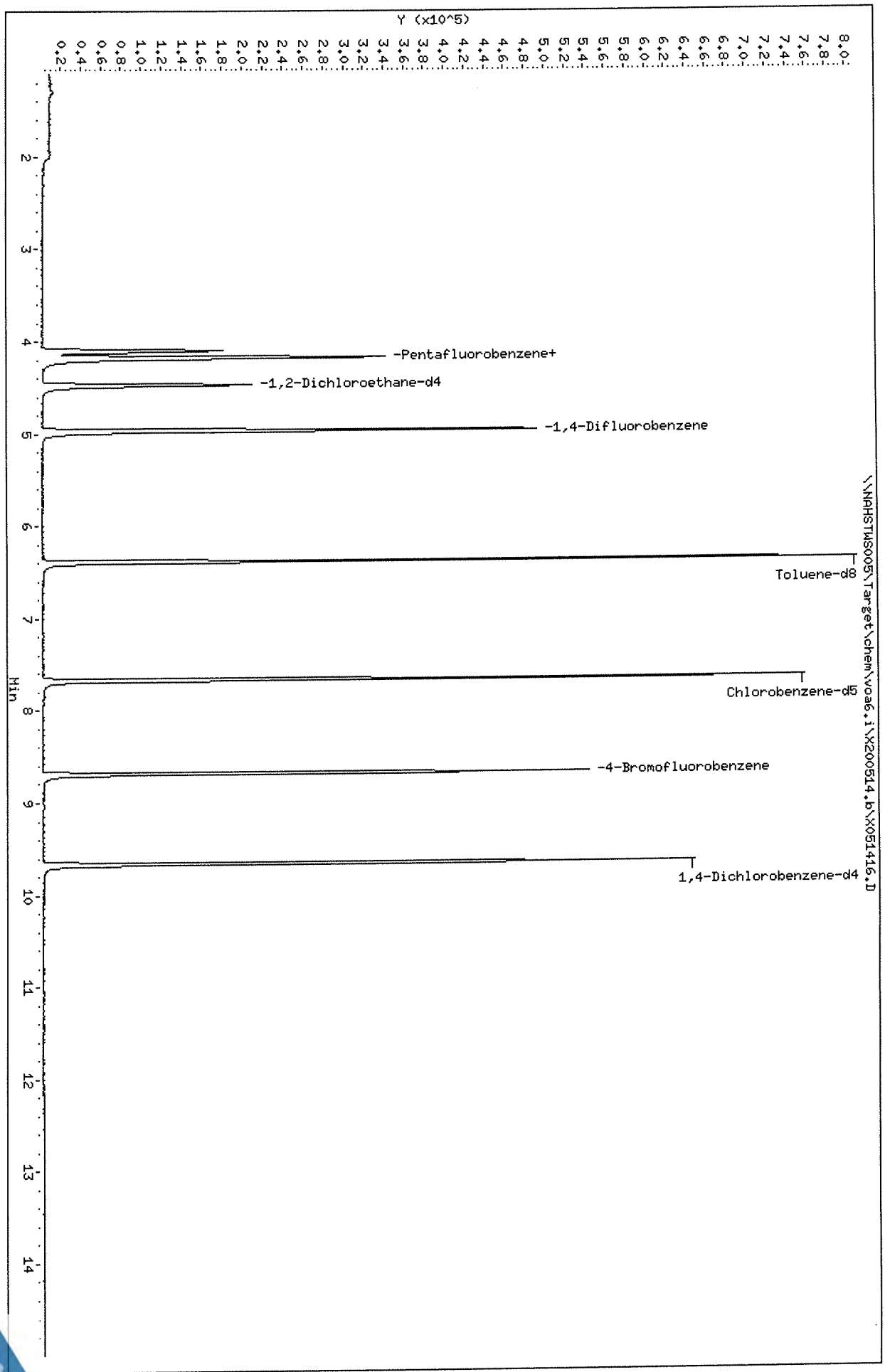
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	285879	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	392428	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	340709	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	162741	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	128740	45.1179	45.11
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	161123	45.7270	45.72
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	462466	54.0845	54.08
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	161790	49.7001	49.70

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051416.D
Date : 14-MAY-2020 16:23
Client ID: HS20050467-08
Sample Info: HS20050467-08;HS20050467-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051417.D Page 1
Report Date: 01-Jun-2020 15:39

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051417.D
Lab Smp Id: HS20050467-09 Client Smp ID: HS20050467-09
Inj Date : 14-MAY-2020 16:47
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-09;HS20050467-09;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

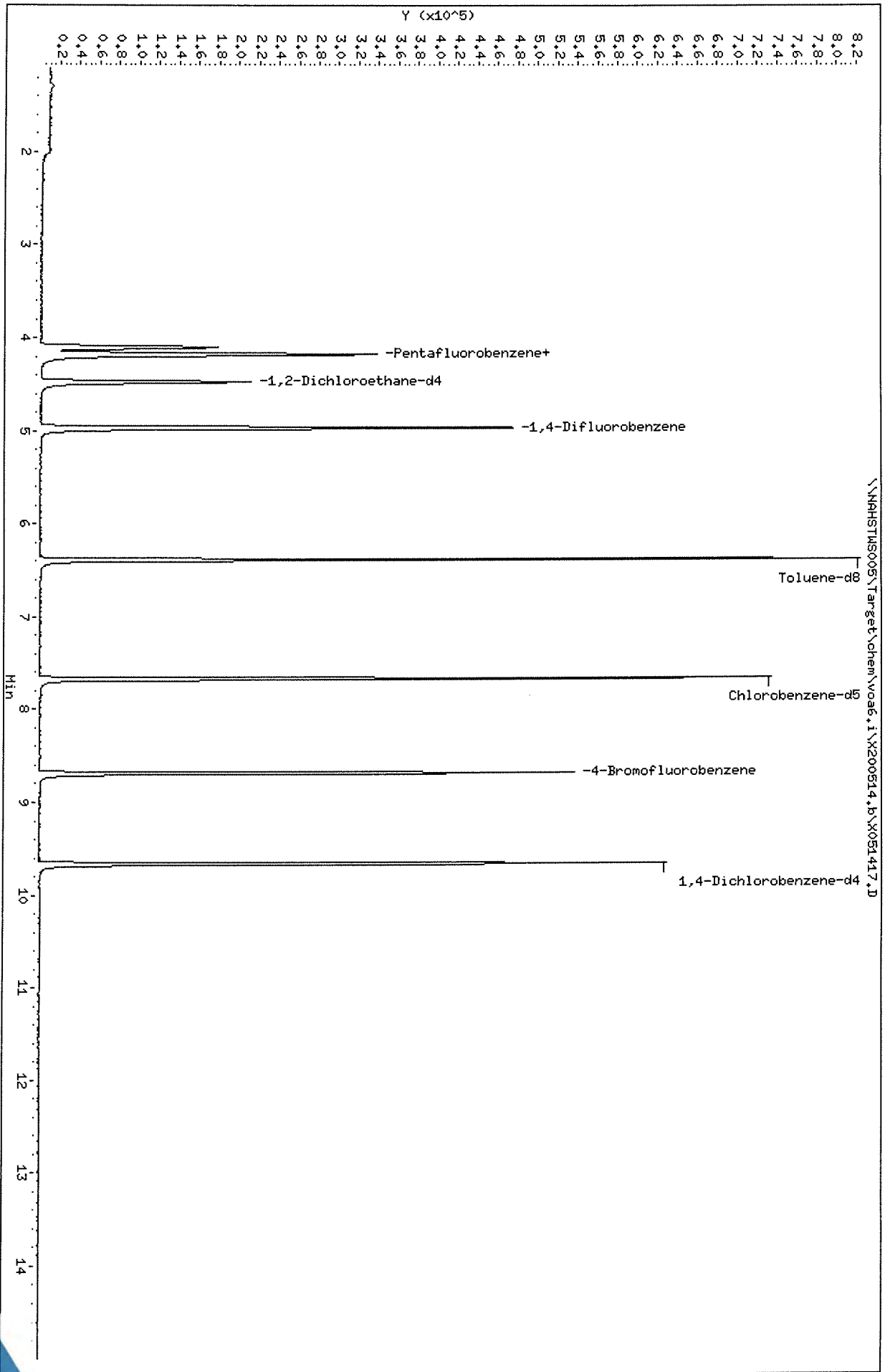
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	285272	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	393519	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	336880	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	158075	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	127976	44.9447	44.94
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	161458	45.9197	45.91
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	458615	54.2451	54.24
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	158427	49.2128	49.21

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051417.D
Date : 14-MAY-2020 16:47
Client ID: HS20050467-09
Sample Info: HS20050467-09;HS20050467-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051418.D Page 1
Report Date: 01-Jun-2020 15:39

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051418.D
Lab Smp Id: HS20050467-04MS Client Smp ID: HS20050467-04MS
Inj Date : 14-MAY-2020 17:11
Operator : PC Inst ID: voa6.i
Smp Info : HS20050467-04MS;HS20050467-04MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 18 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

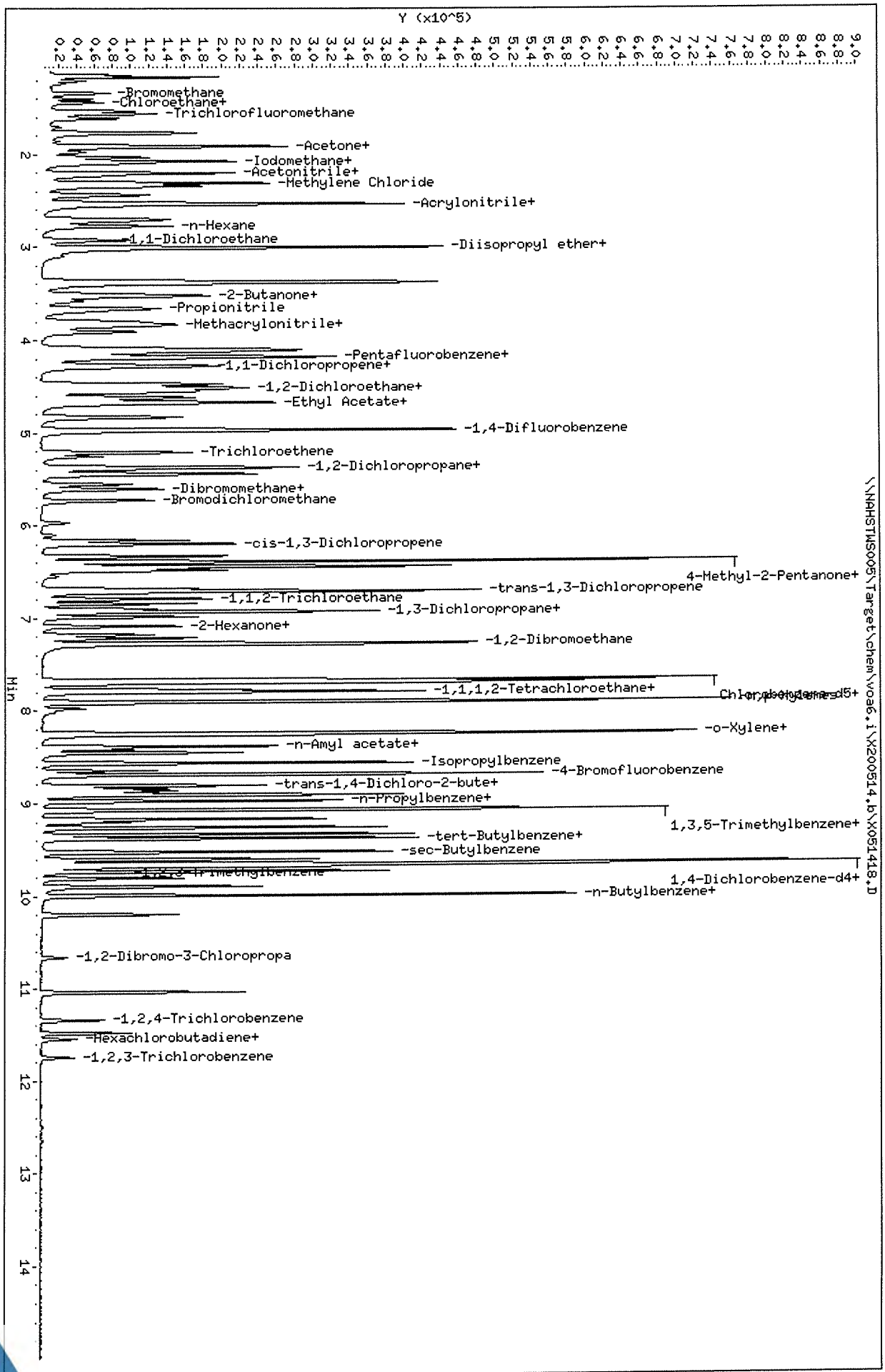
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	267522	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	370623	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	321959	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	162693	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	122453	45.8633	45.86
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	152115	46.1331	46.13
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	430856	53.3157	53.31
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	156387	50.8558	50.85
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	53582	21.1734	21.17
31 1,1,1-Trichloroethane	97	4.089	4.082	(0.978)	86215	20.1242	20.12
68 1,1,2,2-Tetrachloroethane	83	8.845	8.838	(0.915)	55869	21.3682	21.36
138 Freon TF	101	1.912	1.911	(0.457)	45644	22.0781	22.07
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	38289	21.3792	21.37
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	108341	18.6342	18.63
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	41409	19.4557	19.45
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	69862	20.5908	20.59
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	10026	19.5330	19.53
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	48074	21.2050	21.20(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	20154	18.8899	18.88
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	183151	21.4610	21.46
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	5923	23.5344	23.53
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	49609	21.6882	21.68

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051418.D Page 2
Report Date: 01-Jun-2020 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	94138	20.7705	20.77
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	80839	20.9487	20.94
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	57197	18.9594	18.95
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	183921	21.8942	21.89
83	1,3-Dichlorobenzene	146	9.605	9.604	(0.993)	104113	21.0004	21.00
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	77753	20.8843	20.88
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	104749	20.3696	20.36
26	2,2-Dichloropropane	77	3.509	3.516	(0.839)	79647	18.8035	18.80
24	2-Butanone	43	3.580	3.580	(0.856)	53244	44.1607	44.16
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	150424	20.7144	20.71
52	2-Hexanone	43	7.090	7.090	(0.924)	85894	43.1418	43.14
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	173031	20.6685	20.66
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	189647	22.1923	22.19
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	127864	43.9854	43.98
10	Acetone	43	1.976	1.969	(0.473)	34386	35.0741	35.07
37	Benzene	78	4.512	4.512	(0.908)	190156	20.0723	20.07
74	Bromobenzene	156	8.810	8.809	(0.911)	61998	20.3259	20.32
29	Bromochloromethane	128	3.795	3.795	(0.908)	28561	18.4005	18.40
39	Bromodichloromethane	83	5.729	5.729	(1.153)	68275	19.7351	19.73
66	Bromoform	173	8.416	8.415	(1.097)	37944	20.5699	20.56
6	Bromomethane	94	1.338	1.338	(0.320)	37660	18.6804	18.68
19	Carbon Disulfide	76	2.069	2.069	(0.495)	261020	35.9958	35.99
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	76109	20.4387	20.43
59	Chlorobenzene	112	7.699	7.692	(1.004)	132754	20.8111	20.81
7	Chloroethane	64	1.396	1.403	(0.334)	34975	18.2126	18.21
28	Chloroform	83	3.910	3.910	(0.935)	93634	19.5856	19.58
3	Chloromethane	50	1.073	1.073	(0.257)	60598	14.8193	14.81
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	56267	19.9376	19.93
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	78347	19.3372	19.33
55	Dibromochloromethane	129	7.176	7.176	(0.936)	55521	21.3062	21.30
44	Dibromomethane	93	5.557	5.557	(1.118)	32918	20.1176	20.11
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	33683	11.6167	11.61
61	Ethylbenzene	106	7.800	7.799	(1.017)	72204	21.5670	21.56
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	16070	18.7075	18.70
67	Isopropylbenzene	105	8.566	8.566	(1.117)	221774	22.0890	22.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	176178	43.3547	43.35
17	Methylene Chloride	84	2.305	2.305	(0.551)	48781	17.8526	17.85
87	n-Butylbenzene	91	9.999	9.998	(1.034)	156942	22.7618	22.76
73	n-Propylbenzene	91	8.917	8.917	(0.922)	250763	21.4390	21.43
92	Naphthalene	128	11.546	11.546	(1.194)	28154	18.3809	18.38
63	o-Xylene	106	8.244	8.243	(1.075)	83850	21.2080	21.20
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	217655	22.0876	22.08
64	Styrene	104	8.258	8.258	(1.077)	146228	21.3402	21.34
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	157138	22.0313	22.03
56	Tetrachloroethene	164	6.933	6.933	(0.904)	76461	36.0019	36.00
50	Toluene	91	6.446	6.446	(0.840)	204335	21.4450	21.44
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	48766	20.0386	20.03
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	73155	19.9098	19.90
38	Trichloroethene	130	5.214	5.206	(1.049)	56098	21.0947	21.09
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	87708	20.3772	20.37
5	Vinyl Chloride	62	1.138	1.138	(0.272)	63050	17.0016	17.00

QC Flag Legend

M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051419.D Page 1
Report Date: 01-Jun-2020 15:39

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051419.D
Lab Smp Id: HS20050467-04MSD Client Smp ID: HS20050467-04MSD
Inj Date : 14-MAY-2020 17:35
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:38 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 18 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

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

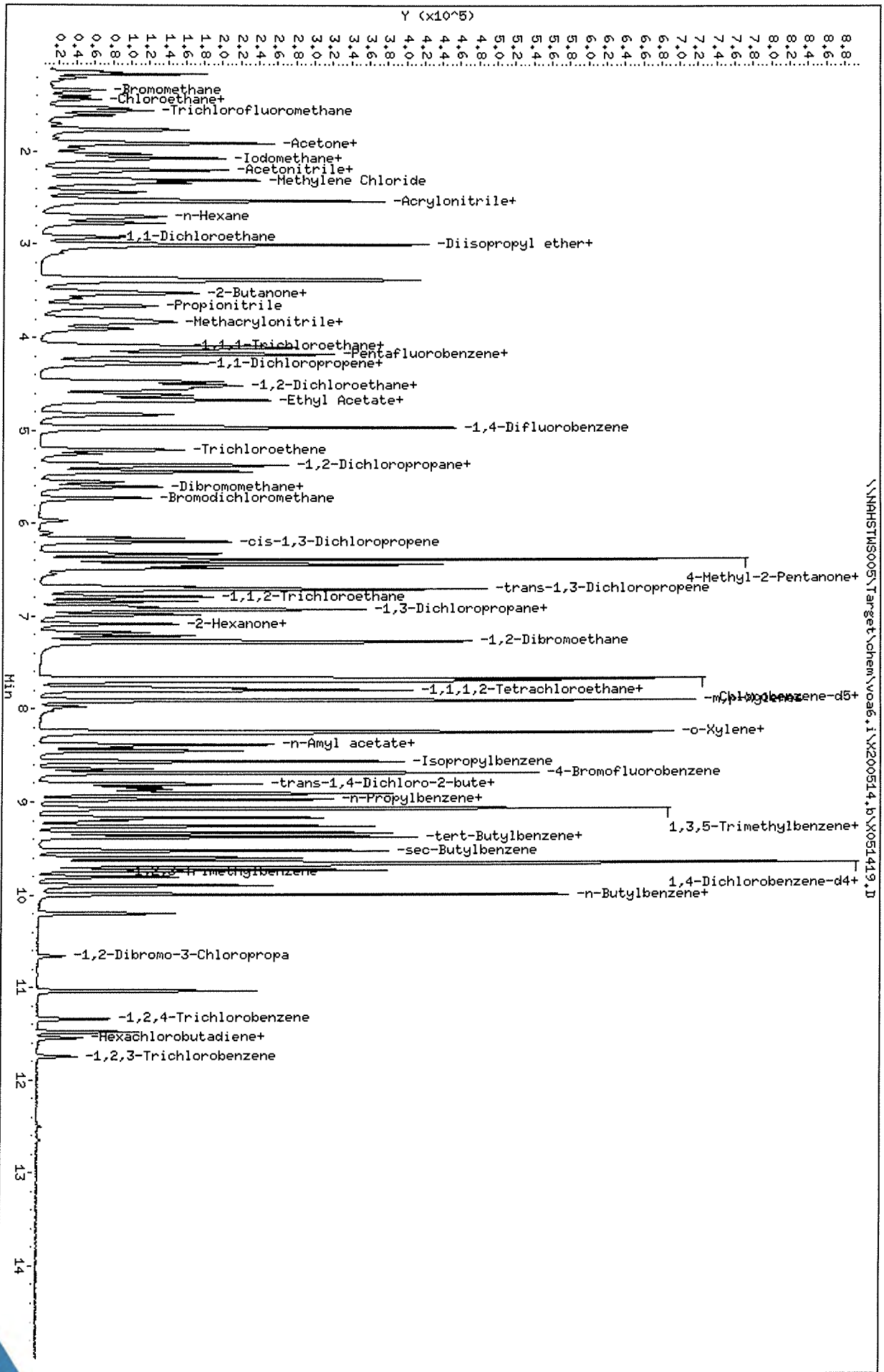
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	262948	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	371826	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	323407	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	163354	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	122444	46.6619	46.66
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	153888	47.4837	47.48
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	432356	53.2613	53.26
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	155606	50.3680	50.36
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	51505	20.2615	20.26
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	80389	19.0907	19.09
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	55189	21.0227	21.02
138 Freon TF	101	1.911	1.911	(0.457)	41367	20.3573	20.35
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	37146	20.6481	20.64
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	101860	17.8242	17.82
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	39521	18.8917	18.89
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	64466	18.9389	18.93
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	11697	22.6892	22.68
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	46855	20.5837	20.58 (M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	22668	20.8427	20.84
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	180334	21.0454	21.04
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	6104	24.1167	24.11
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	47767	20.7894	20.78

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051419.D Page 2
Report Date: 01-Jun-2020 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	92250	20.2716	20.27
33	1,2-Dichloroethane	62	4.562	4.555	(0.918)	78004	20.1486	20.14
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	56710	18.7372	18.73
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	178912	21.2117	21.21
83	1,3-Dichlorobenzene	146	9.605	9.604	(0.993)	102226	20.5364	20.53
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	76787	20.5325	20.53
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	102967	19.9421	19.94
26	2,2-Dichloropropane	77	3.509	3.516	(0.839)	73824	17.7320	17.73
24	2-Butanone	43	3.580	3.580	(0.856)	52631	44.4116	44.41
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	146142	20.0433	20.04
52	2-Hexanone	43	7.090	7.090	(0.924)	86200	43.1016	43.10
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	168965	20.1011	20.10
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	186467	21.7318	21.73
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	126535	43.3333	43.33
10	Acetone	43	1.976	1.969	(0.473)	32768	33.9249	33.92
37	Benzene	78	4.512	4.512	(0.908)	183255	19.2812	19.28
74	Bromobenzene	156	8.809	8.809	(0.911)	60566	19.7761	19.77
29	Bromochloromethane	128	3.795	3.795	(0.908)	27540	18.0513	18.05
39	Bromodichloromethane	83	5.729	5.729	(1.153)	67114	19.3368	19.33
66	Bromoform	173	8.416	8.415	(1.097)	38919	21.0040	21.00
6	Bromomethane	94	1.331	1.338	(0.318)	32608	16.3669	16.36
19	Carbon Disulfide	76	2.069	2.069	(0.495)	242819	34.0683	34.06
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	70939	18.9887	18.98
59	Chlorobenzene	112	7.699	7.692	(1.004)	127394	19.8814	19.88
7	Chloroethane	64	1.396	1.403	(0.334)	33005	17.4689	17.46
28	Chloroform	83	3.910	3.910	(0.935)	89797	19.1098	19.10
3	Chloromethane	50	1.073	1.073	(0.257)	58245	14.5055	14.50
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	53170	19.1680	19.16
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	76532	18.8281	18.82
55	Dibromochloromethane	129	7.176	7.176	(0.936)	54361	20.7676	20.76
44	Dibromomethane	93	5.557	5.557	(1.118)	32054	19.5262	19.52
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	30321	10.7287	10.72
61	Ethylbenzene	106	7.799	7.799	(1.017)	68615	20.4032	20.40
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	18441	21.2428	21.24
67	Isopropylbenzene	105	8.566	8.566	(1.117)	215049	21.3233	21.32
62	m,p-Xylenes	106	7.907	7.907	(1.031)	167191	40.9590	40.95
17	Methylene Chloride	84	2.305	2.305	(0.551)	48233	17.9655	17.96
87	n-Butylbenzene	91	9.999	9.998	(1.034)	155337	22.4379	22.43
73	n-Propylbenzene	91	8.917	8.917	(0.922)	244435	20.8135	20.81
92	Naphthalene	128	11.546	11.546	(1.194)	34149	22.2047	22.20
63	o-Xylene	106	8.244	8.243	(1.075)	79759	20.0830	20.08
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	208101	21.0326	21.03
64	Styrene	104	8.258	8.258	(1.077)	138254	20.0861	20.08
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	152712	21.3241	21.32
56	Tetrachloroethene	164	6.933	6.933	(0.904)	70425	33.0114	33.01
50	Toluene	91	6.446	6.446	(0.840)	197581	20.6433	20.64
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	45652	19.0853	19.08
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	71027	19.2681	19.26
38	Trichloroethene	130	5.206	5.206	(1.048)	53561	20.0755	20.07
8	Trichlorofluoromethane	101	1.553	1.560	(0.371)	79429	18.7747	18.77
5	Vinyl Chloride	62	1.138	1.138	(0.272)	56645	15.5402	15.54

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: HS20050467-04MSD;HS20050467-04MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051420.D Page 1
Report Date: 01-Jun-2020 15:39

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051420.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 14-MAY-2020 17:59
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200514.b\8260W.m
Meth Date : 01-Jun-2020 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-MAY-2020 16:00 Cal File: X051108.D
Als bottle: 19 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 00000000_CBI.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

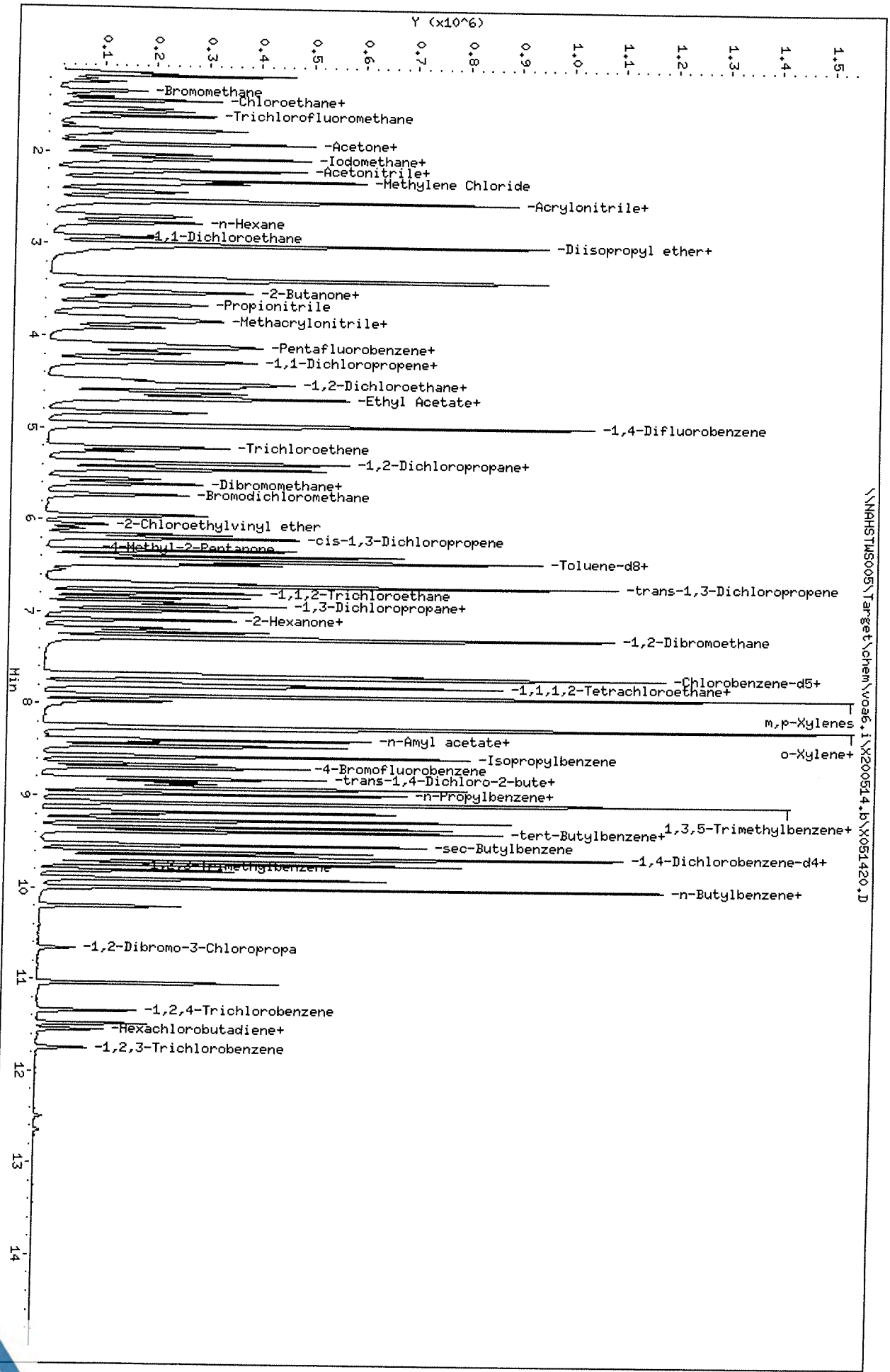
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	213842	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	322472	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	298993	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	154967	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	111791	50.0000	52.41
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	140638	50.0000	53.36
$	48 Toluene-d8	98	6.388	6.388	(0.833)	371870	50.0000	49.51
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	143042	50.0000	50.07
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	112987	50.0000	48.07
	31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	172432	50.0000	50.35
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	122679	50.0000	49.26
	138 Freon TF	101	1.911	1.911	(0.457)	84730	50.0000	51.27
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	83246	50.0000	50.05
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	227620	50.0000	48.97
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	86266	50.0000	50.70
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	138687	50.0000	46.97
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	26763	50.0000	53.51
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	108276	50.0000	50.14 (M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	50928	50.0000	45.74
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	377704	50.0000	46.46
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	13705	50.0000	55.07
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	109031	50.0000	51.32

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200514.b\X051420.D Page 2
Report Date: 01-Jun-2020 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.991	9.991	(1.033)	203466	50.0000	47.13
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	177464	50.0000	52.85
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	126193	50.0000	48.07
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	369165	50.0000	46.13
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	219972	50.0000	46.58
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	174033	50.0000	50.33
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	222531	50.0000	45.43
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	156220	50.0000	46.13
24	2-Butanone	43	3.573	3.573	(0.854)	126614	100.000	131.37
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	314170	50.0000	45.42
52	2-Hexanone	43	7.090	7.090	(0.924)	200225	100.000	108.29
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	363749	50.0000	45.61
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	380707	50.0000	46.77
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	291515	100.000	107.98
10	Acetone	43	1.976	1.976	(0.473)	79590	100.000	106.54
37	Benzene	78	4.512	4.512	(0.908)	398554	50.0000	48.35
74	Bromobenzene	156	8.809	8.809	(0.911)	135567	50.0000	46.66
29	Bromochloromethane	128	3.795	3.795	(0.908)	62391	50.0000	50.28
39	Bromodichloromethane	83	5.729	5.729	(1.153)	150872	50.0000	50.12
66	Bromoform	173	8.415	8.415	(1.097)	87149	50.0000	50.87
6	Bromomethane	94	1.338	1.338	(0.320)	77340	50.0000	49.16
19	Carbon Disulfide	76	2.069	2.069	(0.495)	580470	100.000	100.14(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	151041	50.0000	46.61
59	Chlorobenzene	112	7.699	7.699	(1.004)	282036	50.0000	47.60
7	Chloroethane	64	1.403	1.403	(0.336)	76695	50.0000	50.69
28	Chloroform	83	3.910	3.910	(0.935)	195410	50.0000	51.13
3	Chloromethane	50	1.073	1.073	(0.257)	164448	50.0000	48.80
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	114715	50.0000	50.85
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	174978	50.0000	49.63
55	Dibromochloromethane	129	7.176	7.176	(0.936)	120622	50.0000	49.84
44	Dibromomethane	93	5.557	5.557	(1.118)	72568	50.0000	50.97
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	124062	50.0000	49.68
61	Ethylbenzene	106	7.799	7.799	(1.017)	147110	50.0000	47.31
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	36120	50.0000	42.83
67	Isopropylbenzene	105	8.566	8.566	(1.117)	442044	50.0000	47.41
62	m,p-Xylenes	106	7.907	7.907	(1.031)	353576	100.000	93.69
17	Methylene Chloride	84	2.305	2.305	(0.551)	111669	50.0000	53.12
87	n-Butylbenzene	91	9.998	9.998	(1.034)	308209	50.0000	46.92
73	n-Propylbenzene	91	8.917	8.917	(0.922)	504622	50.0000	45.29
92	Naphthalene	128	11.546	11.546	(1.194)	80848	50.0000	55.41
63	o-Xylene	106	8.244	8.244	(1.075)	175670	50.0000	47.84
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	419935	50.0000	44.73
64	Styrene	104	8.258	8.258	(1.077)	310337	50.0000	48.76
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	310432	50.0000	45.69
56	Tetrachloroethene	164	6.933	6.933	(0.904)	91353	50.0000	46.31
50	Toluene	91	6.446	6.446	(0.840)	423401	50.0000	47.84
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	100273	50.0000	51.54
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	165286	50.0000	51.70
38	Trichloroethene	130	5.206	5.206	(1.048)	114176	50.0000	49.34
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	181582	50.0000	52.77
5	Vinyl Chloride	62	1.138	1.138	(0.272)	150363	50.0000	50.72

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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

June 25, 2021

DAIN-ODB-LO

Ms. Lauren Poulos
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final First Annual Remedial Action Operation Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, June 2021

Dear Ms. Poulos,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Environmental Protection Agency's (EPA) comments on the Draft version received on June 3, 2021. A response to the EPA comment on the Draft version of the document is included with this Draft Final. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

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

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

Sincerely,

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

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

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

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

June 25, 2021

DAIN-ODB-LO

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

Re: Draft Final First Annual Remedial Action Operation Report, LHAAP-04 Former Pilot Wastewater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, June 2021

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Environmental Protection Agency's (EPA) comments on the Draft version received on June 3, 2021. A response to the EPA comment on the Draft version of the document is included with this Draft Final. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

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Sincerely,

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

Electronic Copies furnished:
L. Poulos, USEPA Region 6, Dallas, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 Hard Copy and 1 CD)
R. Smith, USACE, Tulsa District, OK

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

Response to USEPA Comments on
Draft First Annual Remedial Action Operation Report, LHAAP-04
Longhorn Army Ammunition Plant, Karnack, Texas

Document Date: 5 May 2021
Comment Date: 3 June 2021

Reviewer: Lauren Poulos, USEPA
Respondent: Dr. Rose Zeiler

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

Comment Ref. #	Section, Page Ref.	USEPA Comment	C, D, E, or X	Response	A or D[2]
1.	Page 2-2, Section 2.2.1	Please reference Table 2-2 here when discussing groundwater elevations.	C	A reference to Table 2-2 has been added as requested.	
		In May, did the northern area flow to the northeast? If so, please include this in the narrative.	C	Yes. The text has been revised to add the following sentence to the end of Section 2.2.1: "During the May 2020 sampling event, the groundwater flow gradient for the area north of the former excavation area was interpreted to be to the northeast, towards monitoring well 04WW02."	
		Are the concrete pads still out there from the building? It is likely that most of the previous infrastructure components have been removed, but how may recharge be affected in the area? This area had the historical large mound due to	C	Yes, the concrete slabs from the former building locations are still present where the former building locations are show on the figures. The large slabs may affect the recharge, particularly north of the site, and it is also likely that the former excavation location may enhance recharge in the vegetated area that was backfilled. It is also possible that the discontinuation of gauging at 04WW03 could be preventing observation of continued radial flow to the east and northeast beyond	

Comment Ref. #	Section, Page Ref.	USEPA Comment	C, D, E, or X	Response	A or D[2]
		a broken pipe that was found during excavations. As slow as groundwater moves at LHAAP, how long will it take for natural flow to occur again?		04WW02. Overall, the mounding previously seen at the site appears to be gone. The generally southwestward flow toward Goose Prairie Creek suggests that groundwater within the contaminated area of the site has already returned to the natural flow regime.	
2.	Table 2-2	Last column indicates interval siltation in percent. Is this the percent of well depth that is silted in? Looks like most wells are doing fine, but a few have over 3 percent. At what point are wells re-developed?	C	The calculation shown in the last column of Table 2-2 is the percentage of the screened interval that is silted in. We typically redevelop wells at LHAAP when siltation exceeds 10%. The following note describing the calculation has been added to Table 2-2: "The percent siltation of the screened interval is calculated as the length of silted screened interval divided by the total screened interval length, times 100. Wells will be redeveloped if the siltation reaches or exceeds 10%."	

Draft Final
First Annual Remedial Action Operation Report, LHAAP-04 Former Pilot Wastewater Treatment Plant
Longhorn Army Ammunition Plant
Karnack, Texas

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Acronyms and Abbreviations

µg/L	micrograms per liter
AECOM	AECOM Technical Services, Inc.
APTIM	Aptim Federal Services, LLC
Bhate	Bhate Environmental Associates, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COC	contaminant of concern
DO	dissolved oxygen
ISB	in situ bioremediation
LHAAP	Longhorn Army Ammunition Plant
LTM	long-term monitoring
LUCs	land use control
mg/L	milligram(s) per liter
MSC	medium-specific concentration
mV	millivolt
ORP	oxidation-reduction potential
RA-O	remedial action operation
PCL	Protective Concentration Level
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RD	Remedial Design
ROD	Record of Decision
Shaw	Shaw Environmental & Infrastructure, Inc.
TCEQ	Texas Commission on Environmental Quality
TOC	total organic carbon
TRRP	Texas Risk Reduction Program
USEPA	U.S. Environmental Protection Agency

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers, Tulsa District, contracted Bhate Environmental Associates, Inc. (Bhate), under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract Environmental Remediation Services with Military Munitions Response Program, Task Order No. W9128BV17F0150 to conduct environmental restoration of site LHAAP-04 at Longhorn Army Ammunition Plant (LHAAP). The Bhate Team is comprised of Bhate and Aptim Federal Services, LLC (APTIM). LHAAP is an inactive, government-owned, formerly contractor-operated and maintained Department of Defense facility located in east Texas (**Figure 1-1**).

LHAAP is approximately 14 miles northeast of Marshall, Texas, and approximately 40 miles west of Shreveport, Louisiana. The installation occupies approximately 1,400 of its former 8,416 acres between State Highway 43 at Karnack, Texas, and the western shore of Caddo Lake. The facility can be accessed via State Highways 43 and 134.

LHAAP-04, known as Site 04 or the former pilot wastewater treatment plant, is approximately 0.5 acres located in the central portion of LHAAP at the northwest corner of 6th and 60th Streets, near the former fire station (**Figure 1-2**). LHAAP-04 is surrounded by light duty roads. Wastewater treatment operations began at LHAAP-04 in 1984. The demolition of the former pilot wastewater treatment facility structures, tanks, and piping and the disposal of the associated wastes were completed in the summer of 1997 as part of the Resource Conservation and Recovery Act closure of the plant. The final remedy for soil was conducted in 2009 as a Non-Time-Critical Removal Action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) program (Shaw Environmental & Infrastructure, Inc. 2011). Soil along the southern edge of the slab that formerly housed storage tanks for the former pilot wastewater treatment facility that was impacted with mercury and perchlorate at the LHAAP-04 site was removed to meet the soil medium-specific concentrations (MSC). The soil was removed to the soil/air and ingestion MSC for industrial use for mercury, and the groundwater protective MSC for industrial use for perchlorate.

The U.S. Department of the Army (U.S. Army) issued the Final Record of Decision (ROD) for LHAAP-04 (AECOM 2016) in October 2016. The ROD was signed by the Army on December 15, 2016 and the U.S. Environmental Protection Agency (USEPA) on March 30, 2017. The Texas Commission on Environmental Quality (TCEQ) issued a letter concurring with the ROD on February 7, 2017. The ROD identified perchlorate as the only contaminant of concern (COC) in groundwater for LHAAP-04. The remedy selected in the ROD included in situ bioremediation (ISB) for perchlorate concentrations in groundwater, long-term monitoring (LTM) of groundwater, and land use controls (LUC) to maintain the

remedy and prohibit groundwater use until COC concentrations are reduced to levels supportive of unlimited use and unrestricted exposure. The ISB remedy was implemented in November 2019 in accordance with the Final Remedial Design (RD) and Remedial Action Work Plan (RAWP) for LHAAP-04 (Bhate 2019).

This Remedial Action Operation (RA-O) report represents the first year of RA-O implementation and summarizes the results of site inspections and sampling activities. Baseline sampling was conducted in January and November 2019 and is summarized in the Final Remedial Action Completion Report (RACR) (Bhate 2021). The first year RA-O quarterly sampling events were conducted in February, May, August, and November 2020. In accordance with the RD/RAWP (Bhate 2019), a remedy evaluation is included in this report, but a statistical analysis of perchlorate concentration trends will not be conducted until eight quarterly sampling events have been completed, which will be in November 2021.

1.1 Remedial Action Objectives

The Remedial Action Objectives developed for LHAAP-04 and outlined in the Final ROD (AECOM 2016) are:

- Protect human health by preventing ingestion of groundwater contaminated with perchlorate.
- Return groundwater to its potential beneficial use, wherever practicable, within a reasonable time period given the particular site circumstances.
- Prevent groundwater contaminated with perchlorate from migrating into nearby surface water.

1.2 Performance Objectives

The remedy selected for groundwater at LHAAP-04 includes ISB, LUCs, RA-O, and LTM. The remedy includes the following components:

- ISB of perchlorate contaminated groundwater in an area in the vicinity of monitoring well 04WW04.
- LUCs in the impacted area to ensure protection of human health by restricting the use of groundwater exceeding the applicable cleanup levels to environmental monitoring and testing only. The LUCs will remain in effect until such time as the U.S. Army, USEPA, and TCEQ agree that COC concentrations have met cleanup levels. As a component of the LUC implementation, the civil survey of the LUC

boundary was conducted in January 2021 and recorded in the Harrison County Courthouse on March 22, 2021.

- RA-O remedial performance monitoring of groundwater perchlorate concentrations to evaluate the results of the ISB remedy for two years following implementation. The remedial performance monitoring program includes two years of quarterly groundwater monitoring to verify that reducing conditions conducive to degradation of perchlorate are present and that plume concentrations are declining fast enough to achieve the TCEQ's Protective Concentration Level (PCL) of 17 micrograms per liter (µg/L) within 6 years as required by the ROD. RA-O monitoring will continue semiannually for an additional three years, and then annually thereafter, if necessary.
- LTM groundwater monitoring beyond the first 5 years of RA-O will be performed annually until the next CERCLA Five-Year Review if concentrations remain above the PCL. RA-O associated with this remedy will be used to track the continued effectiveness of the remedy. Further reductions in sampling will depend on the Five-Year Reviews, but sampling will be conducted at least once every five years until the PCL is achieved.

According to the RACR (Bhate 2021), groundwater monitoring is being performed to evaluate remedy effectiveness. The groundwater monitoring program is designed to evaluate and monitor the degradation of perchlorate in the shallow and intermediate zone groundwater. In accordance with the RD/RAWP, the remedial performance will be evaluated using two lines of evidence (Bhate 2019):

- Plume stability (i.e., plume concentrations are declining in the performance wells, and the plume is not expanding in area as demonstrated by downgradient monitoring wells).
- Reducing conditions conducive for the degradation of perchlorate are present within the treatment area.

Work completed as part of the Year 1 RA-O in 2020 consisted of the following:

- February 2020 groundwater monitoring event consisting of 12 monitoring wells.
- May 2020 groundwater monitoring event consisting of 12 monitoring wells.
- August 2020 groundwater monitoring event consisting of 12 monitoring wells.
- November 2020 groundwater monitoring event consisting of 12 monitoring wells.
- LUC inspection (February 13, 2020).

- Mowing.
- Well inspections.

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

1.3 Conceptual Site Model

A detailed Conceptual Site Model of LHAAP-04 was presented in the ROD (AECOM 2016) and has been updated to incorporate more recent investigation results from 2017 through 2019, summarized in Section 2.2.2 of the RD/RAWP (Bhate 2019).

The former pilot wastewater treatment plant was the source for the perchlorate released into the environment. Prior to the plant's removal, the conceptual model assumes perchlorate was released via overflows, spills, and leaks to the soil. After the pilot wastewater treatment plant was removed, there was no longer a release mechanism for overflows, spills, and leaks. Perchlorate was released to the soil, and prior to the soil removal action in 2009, sufficient perchlorate levels existed in the soil to act as a source of groundwater contamination or to be potentially released into surface water during storm events (Shaw 2011). Because all perchlorate-contaminated vadose zone soil above cleanup levels was removed in 2009, it is not expected that LHAAP-04 will contribute to surface water contamination (Shaw 2011). Soil to groundwater and soil to surface water pathways have therefore been eliminated from consideration.

Surface water samples collected in 2010 and 2011 were below the perchlorate Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential PCL of 17 µg/L. Therefore, the conceptual model does not include any impact to surface water from groundwater and the groundwater to surface water migration pathway is incomplete. Protection of surface water will continue to be confirmed via groundwater monitoring and evaluation of the groundwater ISB remedy.

Groundwater at monitoring well 04WW04 (**Figure 1-3**) was the only location that exceeded the perchlorate TRRP Tier 1 Groundwater Residential PCL of 17 µg/L in the sampling events leading up to the development of the ROD. However, additional sampling conducted in 2017 through 2019 indicated that the perchlorate plume had migrated westward, impacting well 04WW05 and newly installed wells 04WW07, 04WW09, and 04WW10 (**Figure 1-3**) at concentrations exceeding the PCL, while the perchlorate concentration at 04WW04 had dropped below the PCL. One well has been completed in the intermediate zone (04WW08) and low perchlorate concentrations have been detected in groundwater; however, the concentrations are below the PCL. The only potentially complete exposure pathway

considered for remediation is hypothetical future non-residential groundwater use, and the TRRP Tier 1 Groundwater Residential PCL was established as the cleanup level.

Based on groundwater elevation data from 2017 to 2021, the dominant shallow zone groundwater gradient has generally been somewhat radially outward from the northeastern corner of the site, but in the area impacted by perchlorate concentrations above the PCL, the groundwater flow direction is generally to the southwest and west.

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2.0 SITE ACTIVITIES AT LHAAP-04

This section describes the results of the first annual RA-O activities, including the annual LUC compliance inspection, quarterly groundwater monitoring, and monitoring system inspections performed at LHAAP-04.

2.1 Annual Land Use Control Compliance Inspection

The annual LUC compliance inspection for LHAAP-04 was performed on February 13, 2020. The LUCs for this site restrict groundwater use and prohibit water well installation for any purpose other than environmental monitoring and testing, as well as requiring the integrity of any current or future remedial or monitoring systems to be maintained. Also, the LUCs prohibit residential land use until the levels of COCs in the groundwater and soil allow unlimited use and unrestricted exposure. The restriction applies to groundwater underlying an approximately 1.885-acre area defined by the surveyed LUC boundary (Bhate 2021). The Annual LUC Compliance Certification Documentation Form for the first year RA-O monitoring period is included in **Appendix A**. No noncompliance issues or concerns were noted during the annual inspection. No damage to bollards, well pads, or protective casings was observed during the 2020 well inspections, and minimal encroachment of weeds or brush on the well pads was observed. Area mowing and clearing around the wells is conducted on an as-needed basis, but typically is done before sampling events. Well Inspection Forms for each of the sampling events are included in **Appendix B**.

2.2 Groundwater Monitoring

The first annual RA-O reporting period includes the period from January 2020 to December 2020 and encompasses the first of year of post-injection quarterly monitoring. Four groundwater sampling events were completed in February 2020, May 2020, August 2020, and November 2020. In the RD/RAWP (Bhate 2019), 12 wells were selected for RA-O sampling, and the analytes for each well are summarized in **Table 2-1**. The RA-O monitoring network locations are depicted in **Figure 2-1**.

Prior to collecting groundwater samples, monitoring wells were gauged using a water level probe and the depth to water was recorded to the nearest 0.01 feet from the top of casing. Depth-to-water measurements were used to calculate the groundwater elevations presented in **Table 2-2**. Water samples were collected using low-flow sampling methods in accordance with the groundwater sampling procedures found in the *Final Installation-Wide Work Plan* (Bhate 2018).

2.2.1 Groundwater Elevations and Flow Direction

During the first year RA-O quarterly sampling events, groundwater elevations in most wells varied by approximately 2 to 3 feet throughout the year (**Table 2-2**)., The highest groundwater elevations generally occurred during the February or May 2020 events, during the typically rainy season at LHAAP, and the lowest elevations occurring during the August 2020 event. The groundwater flow gradient was interpreted to be generally to the west or southwest based on the potentiometric surface maps for each event (**Figures 2-2** through **2-5**). During the May 2020 sampling event, the groundwater flow gradient for the area north of the former excavation area was interpreted to be to the northeast, towards monitoring well 04WW02.

2.2.2 Groundwater Analytical Results

Quarterly groundwater samples were collected and analyzed for perchlorate according to EPA Method 6850. Samples from five monitoring wells were analyzed for geochemical parameters as shown in **Table 2-1**.

Over the course of the first annual RA-O sampling events, only two wells contained perchlorate concentrations exceeding the PCL during the post-injection quarterly sampling events. During the February 2020 sampling event, monitoring wells 04WW01 and 04WW07 contained perchlorate concentrations of 19 and 86 µg/L, respectively. Perchlorate concentrations at all monitoring locations were below the PCL during the May 2020, August 2020, and November 2020 sampling events. **Table 2-3** presents the perchlorate and geochemical data from the 2019 baseline and 2020 quarterly RA-O events. Historical perchlorate results from 2000 to 2020 are presented in **Table 2-4**. **Figure 2-6** shows the perchlorate concentrations in groundwater from the 2019 baseline, February 2020, May 2020, August 2020, and November 2020 sampling events. An evaluation of the perchlorate concentrations and the geochemical parameters relative to the lines of evidence for remedial performance is provided in **Section 3.0**.

Groundwater monitoring well sampling collection logs were completed for each monitoring well sampled and are included in **Appendix C**. Laboratory analytical results are included in **Appendix D**.

2.3 Groundwater Monitoring System Maintenance

Inspections of the conditions/integrity of monitoring wells were conducted during each sampling event and the information was recorded on the well inspection forms (**Appendix B**). **Appendix B** also includes a photo log, which shows the condition of the wells for each quarter. Maintenance or repairs were performed as needed, based on observed conditions. During the first annual reporting period, no damage to well bollards, pads, or protective well casings was observed. Also, only minimal encroachment of weeds or brush on the well pads was observed.

Mowing the area to control brush and weeds is conducted on a routine basis and as needed to allow access to the wells, and was conducted at LHAAP-04 on April 29, 2020, August 3, 2020, and October 27, 2020. **Table 2-5** provides a summary of the maintenance activities that were performed at the site during the first annual RA-O period. Wells 04WW06, 04WW07, and 04WW08 will be painted during the Year 2 RA-O.

2.4 Year 2 Groundwater Monitoring Network

No changes to the monitoring network are planned for the Year 2 RA-O period.

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3.0 REMEDY EVALUATION

Sections 3.1 and **3.2** present the results of the natural attenuation evaluation in accordance with the two lines of evidence discussed in the Final RD/RAWP (Bhate 2019). The plume stability evaluation (Line of Evidence #1) will not include Mann-Kendall trend analysis until the end of the Year 2 RA-O due to the minimum of eight samples needed for a statistically significant trend assessment.

3.1 First Line of Evidence: Plume Stability

The analytical results for the 2019 baseline sampling and the four quarterly sampling events from the first annual RA-O period in 2020 are shown in **Table 2-3** and on **Figure 2-6**. Historical perchlorate concentrations from 2000 to 2020 are shown in **Table 2-4**. Prior to 2018, perchlorate had only been detected in monitoring well 04WW04, upgradient of the former soil excavation area, where concentrations peaked in 2010 at 5410 µg/L. The perchlorate concentration at 04WW04 declined to 31 µg/L in early 2018. Monitoring wells 04WW06 through 04WW08 were installed in late 2017 and first sampled in January 2018. The January sampling revealed that the plume had shifted to the west and southwest towards 04WW05. Monitoring locations 04WW09 through 04WW11 were installed in 2019 to delineate perchlorate that was detected above the 17 µg/L PCL in 04WW05 for the first time in January 2018 (78 µg/L). The highest perchlorate concentration detected in 2019 was at 04WW10 on the downgradient edge of the former soil excavation area (10,000 µg/L).

Following completion of the injections in November 2019, the only wells with perchlorate concentrations were 04WW01 and 04WW07, near the south and southwestern fringe of the 2019 plume boundary. The perchlorate concentration in 04WW07 declined from 110 µg/L in January 2019 to 86 µg/L in February 2020. The perchlorate concentration in 04WW01 increased from below the detection limit in January 2019 to 19 µg/L in February 2020, narrowly above the PCL. All of the remaining wells contained perchlorate concentrations below the PCL during the first post-injection quarterly sampling event in February 2020.

The perchlorate concentrations were below the PCL in all wells beginning with the May 2020 sampling event and continuing through the August 2020 and November 2020 sampling events. While concentrations are present above the detection level in several wells, the general trend is downward in the wells within the treatment area and most concentrations were detected at estimated concentrations below 1 µg/L. The lack of detections exceeding the PCL for three consecutive sampling events in all monitoring locations indicates that the ISB remedy functioned as designed and has achieved the cleanup objectives. However, RA-O monitoring will continue for at least four more quarters to evaluate the potential for any rebound in perchlorate concentrations.

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3.2 Second Line of Evidence: Geochemical Indicators

Four monitoring wells were sampled for geochemical parameters as shown in **Table 2-1**. **Table 2-3** includes the geochemical data used to determine if the site groundwater is favorable for biological degradation processes. Field measured parameters for all LHAAP-04 RA-O wells include dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, conductivity, turbidity, and temperature. Ferrous iron was also measured in the same four wells. The additional geochemical parameters analyzed at an off-site laboratory include alkalinity, nitrate, nitrite, sulfate, and total organic carbon (TOC). Geochemical indications of the reducing conditions conducive to the degradation of perchlorate include DO below 0.5 milligrams per liter (mg/L), ORP below 50 millivolts (mV), and TOC above 20 mg/L. While meeting all three of those conditions is ideal, the data shown in **Table 2-3** indicate that significant reductions can occur even with marginal geochemical conditions.

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Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA 1998). Anaerobic bacteria, which are the primary microbes able to degrade the site COCs, may be inhibited at DO concentrations greater than 0.5 mg/L. In monitoring wells where COCs were previously above the PCL, the DO concentrations ranged from 0.02 to 0.45 mg/L, with an average of 0.13 mg/L during the fourth quarter of the first annual RA-O, and in wells that started out above 1 mg/L in the baseline sampling event, the trend of DO concentrations has been downward. The low DO levels (less than 0.5 mg/L) observed in the previously impacted wells are favorable for reductive chlorination.

Oxidation Reduction Potential

The ORP levels indicate the oxidative or reductive potential in the aquifer and provide real-time data to determine if conditions are conducive for biodegradation. ORP values less than 50 mV indicate that the aquifer is reaching anaerobic conditions and are favorable for biological reductive dechlorination of perchlorate. During the fourth quarterly event of the first year RA-O monitoring, the ORP measurements ranged from -115 mV at 04WW01 to 127 mV at 04WW04. The ORP at five of the six previously impacted wells was negative, indicating reducing conditions are present. The one previously impacted location with the positive ORP was 04WW04, located upgradient of the main plume body and outside of the treatment area. These measurements indicate reducing conditions which are favorable for biodegradation of perchlorate.

Nitrate

After DO has been depleted by microbes in the treatment zone, nitrate may be used as an electron acceptor and is reduced to nitrite. Nitrate levels above 1.0 mg/L may compete with reductive dechlorination (USEPA 1998). The nitrate and nitrite concentrations were below 1.0 mg/L during the first year RA-O sampling, indicating that nitrate will not inhibit the anaerobic degradation of perchlorate.

Iron Reduction

After nitrate is utilized, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which is soluble in water, and an increase in ferrous iron can indicate reducing groundwater conditions. During the first year RA-O, increases in the ferrous iron concentration were observed at each of the four RA-O sampling locations where it was measured, indicating that iron-reducing conditions exist in the treatment zone and are aiding in the degradation of perchlorate.

Sulfate

After DO, nitrate, and iron have been depleted in the groundwater, sulfate is used as an electron acceptor. Concentrations of sulfate greater than 20 mg/L may compete with reductive dechlorination of the site COCs. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA 1998). Sulfate was sampled in four previously impacted wells in the treatment zone during the first year RA-O and ranged from 0.659 to 1,540 mg/L. Sulfate levels are elevated in two of the wells and may compete as an electron acceptor with perchlorate.

Total Organic Carbon

Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as an energy and hydrogen source to support the reductive degradation of perchlorate. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998). TOC concentrations were at or above 20 mg/L in three of the four wells where it was measured in the November 2019 baseline or the February 2020 first quarterly event. TOC measured in the fourth quarterly sampling event of the first annual RA-O period ranged from 1.93 to 177 mg/L, with three of the four samples below 20 mg/L. The data indicate that carbon concentrations in the groundwater were initially supportive of reductive degradation and that a residual mass of carbon remains present in the vicinity of 04WW09 to continue feeding bacterial populations.

Geochemical Indicator Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O period in the groundwater at LHAAP-04 indicates current geochemical conditions remain favorable for biological reduction of perchlorate. The decline of TOC in three of the four wells where it is monitored to below 20 mg/L indicates that microbial populations have consumed most of the carbon source injected, which may inhibit future growth. However, since all of the perchlorate concentrations have declined to below the PCL, this is unlikely to lead to a need for further carbon source injections.

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4.0 SUMMARY AND CONCLUSIONS

4.1 Summary

The LUCs for LHAAP-04 include a land use restriction prohibiting residential use and a groundwater use restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing until COCs in the groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the first year RA-O was conducted on February 13, 2020. No noncompliance issues or concerns were identified during the annual inspection, and site monitoring wells were in good condition. Painting of three wells (04WW06, 04WW07, and 04WW08) will take place during the second annual RA-O period. No change in land use or groundwater use occurred at the site during the first annual RA-O monitoring period.

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

An assessment of the first line of evidence indicated that perchlorate concentrations declined to below the PCL in all wells within 6 months of the completion of the ISB injections and have remained below the PCL for three consecutive sampling events (May, August, and November 2020). The first line of evidence supports the conclusion that the ISB remedy has been very effective in reducing the perchlorate concentrations to below the PCL.

The qualitative assessment of geochemical indicators performed as the second line of evidence at LHAAP-04 indicates current geochemical conditions are supportive for reductive degradation processes. Although TOC concentrations have declined to below 20 mg/L in three of the four wells where it was analyzed for, the concurrent development of reducing conditions and decline in perchlorate to below the PCL indicates that reinjection of additional carbon source is unlikely to be necessary.

The evaluation of the ISB remedy at LHAAP-04 indicates that reductive degradation processes stimulated by the ISB injections have eliminated the perchlorate plume exceeding the PCL at the site and that reducing conditions are persisting in the shallow groundwater. Quarterly sampling using the same well network and analytical parameters will continue for the second annual RA-O in accordance with the RD/RAWP (Bhate 2019). The monitoring well locations for the second annual RA-O period are shown on **Figure 2-1** and the analytical parameters for each location are shown in **Table 2-1**.

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Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150• Draft Final • Rev 0 • June 2021

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Tables

Table 2-1
Remedial Action Operation Monitoring Plan

Monitoring Location	Primary Rationale for Well Selection	Performance – Years 1 and 2 (Quarterly)								LTM – Years 3 thru 5 (Semiannual)				
		Perchlorate (314.0)	Dissolved Oxygen (field)	Oxidation-Reduction Potential (field)	pH (field)	Ferrous Iron (field reading)	Alkalinity (2320B)	Anions [a] (E300.0)	Total Organic Carbon (SW9060)	Perchlorate (314.0)	Dissolved Oxygen (field)	Oxidation-Reduction Potential (field)	pH (field reading)	Total Organic Carbon (SW9060)
04WW05	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
04WW07	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
04WW09	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
04WW10	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
04WW01	Downgradient well for measuring plume stability	✓	✓	✓	✓					✓	✓	✓	✓	
04WW04	Upgradient well for measuring plume stability	✓	✓	✓	✓					✓	✓	✓	✓	
04WW06	Upgradient well for measuring plume stability	✓	✓	✓	✓					✓	✓	✓	✓	
04WW11	Downgradient well for measuring plume stability	✓	✓	✓	✓					✓	✓	✓	✓	
LHSMW01	Crossgradient well for measuring plume stability	✓	✓	✓	✓					✓	✓	✓	✓	
LHSMW02	Crossgradient well	✓	✓	✓	✓					✓	✓	✓	✓	
04WW08	Intermediate Zone well	✓	✓	✓	✓					✓	✓	✓	✓	
04WW02	Upgradient well	✓	✓	✓	✓									

Notes:

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

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

Table 2-2
Groundwater Elevation Data

Monitoring Well	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation [a] (%)
04WW01	2/4/2020	208.78	212.51	16.73	26.73	26.73	27.23	8.43	204.08	None
	5/4/2020	208.78	212.51	16.73	26.73	26.73	27.23	6.25	206.26	None
	8/10/2020	208.78	212.51	16.73	26.73	26.73	27.22	9.50	203.01	None
	11/4/2020	208.78	212.51	16.73	26.73	26.73	27.22	10.10	202.41	None
04WW02	2/3/2020	212.80	216.7	16.9	26.9	26.9	26.70	5.95	210.75	2
	5/4/2020	212.80	216.7	16.9	26.9	26.9	26.70	9.35	207.35	2
	8/10/2020	212.80	216.7	16.9	26.9	26.9	26.70	8.31	208.39	2
	11/4/2020	212.80	216.7	16.9	26.9	26.9	26.67	7.82	208.88	2.3
04WW04	2/3/2020	211.3	214.1	10.8	20.8	20.8	21.55	4.11	209.99	None
	5/4/2020	211.3	214.1	10.8	20.8	20.8	21.55	4.95	209.15	None
	8/10/2020	211.3	214.1	10.8	20.8	20.8	21.57	7.12	206.98	None
	11/4/2020	211.3	214.1	10.8	20.8	20.8	21.55	7.05	207.05	None
04WW05	2/4/2020	211	213.7	18.7	28.7	28.7	29.61	7.25	206.45	None
	5/5/2020	211	213.7	18.7	28.7	28.7	29.62	6.55	207.15	None
	8/11/2020	211	213.7	18.7	28.7	28.7	29.62	8.95	204.75	None
	11/4/2020	211	213.7	18.7	28.7	28.7	29.57	9.66	204.04	None
04WW06	2/3/2020	212.52	215.63	18.11	28.11	28.11	28.07	4.97	210.66	0.4
	5/4/2020	212.52	215.63	18.11	28.11	28.11	28.11	5.34	210.29	None
	8/10/2020	212.52	215.63	18.11	28.11	28.11	28.08	7.96	207.67	0.3
	11/4/2020	212.52	215.63	18.11	28.11	28.11	28.05	7.84	207.79	0.6
04WW07	2/4/2020	211.66	214.64	12.98	22.98	22.98	22.61	5.27	209.37	3.7
	5/5/2020	211.66	214.64	12.98	22.98	22.98	22.98	6.30	208.34	None
	8/11/2020	211.66	214.64	12.98	22.98	22.98	22.63	8.41	206.23	3.5
	11/4/2020	211.66	214.64	12.98	22.98	22.98	22.63	8.39	206.25	3.5

Table 2-2
Groundwater Elevation Data

Monitoring Well	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation [a] (%)
04WW08	2/3/2020	212.07	214.82	33.75	43.75	43.75	43.82	15.92	198.90	None
	5/4/2020	212.07	214.82	33.75	43.75	43.75	43.90	16.23	198.59	None
	8/10/2020	212.07	214.82	33.75	43.75	43.75	43.93	16.79	198.03	None
	11/4/2020	212.07	214.82	33.75	43.75	43.75	43.65	16.63	198.19	1
04WW09	2/4/2020	211.47	214.61	13.14	23.14	23.14	23.45	5.62	208.99	None
	5/5/2020	211.47	214.61	13.14	23.14	23.14	23.47	4.43	210.18	None
	8/11/2020	211.47	214.61	13.14	23.14	23.14	23.48	5.81	208.80	None
	11/4/2020	211.47	214.61	13.14	23.14	23.14	23.47	7.95	206.66	None
04WW10	2/4/2020	210.40	213.67	12.27	22.27	22.27	22.52	6.91	206.76	None
	5/5/2020	210.40	213.67	12.27	22.27	22.27	22.53	6.65	207.02	None
	8/11/2020	210.40	213.67	12.27	22.27	22.27	22.55	8.20	205.47	None
	11/4/2020	210.40	213.67	12.27	22.27	22.27	22.52	7.72	205.95	None
04WW11	2/4/2020	209.31	212.01	8.2	18.2	18.2	18.50	5.40	206.61	None
	5/4/2020	209.31	212.01	8.2	18.2	18.2	18.45	5.29	206.72	None
	8/10/2020	209.31	212.01	8.2	18.2	18.2	18.55	8.75	203.26	None
	11/4/2020	209.31	212.01	8.2	18.2	18.2	18.49	9.32	202.69	None
LHSMW01	2/3/2020	211.19	214.43	7.74	17.74	18.24	17.95	3.90	210.53	None
	5/4/2020	211.19	214.43	7.74	17.74	18.24	17.95	4.86	209.57	None
	8/10/2020	211.19	214.43	7.74	17.74	18.24	17.90	7.71	206.72	None
	11/4/2020	211.19	214.43	7.74	17.74	18.24	17.95	7.32	207.11	None
LHSMW02	2/3/2020	213.75	215.43	7.18	17.18	17.68	19.00	13.53	201.90	None
	5/4/2020	213.75	215.43	7.18	17.18	17.68	18.98	8.64	206.79	None
	8/10/2020	213.75	215.43	7.18	17.18	17.68	19.00	12.00	203.43	None
	11/4/2020	213.75	215.43	7.18	17.18	17.68	19.10	13.90	201.53	None

Notes:

a - The percent siltation of the screened interval is calculated as the length of silted screened interval divided by the total screened interval length, times 100. Wells will be redeveloped if the siltation reaches or exceeds 10%.

ft MSL - feet above mean sea level

ft BTOC - feet below top of casing

% - percent

Table 2-3
Year 1 RA-O Analytical Results

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

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW02									
		Sample Identification	04WW02-191105		04WW02-200203		04WW02-200504		04WW02-200810		04WW02-201104	
		Sample Date	11/5/2019		2/3/2020		5/4/2020		8/10/2020		11/4/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Upgradient of Plume									
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters												
Dissolved Oxygen	mg/L	NV	1.44		0.02		0.04		0.09		0.57	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	221		23		76		67		60	
General Chemistry												
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA	
Perchlorate												
Perchlorate	µg/L	17	< 2	U	< 2	U	< 0.05	U	0.0477	J	0.0693	J

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW04									
		Sample Identification	04WW04-191106		04WW04-200203		04WW04-200504		04WW04-200810		04WW04-201104	
		Sample Date	11/6/2019		2/3/2020		5/4/2020		8/10/2020		11/4/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Within Plume Area									
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters												
Dissolved Oxygen	mg/L	NV	0.06		0.06		1.5		0.05		0.45	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	-43		-26		-111		-45		127	
General Chemistry												
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA	
Perchlorate												
Perchlorate	µg/L	17	< 2	U	< 2	U	< 0.05	U	< 0.1	U	0.158	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW05									
		Sample Identification	04WW05-191106		04WW05-200204		04WW05-200505		04WW05-200811		04WW05-201105	
		Sample Date	11/6/2019		2/4/2020		5/5/2020		8/11/2020		11/5/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Within Plume Area									
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters												
Dissolved Oxygen	mg/L	NV	0.18		0.09		0.22		0.14		0.15	
Ferrous Iron	NA	NV	0.31		0.63		2.55		0.73		3.3	
Oxidation-Reduction Potential	mV	NV	-36		-88		-90		-66		-36	
General Chemistry												
Alkalinity	mg/L	NV	438		535		448		542		605	
Nitrate	mg/L	NV			0.0475	J	< 0.1	U	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV			< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	72.8		41.1		61.5		85.8		117	
Total Organic Carbon	mg/L	NV	20		3.97		2.64		2.31		1.93	
Perchlorate												
Perchlorate	µg/L	17	< 2	U	< 2	U	< 0.05	U	0.399	J	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW06									
		Sample Identification	04WW06-191106		04WW06-200203		04WW06-200504		04WW06-200810		04WW06-201104	
		Sample Date	11/6/2019		2/3/2020		5/4/2020		8/10/2020		11/4/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Cross-Gradient to Plume Area									
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters												
Dissolved Oxygen	mg/L	NV	0.01		0.05		0.08		0.04		0.14	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	2		-16		106		41		37	
General Chemistry												
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA	
Perchlorate												
Perchlorate	µg/L	17	< 2	U	< 2	U	< 0.05	U	0.567	J	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW07										
		Sample Identification	04WW07-190122 [a]		04WW07-200204		04WW07-200505		04WW07-200811		04WW07-200811-FD		04WW07-201105	
		Sample Date	1/22/2019		2/4/2020		5/5/2020		8/11/2020		8/11/2020		11/5/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		FD; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Within Treatment Zone											
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters														
Dissolved Oxygen	mg/L	NV	1.83		0.05		2.12		0.04		0.04		0.03	
Ferrous Iron	NA	NV	NM		1.31		0.97		1.17		1.17		2.59	
Oxidation-Reduction Potential	mV	NV	338		-260		-314		-112		-112		-105	
General Chemistry														
Alkalinity	mg/L	NV	NA		1130		865		923		922		1180	
Nitrate	mg/L	NV	NA		< 0.1	U	0.0318	J	< 0.1	U	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV	NA		< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	NA		2.6		1.78		1.27		2.47		2.68	
Total Organic Carbon	mg/L	NV	NA		75.5		25		23.8		24.2		19.8	
Perchlorate														
Perchlorate	µg/L	17	**110**		**86**		3.51		0.557	J	0.58	J	0.19	J

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW08										
		Sample Identification	04WW08-191106		04WW08-200203		04WW08-200504		04WW08-200810		04WW08-200810-FD		04WW08-201104	
		Sample Date	11/6/2019		2/3/2020		5/4/2020		8/10/2020		8/10/2020		11/4/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		FD; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Intermediate Zone, Slightly Upgradient of Plume											
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters														
Dissolved Oxygen	mg/L	NV	0.03		0.08		0.26		0.06		0.06		0.8	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	-151		27		-160		-25		-25		-8	
General Chemistry														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate														
Perchlorate	µg/L	17	13		< 2	U	9.29		1.66		1.22		4.65	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

	Location		04WW09													
	Sample Identification		04WW09-190122 [a]		04WW09-200204		04WW09-200204-FD		04WW09-200505		04WW09-200811		04WW09-201105		04WW09-201105-FD	
	Sample Date		1/22/2019		2/4/2020		2/4/2020		5/5/2020		8/11/2020		11/5/2020		11/5/2020	
	Sample Purpose		REG; Baseline		REG; Year 1, Quarter 1		FD; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4		FD; Year 1, Quarter 4	
	Location Description		Shallow Zone, Within Treatment Area													
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters																
Dissolved Oxygen	mg/L	NV	5.78		0.08		0.08		0.04		0.03		0.02		0.02	
Ferrous Iron	NA	NV	NM		3.3		3.3		3.3		1.38		3.87		3.87	
Oxidation-Reduction Potential	mV	NV	326		-74		-74		-16		-87		-91		-91	
General Chemistry																
Alkalinity	mg/L	NV	NA		332		332		328		504		537		538	
Nitrate	mg/L	NV	NA		< 0.2	U	< 0.2	U	0.0732	J	0.0347	J	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV	NA		< 0.2	U	< 0.2	U	1.77		< 0.1	U	1.63		1.57	
Sulfate	mg/L	NV	NA		0.732	J	0.659	J	2		2.31		1.04		0.956	
Total Organic Carbon	mg/L	NV	NA		880		910		334		470		177		178	
Perchlorate																
Perchlorate	µg/L	17	**2,100**		**18**		**22**		11.1		3.92		2.02		2.58	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	04WW10											
		Sample Identification	04WW10-190122 [a]		04WW10-200204		04WW10-200505		04WW10-200505-FD		04WW10-200811		04WW10-201105	
		Sample Date	1/22/2019		2/4/2020		5/5/2020		5/5/2020		8/11/2020		11/5/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		FD; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Within Treatment Area											
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters														
Dissolved Oxygen	mg/L	NV	3.59		5.54		2.72		2.72		1.03		0.11	
Ferrous Iron	NA	NV	NM		1.8		1.08		1.08		0.89		3.14	
Oxidation-Reduction Potential	mV	NV	333		-79		-286		-286		-47		-62	
General Chemistry														
Alkalinity	mg/L	NV	NA		565		690		696		703		663	
Nitrate	mg/L	NV	NA		0.109		< 0.1	U	< 0.1	U	< 0.5	U	< 0.1	U
Nitrite	mg/L	NV	NA		< 0.1	U	< 0.1	U	< 0.1	U	< 0.5	U	< 0.1	U
Sulfate	mg/L	NV	NA		368		924		918		1540		1040	
Total Organic Carbon	mg/L	NV	NA		4.82		4.37		4.52		3.1		3.32	
Perchlorate														
Perchlorate	µg/L	17	**10,000**		< 2	U	< 0.05	U	< 0.05	U	0.339	J+	0.0888	J

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

	Location		04WW11										
	Sample Identification		04WW11-191106		04WW11-200204		04WW11-200504		04WW11-200810		04WW11-201104		04WW11-201104-FD
	Sample Date		11/6/2019		2/4/2020		5/4/2020		8/10/2020		11/4/2020		11/4/2020
	Sample Purpose		REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4		FD; Year 1, Quarter 4
	Location Description		Shallow Zone, Downgradient of Plume										
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters														
Dissolved Oxygen	mg/L	NV	3.21		5.54		0.14		0.03		1.66		1.66	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	158		-79		136		72		86		86	
General Chemistry														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate														
Perchlorate	µg/L	17	< 2	U	< 2	U	< 0.05	U	0.0435	J	< 0.05	U	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

		Location	LHSMW01									
		Sample Identification	LHSMW01-191106		LHSMW01-200203		LHSMW01-200504		LHSMW01-200810		LHSMW01-201104	
		Sample Date	11/6/2019		2/3/2020		5/4/2020		8/10/2020		11/4/2020	
		Sample Purpose	REG; Baseline		REG; Year 1, Quarter 1		REG; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
		Location Description	Shallow Zone, Cross-Gradient to Plume									
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters												
Dissolved Oxygen	mg/L	NV	0.48		0.04		0.05		0.5		0.53	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	127		63		96		143		211	
General Chemistry												
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA	
Perchlorate												
Perchlorate	µg/L	17	< 2	U	< 2	U	< 0.05	U	0.179	J	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results

	Location		LHSMW02													
	Sample Identification		LHSMW02-191105		LHSMW02-200203		LHSMW02-200203-FD		LHSMW02-200504		LHSMW02-200504-FD		LHSMW02-200810		LHSMW02-201104	
	Sample Date		11/5/2019		2/3/2020		2/3/2020		5/4/2020		5/4/2020		8/10/2020		11/4/2020	
	Sample Purpose		REG; Baseline		REG; Year 1, Quarter 1		FD; Year 1, Quarter 1		REG; Year 1, Quarter 2		FD; Year 1, Quarter 2		REG; Year 1, Quarter 3		REG; Year 1, Quarter 4	
	Location Description		Shallow Zone, Downgradient of Plume													
Parameter	**Units**	**PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.22		0.03		0.03		0.56		0.56		0.07		0.17	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	52		7		7		170		170		165		102	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 0.05	U	< 0.05	U	0.121		0.169	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

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

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

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

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

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

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-4
Historical Perchlorate Concentrations (2000–2020)

Monitoring Well	Date	Perchlorate Concentration (µg/L)
04WW01	12/19/2000	< 0.3
	3/17/2002	3.98
	9/18/2002	< 4
	9/9/2004	< 1
	9/3/2010	< 0.1
	2/23/2011	0.114
	1/10/2018	< 4
	1/22/2019	< 2
	2/4/2020	**19**
	5/4/2020	< 0.05 U
	8/10/2020	0.561 J
	11/4/2020	0.246 J
04WW02	12/19/2000	< 0.3
	3/10/2002	< 4
	9/18/2002	< 4
	9/9/2004	< 1
	9/3/2010	< 0.1
	1/9/2018	< 4
	1/21/2019	< 4
	11/5/2019	< 2
	2/3/2020	< 2
	5/4/2020	< 0.05
	8/10/2020	0.0477 J
	11/4/2020	0.0693 J
04WW03	12/19/2000	< 0.3
	9/9/2004	< 1
	8/20/2010	< 0.1
	1/9/2018	< 4
	1/21/2019	< 4
	11/6/2019	< 2
04WW04	9/3/2010	**4590**
	10/13/2010	**2920**
	11/10/2010	**5410**
	2/23/2011	**1580**
	1/9/2018	**31 J**
	1/21/2019	< 2
	11/6/2019	< 2
	2/3/2020	< 2
	5/4/2020	< 0.05
	8/10/2020	< 0.1
	11/4/2020	0.158

Table 2-4
Historical Perchlorate Concentrations (2000–2020)

Monitoring Well	Date	Perchlorate Concentration (µg/L)
04WW05	9/3/2010	0.9
	11/10/2010	6.58
	2/23/2011	0.326
	2/23/2011	0.327
	1/9/2018	**78**
	1/21/2019	**78**
	11/6/2019	< 2
	2/4/2020	< 2
	5/5/2020	< 0.05
	8/11/2020	0.399 J
	11/4/2020	< 0.05
04WW06	1/9/2018	3.1 J
	1/21/2019	< 2
	11/6/2019	< 2
	2/3/2020	< 2
	5/4/2020	< 0.05
	8/10/2020	0.567 J
	11/4/2020	< 0.05
04WW07	1/9/2018	13
	1/22/2019	**110**
	2/4/2020	**86**
	5/5/2020	3.51
	8/11/2020	0.557 J
	11/4/2020	0.19 J
04WW08	1/9/2018	1.5 J
	11/6/2019	13
	2/3/2020	< 2
	5/4/2020	9.29
	8/10/2020	1.66
	11/4/2020	4.65
04WW09	1/22/2019	**2100**
	2/4/2020	**18**
	5/5/2020	11.1
	8/11/2020	3.92
	11/4/2020	2.02
04WW10	1/22/2019	**10000**
	2/4/2020	< 2
	5/5/2020	< 0.05
	8/11/2020	0.339 J+
	11/4/2020	0.0888 J

Table 2-4
Historical Perchlorate Concentrations (2000–2020)

Monitoring Well	Date	Perchlorate Concentration (µg/L)
04WW11	1/22/2019	< 4
	11/6/2019	< 2
	2/4/2020	< 2
	5/4/2020	< 0.05
	8/10/2020	0.0435 J
	11/4/2020	< 0.05
LHSMW01	5/24/2000	**36.9**
	10/3/2000	< 16
	2/8/2001	**81**
	9/18/2002	< 4
	9/3/2010	0.676
	2/23/2011	0.208
	1/9/2018	< 4
	1/22/2019	< 4
	11/6/2019	< 2
	2/3/2020	< 2
	5/4/2020	< 0.05
	8/10/2020	0.179 J
	11/4/2020	< 0.05
LHSMW02	8/20/2010	< 0.1
	2/23/2011	1.3
	2/15/2018	< 4
	1/21/2019	< 2
	11/5/2019	< 2
	2/3/2020	< 2
	5/4/2020	< 0.05
	8/10/2020	0.121
	11/4/2020	0.169

Notes:

Bolded and blue highlighted concentrations exceed the PCL (17 µg/L).

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

< Perchlorate was not detected above the detection limit shown.

µg/L - Micrograms per liter.

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

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

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

Table 2-5
Year 1 RA-O Well Maintenance Summary

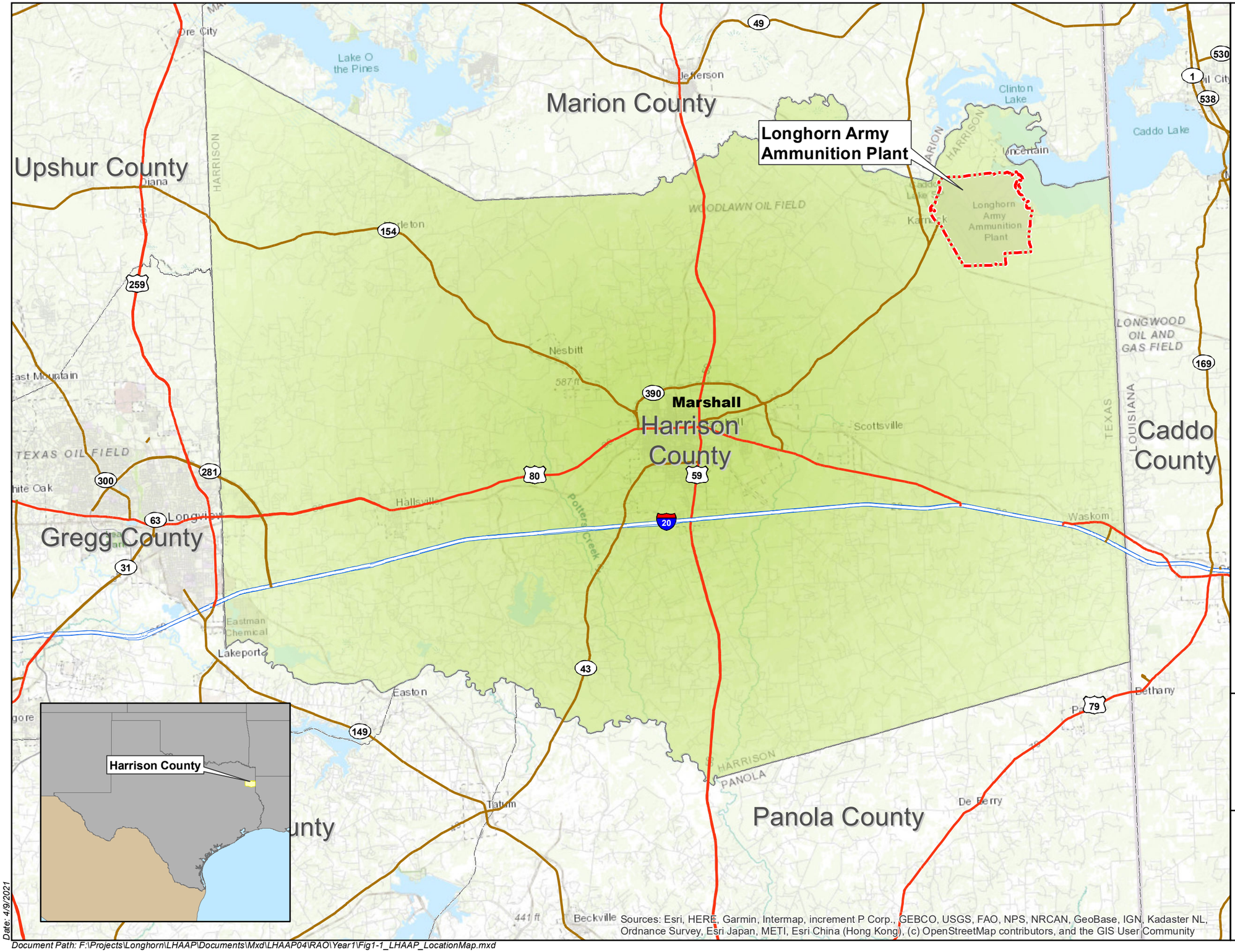
Well ID	Date Inspected	Pads	Bollards	Protective Casings	Locks	Date Mowed	Photos	Comments
04WW01	2/4/2020	Good	Good	Good	In Place		No	
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	
04WW02	2/3/2020	Good	Good	Good	In Place		No	
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	
04WW04	2/3/2020	Good	Good	Good	In Place		No	
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	
04WW05	2/4/2020	Good	Good	Good	In Place		No	
	5/5/2020	Good	Good	Good	In Place		Yes	
	8/11/2020	Good	Good	Good	In Place		Yes	
	11/5/2020	Good	Good	Good	In Place		Yes	
04WW06	2/3/2020	Good	Good	Good	In Place		No	Well ID Not Visible, Needs Paint
	5/4/2020	Good	Good	Good	In Place		Yes	Well ID Added After Photo, Needs Paint
	8/10/2020	Good	Good	Good	In Place		Yes	Needs Paint
	11/4/2020	Good	Good	Good	In Place		Yes	
04WW07	2/4/2020	Good	Good	Good	In Place		No	Well ID Not Visible, Needs Paint
	5/5/2020	Good	Good	Good	In Place		Yes	Well ID Added After Photo, Needs Paint
	8/11/2020	Good	Good	Good	In Place		Yes	Needs Paint
	11/5/2020	Good	Good	Good	In Place		Yes	
04WW08	2/3/2020	Good	Good	Good	In Place		No	Well ID Not Visible, Needs Paint
	5/4/2020	Good	Good	Good	In Place		Yes	Well ID Added After Photo, Needs Paint
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	
04WW09	2/4/2020	Good	Good	Good	In Place		No	
	5/5/2020	Good	Good	Good	In Place		Yes	
	8/11/2020	Good	Good	Good	In Place		Yes	
	11/5/2020	Good	Good	Good	In Place		Yes	
04WW10	2/4/2020	Good	Good	Good	In Place		No	
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/11/2020	Good	Good	Good	In Place		Yes	
	11/5/2020	Good	Good	Good	In Place		Yes	
04WW11	2/4/2020	Good	Good	Good	In Place		No	
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	
LHSMW01	2/3/2020	Good	Good	Good	In Place		No	Hinge > 50% rusted
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	
LHSMW02	2/3/2020	Good	Good	Good	In Place		No	
	5/4/2020	Good	Good	Good	In Place		Yes	
	8/10/2020	Good	Good	Good	In Place		Yes	
	11/4/2020	Good	Good	Good	In Place		Yes	

Notes:

ID - Identification.

RA-O - Remedial action operation.

Figures



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

N

0 2 4 Miles

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Figure 1-1

LHAAP Location Map
First Annual RA-O Report
LHAAP-04

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\Fig1-1_LHAAP_LocationMap.mxd

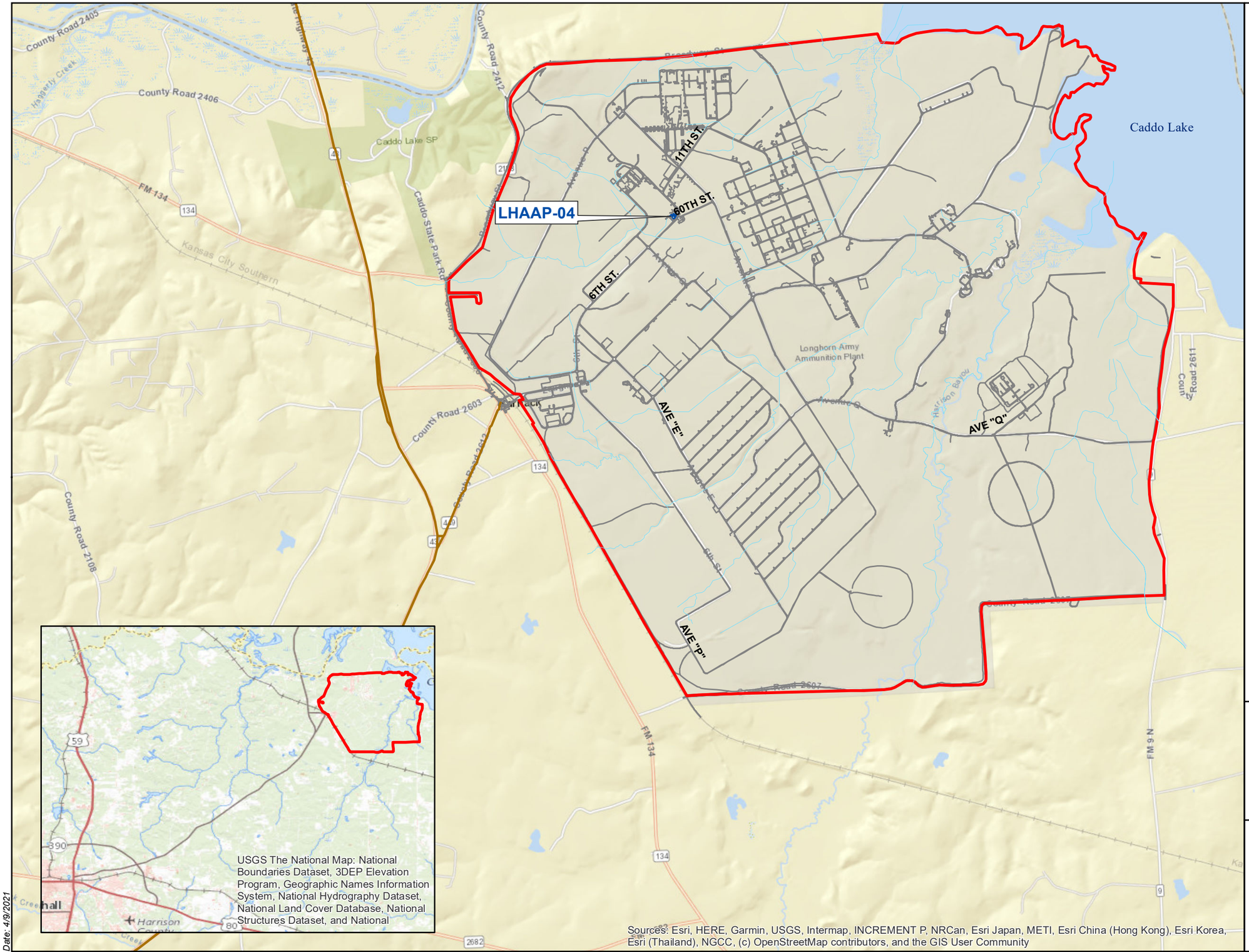

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Figure 1-2

LHAAP-04 Site Location Map
First Annual RA-O Report
LHAAP-04

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\Fig1-2_LHAAP_SiteLocationMap.mxd

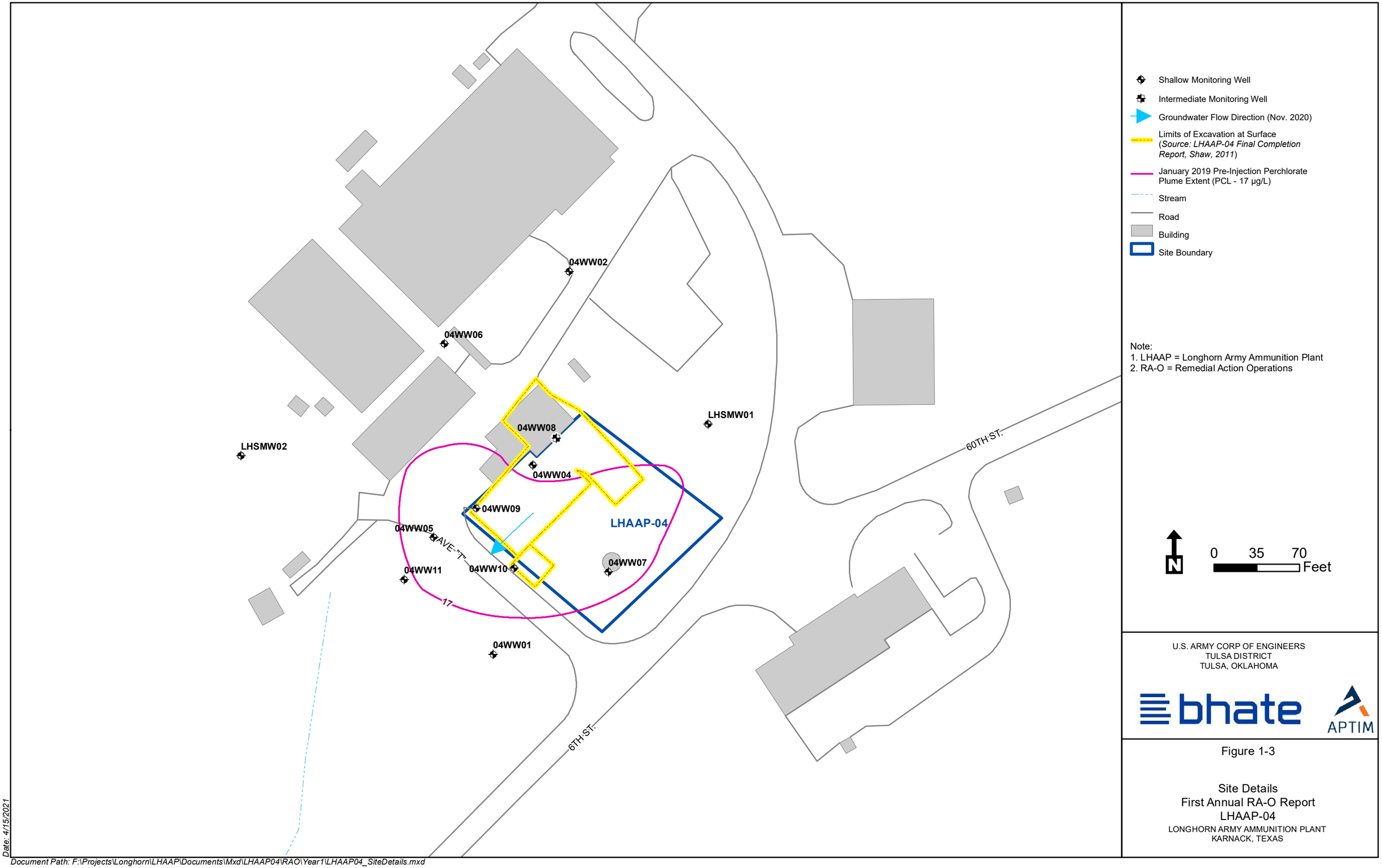
04WW02
04WW06
LHSMW02
04WW08
LHSMW01
04WW04
04WW09
LHAAP-04
04WW05
AVE. "T"
04WW11
04WW10
04WW07
17
04WW01
60TH ST.
6TH ST.
Shallow Monitoring Well
Intermediate Monitoring Well
Groundwater Flow Direction (Nov. 2020)
Limits of Excavation at Surface (Source: LHAAP-04 Final Completion Report, Shaw, 2011)
January 2019 Pre-Injection Perchlorate Plume Extent (PCL - 17 µg/L)
Stream
Road
Building
Site Boundary
Note:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations
N
0
35
70
Feet
U.S. ARMY CORP OF ENGINEERS
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Figure 1-3
Site Details
First Annual RA-O Report
LHAAP-04
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
Date: 4/15/2021
Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_SiteDetails.mxd

04WW02
04WW06
LHSMW01
LHSMW02
04WW08
04WW04
04WW09
LHAAP-04
AVE "F"
04WW05
04WW07
04WW11
04WW10
04WW01
60TH ST.
6TH ST.
Shallow Monitoring Well
Intermediate Monitoring Well
Limits of Excavation at Surface
(Source: LHAAP-04 Final Completion Report, Shaw, 2011)
Stream
Road
Building
Site Boundary
Notes:
1.Blue = Monitoring well will be analyzed for perchlorate and MNA parameters as defined on Table 2-1.
Green = Monitoring well will only be analyzed for perchlorate.
2. LHAAP = Longhorn Army Ammunition Plant
3. RA-O = Remedial Action Operations
N
0 35 70
Feet
U.S. ARMY CORP OF ENGINEERS
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Figure 2-1
RA-O Monitoring Well Location Map
First Annual RA-O Report
LHAAP-04
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
Date: 4/14/2021
Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_RAO Monitoring LocationMap.mxd

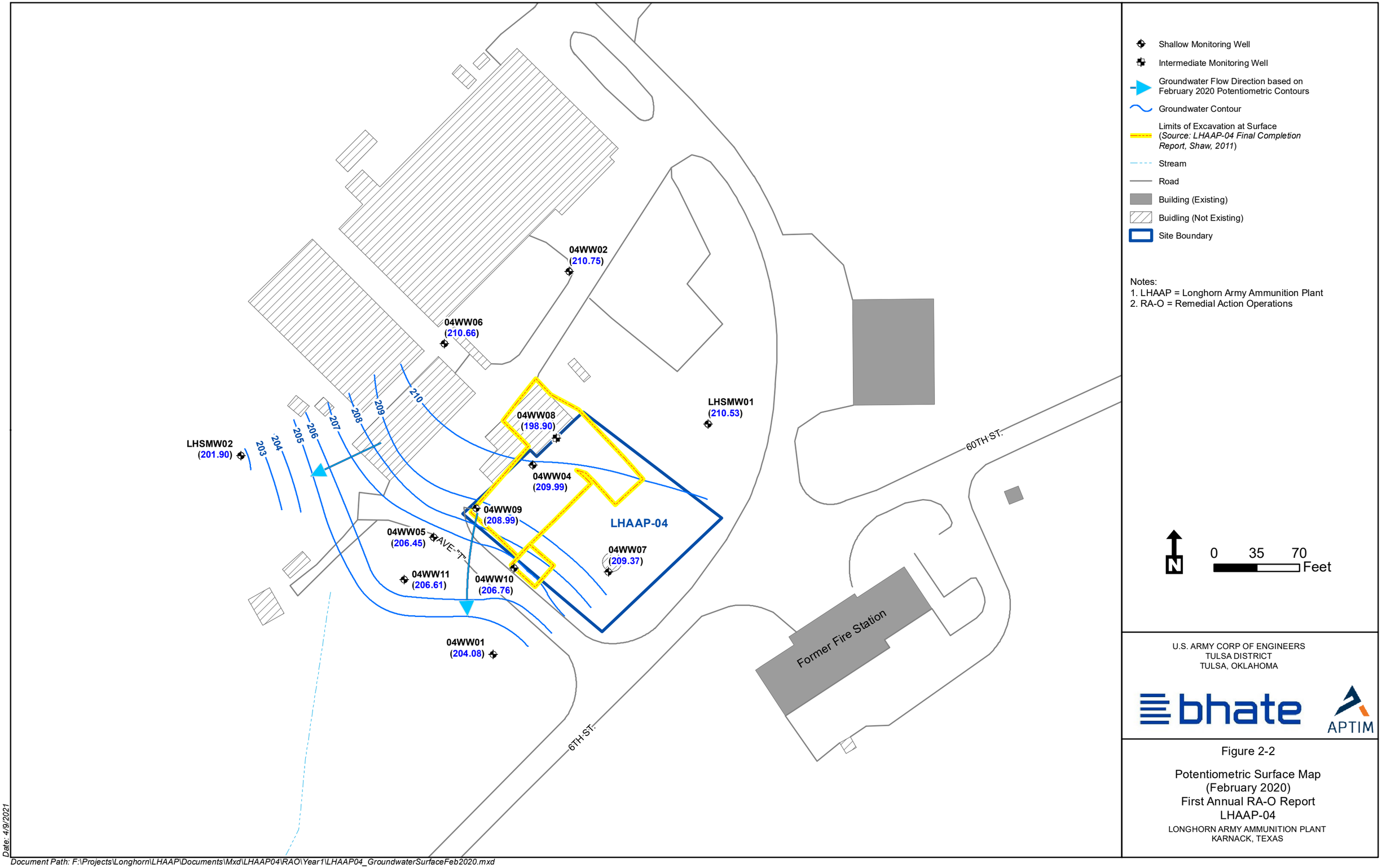

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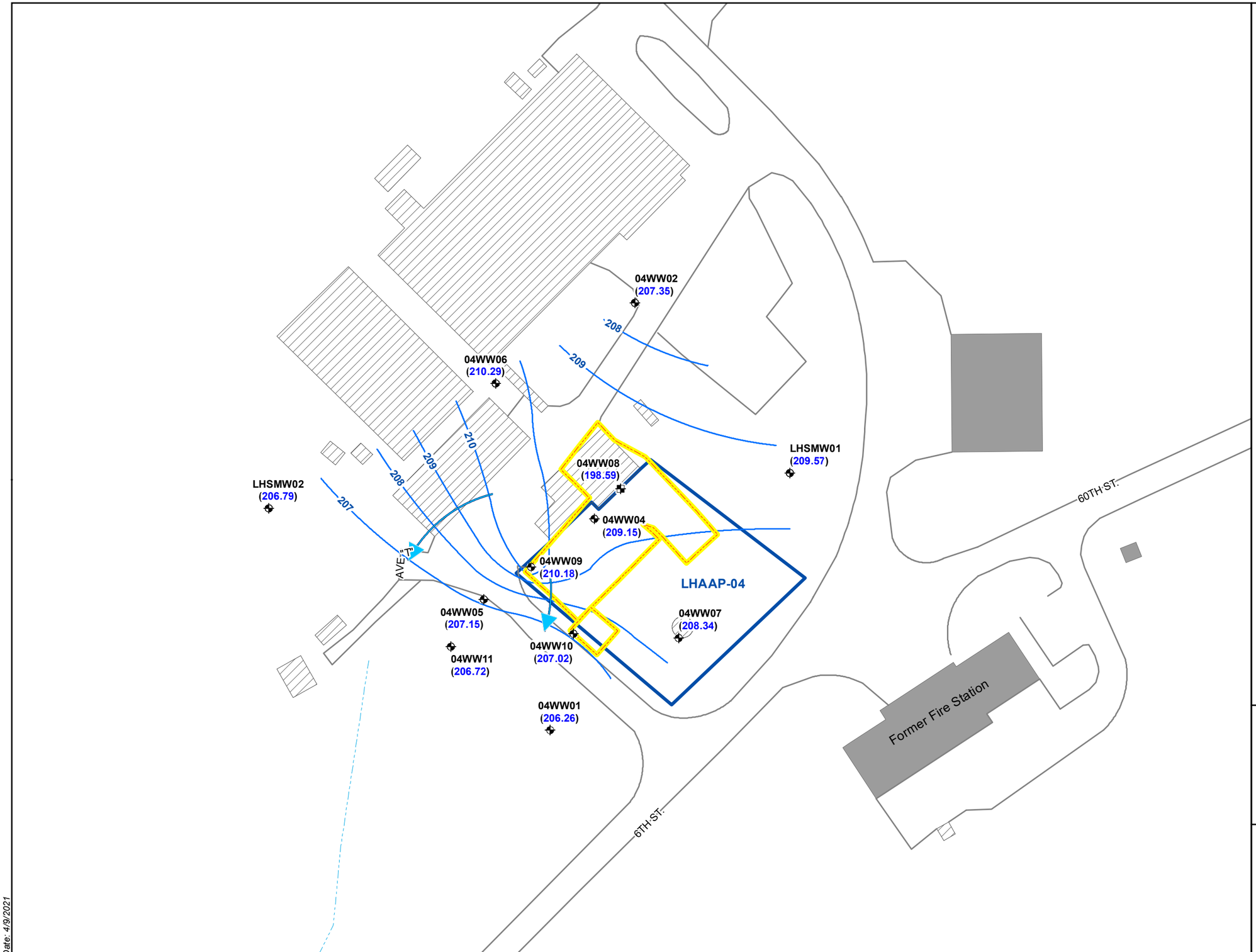
Figure 2-2

Potentiometric Surface Map
(February 2020)
First Annual RA-O Report
LHAAP-04
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_GroundwaterSurfaceFeb2020.mxd



- Shallow Monitoring Well
- Intermediate Monitoring Well
- Groundwater Flow Direction based on May 2020 Potentiometric Contours
- Groundwater Contour
- Limits of Excavation at Surface (*Source: LHAAP-04 Final Completion Report, Shaw, 2011*)
- Stream
- Road
- Building (Existing)
- Buidling (Not Existing)
- Site Boundary

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

N

0 35 70 Feet

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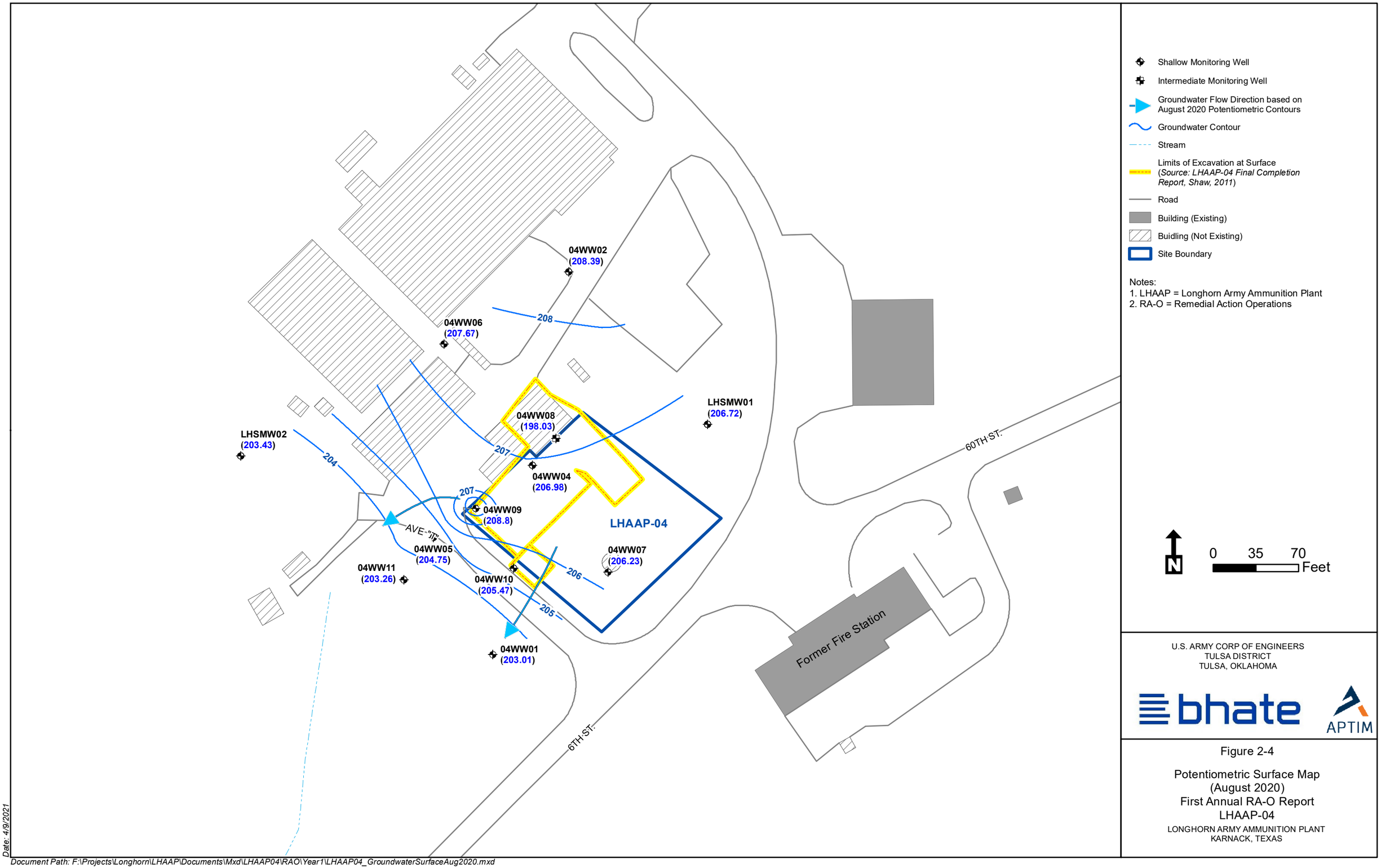
Figure 2-3

Potentiometric Surface Map
(May 2020)
First Annual RA-O Report
LHAAP-04
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_GroundwaterSurfaceMay2020.mxd



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TULSA, OKLAHOMA

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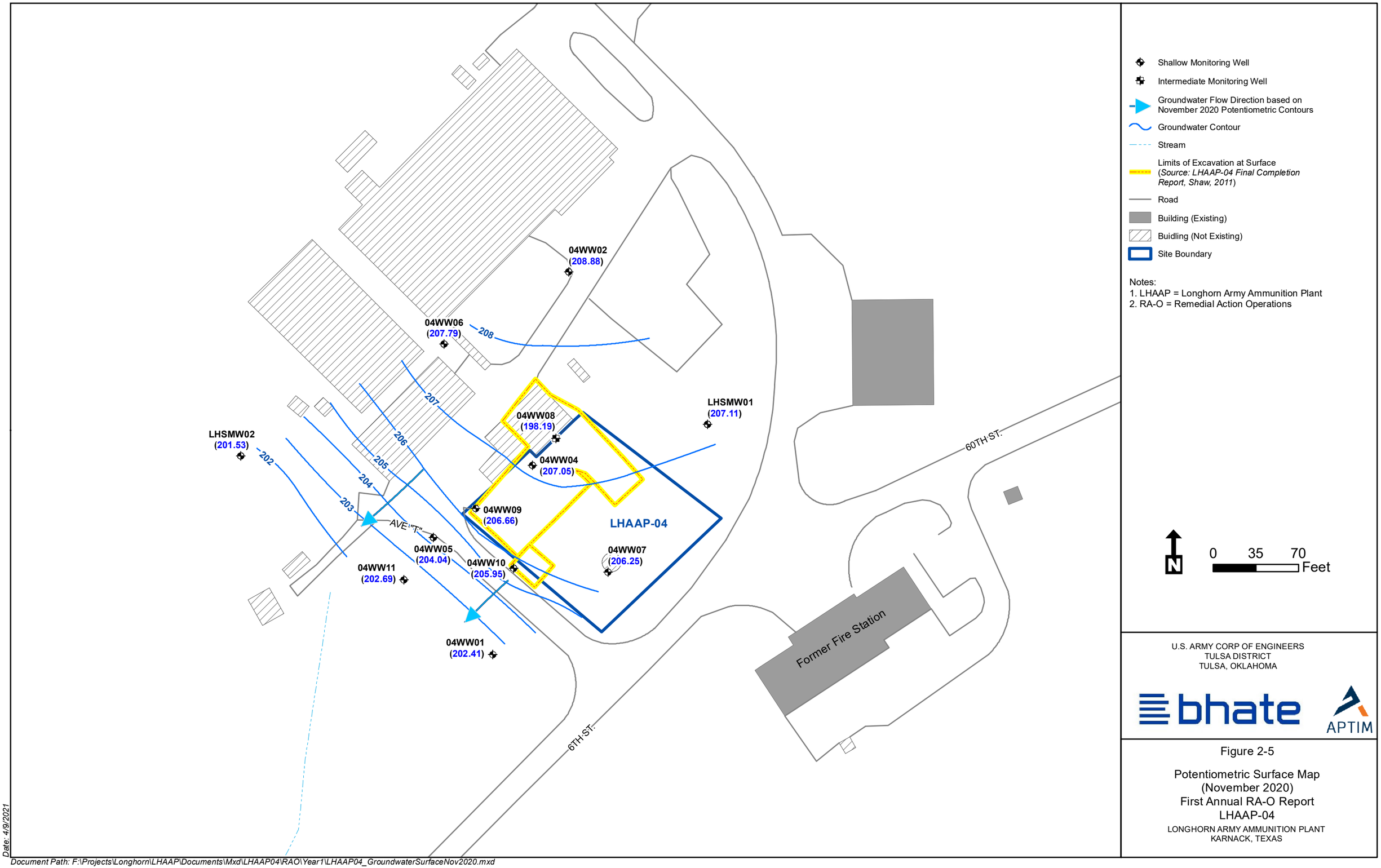
Figure 2-4

Potentiometric Surface Map
(August 2020)
First Annual RA-O Report
LHAAP-04
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_GroundwaterSurfaceAug2020.mxd



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TULSA, OKLAHOMA

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Figure 2-5

Potentiometric Surface Map
(November 2020)
First Annual RA-O Report
LHAAP-04
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_GroundwaterSurfaceNov2020.mxd

04WW06			
11/6/2019	Baseline	Result	2 U
2/3/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.567 J
11/4/2020	Year 1, Quarter 4	Result	0.05 U

04WW02			
11/5/2019	Baseline	Result	2 U
2/3/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.0477 J
11/4/2020	Year 1, Quarter 4	Result	0.0693 J

04WW08			
11/6/2019	Baseline	Result	13
2/3/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	9.29
8/10/2020	Year 1, Quarter 3	Result	1.66
11/4/2020	Year 1, Quarter 4	Result	4.65

04WW09			
1/22/2019	Baseline	Result	**2100**
2/4/2020	Year 1, Quarter 1	Result	**18**
5/5/2020	Year 1, Quarter 2	Result	11.1
8/11/2020	Year 1, Quarter 3	Result	3.92
11/5/2020	Year 1, Quarter 4	Result	2.02

04WW04			
11/6/2019	Baseline	Result	2 U
2/3/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.1 U
11/4/2020	Year 1, Quarter 4	Result	0.158

LHSMW01			
11/6/2019	Baseline	Result	2 U
2/3/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.179 J
11/4/2020	Year 1, Quarter 4	Result	0.05 U

LHSMW02			
11/5/2019	Baseline	Result	2 U
2/3/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.121
11/4/2020	Year 1, Quarter 4	Result	0.169

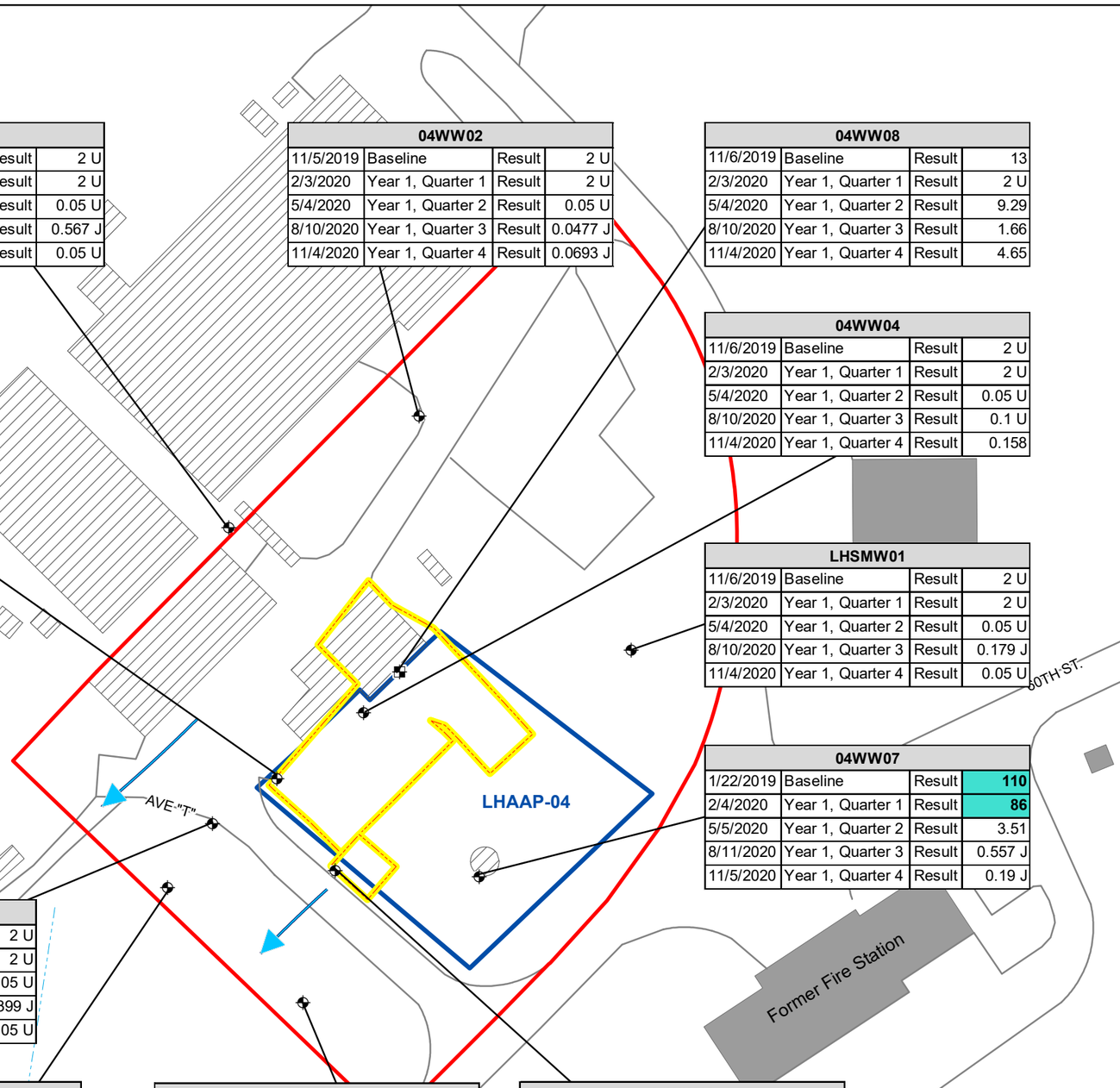
04WW07			
1/22/2019	Baseline	Result	**110**
2/4/2020	Year 1, Quarter 1	Result	**86**
5/5/2020	Year 1, Quarter 2	Result	3.51
8/11/2020	Year 1, Quarter 3	Result	0.557 J
11/5/2020	Year 1, Quarter 4	Result	0.19 J

04WW05			
11/6/2019	Baseline	Result	2 U
2/4/2020	Year 1, Quarter 1	Result	2 U
5/5/2020	Year 1, Quarter 2	Result	0.05 U
8/11/2020	Year 1, Quarter 3	Result	0.399 J
11/5/2020	Year 1, Quarter 4	Result	0.05 U

04WW11			
11/6/2019	Baseline	Result	2 U
2/4/2020	Year 1, Quarter 1	Result	2 U
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.0435 J
11/4/2020	Year 1, Quarter 4	Result	0.05 U

04WW01			
1/22/2019	Baseline	Result	2 U
2/4/2020	Year 1, Quarter 1	Result	**19**
5/4/2020	Year 1, Quarter 2	Result	0.05 U
8/10/2020	Year 1, Quarter 3	Result	0.561 J
11/4/2020	Year 1, Quarter 4	Result	0.246 J

04WW10			
1/22/2019	Baseline	Result	**10000**
2/4/2020	Year 1, Quarter 1	Result	2 U
5/5/2020	Year 1, Quarter 2	Result	0.05 U
8/11/2020	Year 1, Quarter 3	Result	0.339 J+
11/5/2020	Year 1, Quarter 4	Result	0.0888 J



- Shallow Monitoring Well
- Intermediate Monitoring Well
- Groundwater Flow Direction based on November 2020 Potentiometric Contours
- Stream
- Limits of Excavation at Surface (*Source: LHAAP-04 Final Completion Report, Shaw, 2011*)
- Proposed Final LUC Boundary
- Road
- Building (Existing)
- Buidling (Not Existing)
- Site Boundary

Note:
1. J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
2. J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.
3. U - Undetected: The analyte was analyzed for, but not detected.
4. PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level
5. LHAAP = Longhorn Army Ammunition Plant
6. RA-O = Remedial Action Operations
7. PCL for Perchlorate in groundwater is 17 µg/L.
8. All results shown are in µg/L (micrograms per liter)
9. Concentrations highlighted in blue exceed the PCL

N

0 35 70 Feet

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Figure 2-6

Perchlorate Concentrations in Groundwater (Year 1)
First Annual RA-O Report
LHAAP-04

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/9/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_PerchlorateYear1.mxd

Appendix A

Annual Land Use Control Compliance Certification and Documentation

Sample Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Design dated _____ for LHAAP-46 a certification of site was conducted by ApTim [indicate transferee] on 2/13/20.

A summary of land use control mechanisms is as follows:

Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met [Indicate whether groundwater restrictions are still required at LHAAP-46]

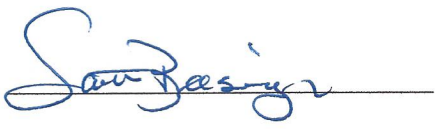
A summary of compliance with land use and restriction covenants is as follows:

No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-46.

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

Date: FEBRUARY 13, 2020

Name/Title: SCOTT BEESINGER SENIOR FIELD TECHNICIAN

Signature: 

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year.

Appendix B

Well Inspection Forms and Well Photographs

APPENDIX B

May 2020 Photo Log

Photo No.	Date	Task and Description
1	5/11/2020	View of Monitoring Well 04WW01
2	5/11/2020	View of Monitoring Well 04WW02
3	5/11/2020	View of Monitoring Well 04WW04
4	5/11/2020	View of Newly Installed 04WW05
5	5/11/2020	View of Monitoring Well 04WW06
6	5/11/2020	View of Monitoring Well 04WW07
7	5/11/2020	View of Monitoring Well 04WW08
8	5/11/2020	View of Monitoring Well 04WW09
9	5/11/2020	View of Monitoring Well 04WW10
10	5/11/2020	View of Monitoring Well 04WW11
11	5/11/2020	View of Monitoring Well LHSMW01
12	5/11/2020	View of Monitoring Well LHSMW02

APPENDIX B

August 2020 Photo Log

Photo No.	Date	Task and Description
13	8/12/2020	View of Monitoring Well 04WW01
14	8/12/2020	View of Monitoring Well 04WW02
15	8/12/2020	View of Monitoring Well 04WW04
16	8/12/2020	View of Newly Installed 04WW05
17	8/12/2020	View of Monitoring Well 04WW06
18	8/12/2020	View of Monitoring Well 04WW07
19	8/12/2020	View of Monitoring Well 04WW08
20	8/12/2020	View of Monitoring Well 04WW09
21	8/12/2020	View of Monitoring Well 04WW10
22	8/12/2020	View of Monitoring Well 04WW11
23	8/12/2020	View of Monitoring Well LHSMW01
24	8/12/2020	View of Monitoring Well LHSMW02

APPENDIX B

November 2020 Photo Log

Photo No.	Date	Task and Description
25	11/10/2020	View of Monitoring Well 04WW01
26	11/10/2020	View of Monitoring Well 04WW02
27	11/10/2020	View of Monitoring Well 04WW04
28	11/10/2020	View of Newly Installed 04WW05
29	11/10/2020	View of Monitoring Well 04WW06
30	11/10/2020	View of Monitoring Well 04WW07
31	11/10/2020	View of Monitoring Well 04WW08
32	11/10/2020	View of Monitoring Well 04WW09
33	11/10/2020	View of Monitoring Well 04WW10
34	11/10/2020	View of Monitoring Well 04WW11
35	11/10/2020	View of Monitoring Well LHSMW01
36	11/10/2020	View of Monitoring Well LHSMW02

PHOTO 1: View of Monitoring Well 04WW01
DATE: May 11, 2020

PHOTO 2: View of Monitoring Well 04WW02
DATE: May 11, 2020

PHOTO 3: View of Monitoring Well 04WW04
DATE: May 11, 2020

PHOTO 4: View of Newly Installed 04WW05
DATE: May 11, 2020

PHOTO 5: View of Monitoring Well 04WW06
DATE: May 11, 2020

PHOTO 6: View of Monitoring Well 04WW07
DATE: May 11, 2020

PHOTO 7: View of Monitoring Well 04WW08
DATE: May 11, 2020

PHOTO 8: View of Monitoring Well 04WW09
DATE: May 11, 2020

PHOTO 9: View of Monitoring Well 04WW10
DATE: May 11, 2020

PHOTO 10: View of Monitoring Well 04WW11
DATE: May 11, 2020

PHOTO 11: View of Monitoring Well LHSMW01
DATE: May 11, 2020

PHOTO 12: View of Monitoring Well LHSMW02
DATE: May 11, 2020

PHOTO 13: View of Monitoring Well 04WW01
DATE: August 12, 2020

PHOTO 14: View of Monitoring Well 04WW02
DATE: August 12, 2020

PHOTO 15: View of Monitoring Well 04WW04
DATE: August 12, 2020

PHOTO 16: View of Newly Installed 04WW05
DATE: August 12, 2020

PHOTO 17: View of Monitoring Well 04WW06
DATE: August 12, 2020

PHOTO 18: View of Monitoring Well 04WW07
DATE: August 12, 2020

PHOTO 19: View of Monitoring Well 04WW08
DATE: August 12, 2020

PHOTO 20: View of Monitoring Well 04WW09
DATE: August 12, 2020

PHOTO 21: View of Monitoring Well 04WW10
DATE: August 12, 2020

PHOTO 22: View of Monitoring Well 04WW11
DATE: August 12, 2020

PHOTO 23: View of Monitoring Well LHSMW01
DATE: August 12, 2020

PHOTO 24: View of Monitoring Well LHSMW02
DATE: August 12, 2020

PHOTO 25: View of Monitoring Well 04WW01
DATE: November 10, 2020

PHOTO 26: View of Monitoring Well 04WW02
DATE: November 10, 2020

PHOTO 27: View of Monitoring Well 04WW04
DATE: November 10, 2020

PHOTO 28: View of Newly Installed 04WW05
DATE: November 10, 2020

PHOTO 29: View of Monitoring Well 04WW06
DATE: November 10, 2020

PHOTO 30: View of Monitoring Well 04WW07
DATE: November 10, 2020

PHOTO 31: View of Monitoring Well 04WW08
DATE: November 10, 2020

PHOTO 32: View of Monitoring Well 04WW09
DATE: November 10, 2020

PHOTO 33: View of Monitoring Well 04WW10
DATE: November 10, 2020

PHOTO 34: View of Monitoring Well 04WW11
DATE: November 10, 2020

PHOTO 35: View of Monitoring Well LHSMW01
DATE: November 10, 2020

PHOTO 36: View of Monitoring Well LHSMW02
DATE: November 10, 2020

01041372

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: LHSmw01
Inspection Date: 2/3/20
Well Completion Depth/ Measured Depth: 17.95
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041373

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW08
Inspection Date: 2/3/20
Well Completion Depth/ Measured Depth: 43.82
Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: SB ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ *Other (describe)*
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? SB ☒ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041374

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW04
Inspection Date: 2/3/20
Well Completion Depth/ Measured Depth: 21.55
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041375

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW06
Inspection Date: 2/3/20
Well Completion Depth/ Measured Depth: 28.07
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041376

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: LHSMW02
Inspection Date: 2/3/20
Well Completion Depth/ Measured Depth: 19.00
Inspector: Scott Beesinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041377

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04MW02
Inspection Date: 2/3/20
Well Completion Depth/ Measured Depth: 26.70
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041378

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW01
Inspection Date: 2/4/20
Well Completion Depth/ Measured Depth: 27.23
Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible?				☒ Yes	☐ No
Protective casing?				☒ Yes	☐ No
Material	METAL				
Condition:	☒ Good	☐ Broken	☐ Cracked	☐ Need Paint	
Lid Condition:	☒ Good	☐ Broken	☒ Cracked		
Hinge Condition:	☒ Good	☐ Less than 50% rusted	☐ More than 50% rusted		

☐ FLUSH MOUNTED

Well cover present?	NA			☐ Yes	☐ No
Condition:	☐ Good	☐ Broken	☐ Cracked		
Condition of Sump:	☐ Clean	☐ Dry	☐ Standing Water		

CONCRETE PAD:

Sloped away from casing?				☒ Yes	☐ No
Pad Area Cleared of Vegetation?				☒ Yes	☐ No
Check any of the following features that apply:					
☐ Many Cracks	☐ Gap Around Casing	☐ Few Cracks	☐ Ponded Water	☐ No Pad Present	

WELL CONDITION:

Inner Diameter (inches)	4"				
Condition:	☒ Good	☐ Broken	☐ Cracked	☐ *Other (describe)*	
Cap present?				☒ Yes	☐ No
Well lock present?				☒ Yes	☐ No
Lock functioning properly?				☒ Yes	☐ No
Are bollards present and stable?				☒ Yes	☐ No
Well ID visible?				☒ Yes	☐ No

WELL INTEGRITY:

Bailer present?	☐ Yes	☒ No
Visual obstruction?	☐ Yes	☒ No
Is well open to completed depth? (complete when gauging)	☒ Yes	☐ No
Is silt present in well? (complete when gauging)	☐ Yes	☒ No
Is silt greater than 10% of well screen length? (complete when gauging)	☐ Yes	☒ No

COMMENTS:

01041379

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 04
Well ID: 04MW11
Inspection Date: 2/4/20
Well Completion Depth/ Measured Depth: 18.50
Inspector: Scott Bees. N6412

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041380

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04MW05
Inspection Date: 2/4/20
Well Completion Depth/ Measured Depth: 29.61
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041381

WELL INSPECTION FORM

Job Name: LTAAP
Job No.: 501032
Client: ARmy
Site Name: 04

Well ID: 04MW10
Inspection Date: 2/4/20
Well Completion Depth/ Measured Depth: 22.61
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041382

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04 MW07
Inspection Date: 2/4/20
Well Completion Depth/ Measured Depth: 22.61
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ *Other (describe)*
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041383

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW09
Inspection Date: 2/4/20
Well Completion Depth/ Measured Depth: 23.45
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041384

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04WW02
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 26.70
Inspector: Scott Brassington

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041385

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04MW06
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 28.11
Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED ☐
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041386

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: LHSMW02
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 18.98
Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04WW11
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 18.45
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041388

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 04
Well ID: 04WW04
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 21.55
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041389

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW08
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 43.90
Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? Yes No
Protective casing? Yes No
Material: METAL
Condition: Good Broken Cracked Need Paint
Lid Condition: Good Broken Cracked
Hinge Condition: Good Less than 50% rusted More than 50% rusted

FLUSH MOUNTED
Well cover present? NA Yes No
Condition: Good Broken Cracked
Condition of Sump: Clean Dry Standing Water

CONCRETE PAD:
Sloped away from casing? Yes No
Pad Area Cleared of Vegetation? Yes No
Check any of the following features that apply:
Many Cracks Gap Around Casing Few Cracks Ponded Water No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: Good Broken Cracked Other (describe)
Cap present? Yes No
Well lock present? Yes No
Lock functioning properly? Yes No
Are bollards present and stable? Yes No
Well ID visible? Yes No

WELL INTEGRITY:
Bailer present? Yes No
Visual obstruction? Yes No
Is well open to completed depth? (complete when gauging) Yes No
Is silt present in well? (complete when gauging) Yes No
Is silt greater than 10% of well screen length? (complete when gauging) Yes No

COMMENTS:

01041390

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: LHSMW01
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 17.95
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint SB
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) [redacted] 4 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041391

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04WW01
Inspection Date: 5/4/20
Well Completion Depth/ Measured Depth: 27/23
Inspector: Scott Beggs, NGER

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041392

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04MW05
Inspection Date: 5/5/20
Well Completion Depth/ Measured Depth: 29.62
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041393

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04MW09
Inspection Date: 5/5/20
Well Completion Depth/ Measured Depth: 23.47
Inspector: Scott Baessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041394

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04MW10
Inspection Date: 5/5/20
Well Completion Depth/ Measured Depth: 22.53
Inspector: Scott Boggs/NG4R

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041395

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04WW07
Inspection Date: 5/5/20
Well Completion Depth/ Measured Depth: 22.98
Inspector: SCOTT BEESINGER

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? N/A ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041396

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: LHSMW01
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 17.90
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041397

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: ~~04WW01~~ 04WW04 W. Foss 8/19/2020
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 21.57
Inspector: Scott Beesinger

~~X~~ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ~~X~~ Yes ☐ No
Material: METAL
Condition: ~~X~~ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ~~X~~ Good ☐ Broken ☒ Cracked
Hinge Condition: ~~X~~ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ~~X~~ Yes ☐ No
Pad Area Cleared of Vegetation? ~~X~~ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): ~~2~~ 2"
Condition: ~~X~~ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ~~X~~ Yes ☐ No
Well lock present? ~~X~~ Yes ☐ No
Lock functioning properly? ~~X~~ Yes ☐ No
Are bollards present and stable? ~~X~~ Yes ☐ No
Well ID visible? ~~X~~ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ~~X~~ No
Visual obstruction? ☐ Yes ~~X~~ No
Is well open to completed depth? (complete when gauging) ~~X~~ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ~~X~~ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ~~X~~ No

COMMENTS:

01041398

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04WW08
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 43.93
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041399

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW02
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 26.70
Inspector: Scott Blessinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041400

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04wwob
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 28.08
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041401

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: LHSMW02
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 19.00
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041402

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04WW11
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 18.55
Inspector: Scott Beesinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041403

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04WW01
Inspection Date: 8/10/20
Well Completion Depth/ Measured Depth: 27.22
Inspector: Scott Bassinger

☑ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: METAL
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☒ Cracked
Hinge Condition: ☑ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041404

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04MW05
Inspection Date: 8/11/20
Well Completion Depth/ Measured Depth: 29.62
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 24
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04WW09
Inspection Date: 8/11/20
Well Completion Depth/ Measured Depth: 23.78
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041406

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04MW10
Inspection Date: 8/11/20
Well Completion Depth/ Measured Depth: 22.55
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041407

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04

Well ID: 04WW07
Inspection Date: 8/11/20
Well Completion Depth/ Measured Depth: 22.63
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041408

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: LHSMW01
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 17.95
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041409

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04WW04
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 21.55
Inspector: Scott Baggenga

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041410

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04MW08
Inspection Date: 11/4/20
Well Completion Depth/Measured Depth: 43.65
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041411

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW02
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 26.67
Inspector: Scott Bessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041412

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW06
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 28.05
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 04
Well ID: LHSMW02
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 19.10
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041414

WELL INSPECTION FORM

Job Name: LHAAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04WW11
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 18.49
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041415

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 04
Well ID: 04WW01
Inspection Date: 11/4/20
Well Completion Depth/ Measured Depth: 27.22
Inspector: Scott Baggenger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041416

WELL INSPECTION FORM

Job Name: UTAAP
Job No.: 501032
Client: ARMY
Site Name: 04

Well ID: 04WW05
Inspection Date: 11/5/20
Well Completion Depth/ Measured Depth: 29.57
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01041417

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04WW09
Inspection Date: 11/5/20
Well Completion Depth/ Measured Depth: 23.47
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041418

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW10
Inspection Date: 11/5/20
Well Completion Depth/ Measured Depth: 22.52
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01041419

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 04
Well ID: 04MW07
Inspection Date: 11/5/20
Well Completion Depth/ Measured Depth: 22.63
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

Appendix C

Sample Collection Logs

01041421

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/3/20

Project Number: 50132

Project Name: LHAAP-04

Recorded By: SCOTT BREESINGER

PID

Model:

Bulb: 10.6 meV

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	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER

Model:

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	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model: U-52 HORIBA

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time: 0822	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	04/20	9661216	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 9.00	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

01041422

EQUIPMENT CALIBRATION DAILY LOG

Date: 2/4/20

Project Number: 501032

Project Name: LHAAP-04

Recorded By: Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model:		Bulb: 10.6 meV				
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	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:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:	U-52 HORIBA					
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time: 0715	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	04/20	9661216	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 9.04	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:

APTIM

Page 1 of _____

COC ID: 04LHAAP-Performance Monitoring 01__20-ALS TURNAROUND TIME: RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Email Invoice To	FedInvoices@aptim.com		
Project Number	501032			Lab Contact	RJ Modashia						
	LHAAP-04			Email	RJ.Modashia@alsglobal.com			Email Report To	Susan.Huang@aptim.com		
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd., Suite 210			Mail Reports To	Susan Huang		
	PMB 202							Address	4005 Port Chicago Highway, Suite 200		
City	Marshall	State	TX	City	Houston	State	TX	City	Concord	State	CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	Postal Code	94520	Country	USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656						
Project Manager	Praveen Srivastav							Shipping Company			

SAMPLE DETAILS / ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	ANALYSIS	TOC by SM5310	Perchlorate by SW6850	Alkalinity by SM2320B	Anions (nitrate, nitrite and sulfate) by SW9056
								Sample Container and Preservatives		2-40ml Amber/ H2SO4	1-125ml HPDE/Cool to 4°C	1-500ml HDPE/Cool to 4°C	
LHSMW01-200203	LHAAP 04				WG	2/3/20	0920	1			X		
04WW08-200203	LHAAP 04				WG	2/3/20	1005	1			X		
04WW04-200203	LHAAP 04				WG	2/3/20	1050	1			X		
04WW06-200203	LHAAP 04				WG	2/3/20	1135	1			X		
LHSMW02-200203	LHAAP 04				WG	2/3/20	1220	1			X		
LHSMW02-200203-FD	LHAAP 04				WG	2/3/20	1220	1			X		
04WW02-200203	LHAAP 04				WG	2/3/20	1310	1			X		
04WW01-200204	LHAAP 04				WG	2/4/20	0810	1			X		
04WW11-200204	LHAAP 04				WG	2/4/20	0855	1			X		
04WW11-200204-MS	LHAAP 04				WG	2/4/20	0855	1			X		
04WW11-200204-MSD	LHAAP 04				WG	2/4/20	0855	1			X		
04WW05-200204	LHAAP 04				WG	2/4/20	0940	4		X	X	X	X
04WW10-200204	LHAAP 04				WG	2/4/20	1030	4		X	X	X	X
04WW07-200204	LHAAP 04				WG	2/4/20	1115	4		X	X	X	X
04WW09-200204	LHAAP 04				WG	2/4/20	1205	4		X	X	X	X
04WW09-200204-FD	LHAAP 04				WG	2/4/20	1205	4		X	X	X	X

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Scott Deering / BHATE	2/4/20 1430		

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW01**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

OVERCAST

SAMPLING INFORMATION

Sample No: 04WW01-200204 **DATE/TIME:** 2/4/20 **Pump Inlet Depth:** 22.00

Sampling Method: **Sample Purpose: REG** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 0740

Depth to Water - Initial (DTWi) (ft) 8.43

Purge End Date/Time: 2/4/20 0810

Depth to Well Bottom (ft) 27.23

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.00 - 27.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 22.00

Pump Start Time: 0740

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 8.43

APTIM

Sample Collection Log

Location ID: 04WW01		Sample No: 04WW01-20020204								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	0745	100	.5	8.50	2.08	17.63	4.86	352	-18	0.69
	0750	100	1.0	8.56	2.03	17.75	5.11	341	-29	0.18
	0755	100	1.5	8.60	1.95	17.80	5.24	325	-50	0.04
	0800	100	2.0	8.63	1.94	17.83	5.25	324	-51	0.04
	0805	100	2.5	8.65	1.93	17.86	5.25	323	-52	0.03
↓	0810	100	3.0	8.66	1.93	17.90	5.26	322	-52	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW02**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 04WW02-200203 **DATE/TIME:** 2/3/20 1228 **Pump Inlet Depth:** 21.00

Sampling Method: **Sample Purpose: REG** **Sample Matrix: GW**

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/3/20 1240

Depth to Water - Initial (DTWi) (ft) 5.95

Purge End Date/Time: 2/3/20 1310

Depth to Well Bottom (ft) 26.70

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 16.00 - 26.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.00

Pump Start Time: 1240

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 5.95

APTIM

Sample Collection Log

Location ID: 04WW02				Sample No: 04WW02-20023						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	1245	100	.5	6.03	0.365	18.58	7.70	69.3	30	0.69
	1250	100	1.0	6.09	0.330	18.75	7.85	65.7	24	0.18
	1255	100	1.5	6.13	0.322	18.91	7.85	60.5	24	0.03
	1300	100	2.0	6.15	0.321	18.97	7.85	59.9	23	0.03
	1305	100	2.5	6.17	0.321	19.08	7.86	59.4	23	0.03
↓	1310	100	3.0	6.18	0.321	19.15	7.86	58.8	23	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW04**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 04WW04-200203

DATE/TIME: 2/3/20 1017

Pump Inlet Depth: 16.00

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 2/3/20 1020

Depth to Water - Initial (DTWi) (ft) 4.11

Purge End Date/Time: 2/3/20 1050

Depth to Well Bottom (ft) 21.55

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 11.00 - 21.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 16.00

Pump Start Time: 1020

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 4.11

APTIM

Sample Collection Log

Location ID: 04WW04				Sample No: 04WW04-20023						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	1025	100	.5	4.18	0.340	17.30	7.90	288	-39	0.91
	1030	100	1.0	4.24	0.330	17.47	7.54	271	-30	0.32
	1035	100	1.5	4.28	0.330	17.88	7.39	263	-28	0.07
	1040	100	2.0	4.31	0.329	17.96	7.38	262	-27	0.07
	1045	100	2.5	4.33	0.329	18.05	7.38	261	-26	0.07
↓	1050	100	3.0	4.34	0.329	18.12	7.37	261	-26	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW05**

Project No: **501032**

Sampler(s): Scott Bassinger

FIELD CONDITIONS OVERCAST

SAMPLING INFORMATION

Sample No: 04WW05-20020204 **DATE/TIME:** 2/4/20 **Pump Inlet Depth:** 24.00

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 500 mL HDPE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 2/4/20 0910

Depth to Water - Initial (DTWi) (ft) 7.25

Purge End Date/Time: 2/4/20 0940

Depth to Well Bottom (ft) 29.61

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 19.00 - 29.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 24.00

Pump Start Time: _____

Ferrous Iron (Required (Y) or N) 0.63 mg/L

2ND DEPTH TO WATER - 7.25

APTIM

Sample Collection Log

Location ID: 04WW05		Sample No: 04WW05-20021204								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	0915	100	.5	7.32	0.893	18.39	6.17	51.2	-60	0.77
	0920	100	1.0	7.38	0.945	18.81	6.10	44.5	-80	0.27
	0925	100	1.5	7.42	0.956	18.95	6.06	41.0	-86	0.10
	0930	100	2.0	7.45	0.957	19.03	6.05	40.4	-87	0.10
	0935	100	2.5	7.47	0.957	19.12	6.05	39.9	-88	0.09
↓	0940	100	3.0	7.49	0.957	19.18	6.05	39.3	-88	0.09

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW06**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 04WW06-200203 **DATE/TIME:** 2/3/20 1056 **Pump Inlet Depth:** 23.00

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/3/20 1105

Depth to Water - Initial (DTWi) (ft) 4.97

Purge End Date/Time: 2/3/20 1135

Depth to Well Bottom (ft) 28.07

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 18.00 - 28.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.00

Pump Start Time: 1105

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 4.97

APTIM

Sample Collection Log

Location ID: 04WW06		Sample No: 04WW06-200203								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	1110	100	.5	5.04	0.921	17.94	6.96	57.2	-1	0.80
↓	1115	100	1.0	5.09	0.963	18.12	7.24	49.3	-15	0.27
	1120	100	1.5	5.13	0.993	18.19	7.30	37.2	-15	0.06
	1125	100	2.0	5.15	0.993	18.25	7.31	36.8	-16	0.06
	1130	100	2.5	5.17	0.994	18.31	7.32	36.3	-16	0.05
↓	1135	100	3.0	5.18	0.994	18.37	7.32	35.9	-16	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **04WW07**

Project No: **501032** Sampler(s): Scott Beesinger

FIELD CONDITIONS OVERCAST

SAMPLING INFORMATION

Sample No: 04WW07-200204 **DATE/TIME:** 2/4/20 1038 **Pump Inlet Depth:** 17.50

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 500 mL HDPE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 1045

Depth to Water - Initial (DTWi) (ft) 5.27

Purge End Date/Time: 2/4/20 1115

Depth to Well Bottom (ft) 22.61

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.50 - 22.50

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.50

Pump Start Time: 1045

Ferrous Iron (Required (Y) or N) 1.31 mg/L

2ND DEPTH TO WATER - 5.27

APTIM

Sample Collection Log

Location ID: 04WW07				Sample No: 04WW07-20022.04						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	1050	100	.5	5.35	2.91	18.65	5.90	170	-162	0.75
|	1055	100	1.0	5.41	2.92	18.72	5.88	155	-233	0.22
|	1100	100	1.5	5.45	2.92	18.73	5.92	149	-258	0.06
|	1105	100	2.0	5.47	2.92	18.75	5.93	148	-259	0.06
|	1110	100	2.5	5.49	2.93	18.77	5.94	147	-259	0.05
↓	1115	100	3.0	5.51	2.93	18.79	5.94	147	-260	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **04WW08**

Project No: **501032** Sampler(s): Scott Bressinger

FIELD CONDITIONS

Clear/Sunny

SAMPLING INFORMATION

Sample No: 04WW08-20023 **DATE/TIME:** 2/3/20 0927 **Pump Inlet Depth:** 38.00

Sampling Method: **Sample Purpose: REG** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/3/20 0935

Depth to Water - Initial (DTWi) (ft) 15.92

Purge End Date/Time: 2/3/20 1005

Depth to Well Bottom (ft) 43.82

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 33.00 - 43.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 36.00

Pump Start Time: 0935

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 15.92

APTIM

Sample Collection Log

Location ID: 04WW08 Sample No: 04WW08-20023

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	0940	100	.5	16.00	3.19	17.95	7.29	65.3	82	0.83
	0945	100	1.0	16.05	3.17	17.97	7.28	62.1	51	0.31
	0950	100	1.5	16.09	3.17	18.01	7.29	55.8	30	0.09
	0955	100	2.0	16.12	3.16	18.08	7.29	55.4	29	0.09
	1000	100	2.5	16.14	3.16	18.15	7.30	54.7	28	0.08
↓	1005	100	3.0	16.15	3.16	18.17	7.30	54.3	27	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW09**

Project No: **501032**

Sampler(s): Scott Baesinger

FIELD CONDITIONS OVERCAST

SAMPLING INFORMATION

Sample No: 04WW09-200204 **DATE/TIME:** 2/4/20 1124 **Pump Inlet Depth:** 18.00

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 500 mL HDPE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 1135

Depth to Water - Initial (DTWi) (ft) 5.62

Purge End Date/Time: 2/4/20 1205

Depth to Well Bottom (ft) 23.45

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 13.00-23.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.00

Pump Start Time: 1135

Ferrous Iron (Required (Y) or N) 3.30 mg/L

2ND DEPTH TO WATER 5.62

APTIM

Sample Collection Log

Location ID: 04WW09		Sample No: 04WW09-2002204								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	1140	100	.5	5.70	2.02	19.88	6.19	1000	-158	0.81
↓	1145	100	1.0	5.76	2.01	19.50	5.21	1000	-81	0.26
	1150	100	1.5	5.80	2.01	19.47	5.02	1000	-77	0.09
	1155	100	2.0	5.83	2.01	19.41	5.01	1000	-76	0.09
	1200	100	2.5	5.85	2.01	19.38	5.00	1000	-75	0.09
↓	1205	100	3.0	5.87	2.01	19.36	4.99	1000	-74	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW09**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS OVERCAST

SAMPLING INFORMATION

Sample No: 04WW09-200204-FD **DATE/TIME:** 2/4/20 1124 **Pump Inlet Depth:** 18.00

Sampling Method: **Sample Purpose: FD** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 500 mL HDPE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 1135

Depth to Water - Initial (DTWi) (ft) 5.62

Purge End Date/Time: 2/4/20 1205

Depth to Well Bottom (ft) 23.45

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 13.00 - 23.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.00

Pump Start Time: 1135

Ferrous Iron (Required (Y) or N) 3.30 mg/L

APTIM

Sample Collection Log

Location ID: 04WW09			Sample No: 04WW09-200204-FD							
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	1140	100	.5	5.70	2.02	19.88	6.19	1000	-158	0.81
	1145	100	1.0	5.76	2.01	19.50	5.21	1000	-81	0.26
	1150	100	1.5	5.80	2.01	19.47	5.02	1000	-78	0.09
	1155	100	2.0	5.83	2.01	19.41	5.01	1000	-76	0.09
	1200	100	2.5	5.85	2.01	19.38	5.00	1000	-75	0.09
↓	1205	100	3.0	5.87	2.01	19.36	4.99	1000	-74	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW10**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS OVERCAST

SAMPLING INFORMATION

Sample No: 04WW10-20021204 **DATE/TIME:** 2/4/20 0951 **Pump Inlet Depth:** 17.00

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 500 mL HDPE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 1000

Depth to Water - Initial (DTWi) (ft) 6.91

Purge End Date/Time: 2/4/20 1030

Depth to Well Bottom (ft) 22.52

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 12.00 - 22.00

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.00

Pump Start Time: 1000

Ferrous Iron (Required (Y) or N) 1.80 mg/L

2ND DEPTH TO WATER -- 6.91

APTIM

Sample Collection Log

Location ID: 04WW10		Sample No: 04WW10-20021204								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	1005	100	.5	6.99	1.98	18.59	5.88	108	-69	0.83
	1010	100	1.0	7.05	2.01	18.80	5.91	101	-117	0.30
	1015	100	1.5	7.08	2.01	18.86	5.95	91.2	-146	0.08
	1020	100	2.0	7.10	2.00	18.91	5.95	90.6	-147	0.08
	1025	100	2.5	7.12	2.00	18.98	5.96	90.1	-148	0.08
↓	1030	100	3.0	7.13	2.00	19.02	5.96	89.6	-149	0.09

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **04WW11**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

OVERCAST

SAMPLING INFORMATION

Sample No: 04WW11-20020204 **DATE/TIME:** 2/4/20 0816 **Pump Inlet Depth:** 13.50

Sampling Method: **Sample Purpose: REG** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 0825

Depth to Water - Initial (DTWi) (ft) 5.40

Purge End Date/Time: 2/4/20 0855

Depth to Well Bottom (ft) 18.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 8.50 - 18.50

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.50

Pump Start Time: 0825

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 5.40

APTIM

Sample Collection Log

Location ID: 04WW11		Sample No: 04WW11-200204								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	0830	100	.5	5.48	1.36	17.41	5.57	59.3	-68	6.19
	0835	100	1.0	5.53	0.733	17.05	6.08	53.2	-83	5.71
	0840	100	1.5	5.55	0.688	16.97	6.12	50.7	-80	5.59
	0845	100	2.0	5.57	0.688	16.93	6.13	50.2	-80	5.56
	0850	100	2.5	5.59	0.689	16.86	6.14	49.6	-79	5.55
↓	0855	100	3.0	5.60	0.689	16.80	6.14	49.3	-79	5.54

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW11**

Sampler(s): Scott Beesinger

FIELD CONDITIONS OVRCAST

SAMPLING INFORMATION

Sample No: 04WW11-20021204-MS **DATE/TIME:** 2/4/20 0816 **Pump Inlet Depth:** 13.50

Sampling Method: **Sample Purpose: MS** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 0825

Depth to Water - Initial (DTWi) (ft) 5.40

Purge End Date/Time: 2/4/20 0855

Depth to Well Bottom (ft) 18.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 8.50 - 18.50

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.50

Pump Start Time: 0825

Ferrous Iron (Required Y or (N) _____ mg/L

APTIM

Sample Collection Log

Location ID: 04WW11				Sample No: 04WW11-20020404-MS						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	0830	100	.5	5.48	1.36	17.41	5.57	59.3	-68	6.19
	0835	100	1.0	5.53	0.733	17.05	6.08	53.2	-83	5.71
	0840	100	1.5	5.55	0.688	16.97	6.12	50.7	-80	5.59
	0845	100	2.0	5.57	0.688	16.93	6.13	50.2	-80	5.56
	0850	100	2.5	5.59	0.689	16.86	6.14	49.6	-79	5.55
	0855	100	3.0	5.60	0.689	16.80	6.14	49.3	-79	5.54

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW11**

Sampler(s): Scott Beesinger

FIELD CONDITIONS OVERCAST

SAMPLING INFORMATION

Sample No: 04WW11-200204-MSD **DATE/TIME:** 2/4/20 0816 **Pump Inlet Depth:** 13.50

Sampling Method: **Sample Purpose: MSD** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/4/20 0825

Depth to Water - Initial (DTWi) (ft) 5.40

Purge End Date/Time: 2/4/20 0855

Depth to Well Bottom (ft) 18.50

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 8.50 - 18.50

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.50

Pump Start Time: 0825

Ferrous Iron (Required for MW) _____ mg/L

APTIM

Sample Collection Log

Location ID: 04WW11		Sample No: 04WW11-2002.04-MSD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/4/20	0830	100	.5	5.48	1.36	17.41	5.57	59.3	-68	6.19
↓	0835	100	1.0	5.53	0.733	17.05	6.08	53.2	-83	5.71
	0840	100	1.5	5.55	0.688	16.97	6.12	50.7	-80	5.59
	0845	100	2.0	5.57	0.688	16.93	6.13	50.2	-80	5.56
	0850	100	2.5	5.59	0.689	16.86	6.14	49.6	-79	5.55
↓	0855	100	3.0	5.60	0.689	16.80	6.14	49.3	-79	5.54

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **LHSMW01**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear / Sunny

SAMPLING INFORMATION

Sample No: LHSMW01-200203 **DATE/TIME:** 02/03/20 0841 **Pump Inlet Depth:** 12.50

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/3/20 0850

Depth to Water - Initial (DTWi) (ft) 3.90

Purge End Date/Time: 2/3/20 0920

Depth to Well Bottom (ft) 17.95

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 7.50 - 17.50

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 12.50

Pump Start Time: 0850

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 3.90

APTIM

Sample Collection Log

Location ID: LHSMW01		Sample No: LHSMW01-200203								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	0855	100	.5	3.97	1.66	14.67	6.87	71.0	91	0.76
	0900	100	1.0	4.03	1.61	15.05	7.22	70.3	71	0.28
	0905	100	1.5	4.07	1.60	15.18	7.30	71.0	65	0.05
	0910	100	2.0	4.09	1.59	15.24	7.31	71.6	64	0.05
	0915	100	2.5	4.11	1.59	15.29	7.32	72.2	63	0.05
	0920	100	3.0	4.12	1.59	15.32	7.33	72.7	63	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **LHSMW02**

Project No: **501032**

Sampler(s): Scott Bellinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: LHSMW02-200203

DATE/TIME: 2/3/20 1141

Pump Inlet Depth: 14.50

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/3/20 1150

Depth to Water - Initial (DTWi) (ft) 13.53

Purge End Date/Time: 2/3/20 1220

Depth to Well Bottom (ft) 19.00

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 8.50 - 18.50

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 14.50

Pump Start Time: 1150

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 13.53

APTIM

Sample Collection Log

Location ID: LHSMW02				Sample No: LHSMW02-20023						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	1155	100	.5	13.60	1.60	17.58	7.26	81.2	18	0.71
	1200	100	1.0	13.65	1.62	17.55	7.33	75.7	12	0.22
	1205	100	1.5	13.69	1.62	17.53	7.35	72.1	8	0.04
	1210	100	2.0	13.72	1.63	17.51	7.35	71.7	8	0.04
	1215	100	2.5	13.74	1.63	17.49	7.36	71.2	7	0.03
↓	1220	100	3.0	13.76	1.63	17.47	7.36	70.7	7	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **LHSMW02**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: LHSMW02-200203-FD **DATE/TIME:** 2/3/20 1141 **Pump Inlet Depth:** 14.50

Sampling Method: **Sample Purpose: FD** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 2/3/20 1150

Depth to Water - Initial (DTWi) (ft) 13.53

Purge End Date/Time: 2/3/20 1220

Depth to Well Bottom (ft) 19.00

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 8.50 - 18.50

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 14.50

Pump Start Time: 1150

Ferrous Iron (Required Y or (N) _____ mg/L

APTIM

Sample Collection Log

Location ID: LHSMW02				Sample No: LHSMW02-200203-FD						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
2/3/20	1155	100	.5	13.60	1.60	17.58	7.26	81.2	18	0.71
	1200	100	1.0	13.65	1.62	17.55	7.33	75.7	12	0.22
	1205	100	1.5	13.69	1.62	17.53	7.35	72.1	8	0.04
	1210	100	2.0	13.72	1.63	17.51	7.35	71.7	8	0.04
	1215	100	2.5	13.74	1.63	17.49	7.36	71.2	7	0.03
	1220	100	3.0	13.76	1.63	17.47	7.36	70.7	7	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

01041456

EQUIPMENT CALIBRATION DAILY LOG

Date: 5/4/20

Project Number: 501032

Project Name: LHAAP-04

Recorded By: Scott BEASINGER

PID

Model:

Bulb: 10.6 meV

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	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER

Model:

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	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model: U-52 HORIBA

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time: 0630	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	07/20	9GG1216	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 8.95	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:

01041457

EQUIPMENT CALIBRATION DAILY LOG

Date: 5/5/20

Project Number: 501032

Project Name: LHAAP-04

Recorded By: Scott Beesinger

PID

Model:

Bulb: 10.6 meV

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	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER

Model:

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	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model: U-52 HORIBA

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time: 0650	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	07/20	9661216	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 8.96	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:

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW01**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear / Sunny

SAMPLING INFORMATION

Sample No: 04WW01-2005 04 **DATE/TIME:** 5/4/20 1228 **Pump Inlet Depth:** 21.73

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 1240

Depth to Water - Initial (DTWi) (ft) 6.25

Purge End Date/Time: 5/4/20 1310

Depth to Well Bottom (ft) 27.23

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.73 - 26.73

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.73

Pump Start Time: 1240

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 6.25

APTIM

Sample Collection Log

Location ID: 04WW01				Sample No: 04WW01-200504						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	1245	100	.5	6.32	2.36	23.33	6.48	160	-109	0.71
	1250	100	1.0	6.38	2.38	22.41	6.45	145	-130	0.27
	1255	100	1.5	6.43	2.38	22.21	6.46	141	-133	0.05
	1300	100	2.0	6.47	2.37	22.16	6.47	140	-134	0.05
	1305	100	2.5	6.49	2.37	22.10	6.47	139	-135	0.04
	1310	100	3.0	6.51	2.37	22.06	6.47	139	-135	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW02**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 04WW02-200504 **DATE/TIME:** 5/4/20 0650 **Pump Inlet Depth:** 21.90

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point: Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 0705

Depth to Water - Initial (DTWi) (ft) 9.35

Purge End Date/Time: 5/4/20 0785

Depth to Well Bottom (ft) 26.70

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.90 - 26.90

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.90

Pump Start Time: 0705

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND Depth TO WATER - 9.35

APTIM

Sample Collection Log

Location ID: 04WW02		Sample No: 04WW02-2005 04								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0710	100	.5	9.42	0.410	20.98	7.11	12.0	119	0.79
	0715	100	1.0	9.48	0.395	20.88	6.60	7.2	88	0.21
	0720	100	1.5	9.52	0.390	20.84	6.40	7.0	78	0.05
	0725	100	2.0	9.55	0.390	20.80	6.39	6.8	77	0.05
	0730	100	2.5	9.57	0.390	20.75	6.39	6.7	76	0.05
↓	0735	100	3.0	9.58	0.390	20.70	6.38	6.5	76	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW04**

Sampler(s): Scott Baesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW04-20050404 **DATE/TIME:** 5/4/20 1008 **Pump Inlet Depth:** 15.80

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/4/20 1015

Depth to Water - Initial (DTWi) (ft) 4.95

Purge End Date/Time: 5/4/20 1045

Depth to Well Bottom (ft) 21.55

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 15.80

Pump Start Time: 1015

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 4.95

APTIM

Sample Collection Log

Location ID: 04WW04		Sample No: 04WW04-200504								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	1020	100	.5	5.02	0.395	21.70	6.70	243	-90	2.08
	1025	100	1.0	5.08	0.390	21.67	6.51	207	-108	1.77
	1030	100	1.5	5.12	0.386	21.81	6.52	188	-109	1.57
	1035	100	2.0	5.15	0.385	21.86	6.53	187	-110	1.54
	1040	100	2.5	5.17	0.385	21.90	6.54	187	-111	1.52
	1045	100	3.0	5.18	0.385	21.94	6.54	186	-111	1.50

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW05**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 04WW05-20050404 **DATE/TIME:** 5/4/20 0709 **Pump Inlet Depth:** 23.70

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2

Depth to Water - Initial (DTWi) (ft) 6.55

Depth to Well Bottom (ft) 29.62

Screen Interval (ft): 18.70 - 28.70

Approximate depth of pump inlet*(ft): 23.70

Ferrous Iron (Required (Y) or N) 2.55 mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 5/4/20 0720

Purge End Date/Time: 5/4/20 0750

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0720

2ND DEPTH TO WATER - 6.55

APTIM

Sample Collection Log

Location ID: 04WW05 Sample No: 04WW05-2005 04

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0725	100	.5	6.62	0.896	21.83	6.61	55.3	-70	0.85
	0730	100	1.0	6.68	0.894	20.79	6.43	39.6	-84	0.27
	0735	100	1.5	6.72	0.894	20.30	6.43	33.1	-88	0.24
	0740	100	2.0	6.75	0.893	20.22	6.44	32.6	-89	0.23
	0745	100	2.5	6.77	0.893	20.16	6.44	32.2	-89	0.23
↓	0750	100	3.0	6.79	0.893	20.12	6.44	31.8	-90	0.22

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW06**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW06-2005 04 **DATE/TIME:** 5/4/20 0745 **Pump Inlet Depth:** 23.11

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 0755

Depth to Water - Initial (DTWi) (ft) 5.34

Purge End Date/Time: 5/4/20 0825

Depth to Well Bottom (ft) 28.11

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.11 - 28.11

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.11

Pump Start Time: 0755

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 5.34

APTIM

Sample Collection Log

Location ID: 04WW06				Sample No: 04WW06-200504						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0800	100	.5	5.40	1.29	20.30	6.96	15.1	113	0.80
	0805	100	1.0	5.46	1.30	20.11	6.95	13.5	105	0.29
	0810	100	1.5	5.50	1.30	20.06	6.94	13.2	105	0.09
	0815	100	2.0	5.52	1.31	20.00	6.95	12.9	106	0.09
	0820	100	2.5	5.54	1.31	19.96	6.95	12.5	106	0.08
	0825	100	3.0	5.55	1.30	19.92	6.94	12.2	106	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW06**

Sampler(s): Scott Baggsinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW06-2005 04-MS **DATE/TIME:** 5/4/20 0745 **Pump Inlet Depth:** 23.11

Sampling Method: **Sample Purpose: MS** **Sample Matrix: GW**

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 0755

Depth to Water - Initial (DTWi) (ft) 5.34

Purge End Date/Time: 5/4/20 0825

Depth to Well Bottom (ft) 28.11

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.11 - 28.11

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Approximate depth of pump inlet*(ft): 23.11

Pump Start Time: 0755

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water - 5.34

APTIM

Sample Collection Log

Location ID: 04WW06 Sample No: 04WW06-200504-MS

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0800	100	.5	5.40	1.29	20.30	6.96	15.1	113	0.80
	0805	100	1.0	5.46	1.30	20.11	6.95	13.5	105	0.29
	0810	100	1.5	5.50	1.30	20.06	6.94	13.2	105	0.09
	0815	100	2.0	5.52	1.31	20.00	6.95	12.9	106	0.09
	0820	100	2.5	5.54	1.31	19.96	6.95	12.5	106	0.08
↓	0825	100	3.0	5.55	1.30	19.92	6.94	12.2	106	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW06**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW06-2005**04**-MSD **DATE/TIME:** 5/4/20 0745 **Pump Inlet Depth:** 23.11

Sampling Method: **Sample Purpose: MSD** **Sample Matrix: GW**

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 0755

Depth to Water - Initial (DTWi) (ft) 5.34

Purge End Date/Time: 5/4/20 0825

Depth to Well Bottom (ft) 28.11

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 18.11 - 28.11

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.11

Pump Start Time: 0755

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 5.34

APTIM

Sample Collection Log

Location ID: 04WW06 Sample No: 04WW06-200504-MSD

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0800	100	.5	5.40	1.29	20.30	6.96	15.1	113	0.80
	0805	100	1.0	5.46	1.30	20.11	6.95	13.5	105	0.29
	0810	100	1.5	5.50	1.30	20.06	6.94	13.2	105	0.09
	0815	100	2.0	5.52	1.31	20.00	6.95	12.9	106	0.09
	0820	100	2.5	5.54	1.31	19.96	6.95	12.5	106	0.08
	0825	100	3.0	5.55	1.30	19.92	6.94	12.2	106	0.08

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW07**

Sampler(s): Scott Baggingar

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 04WW07-20050505

DATE/TIME: 5/5/20 0942

Pump Inlet Depth: 17.98

Sampling Method:

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 6.30

Depth to Well Bottom (ft) 22.98

Screen Interval (ft) 12.98 - 22.98

Approximate depth of pump inlet*(ft): 17.98

Ferrous Iron (Required Y or N) 0.97 mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 5/5/20 0950

Purge End Date/Time: 5/5/20 1020

Discharge Tube Length: NA

PID Reading: NA

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Pump Start Time: 0950

2ND Depth TO-WATER- 6.30

APTIM

Sample Collection Log

Location ID: 04WW07 Sample No: 04WW07-200505

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/5/20	~~0955~~	100	.5	6.38	2.37	20.48	7.13	73.2	-271	2.45
	1000	100	1.0	6.43	2.35	20.19	7.00	65.7	-300	2.22
	1005	100	1.5	6.47	2.34	20.16	7.00	62.8	-312	2.16
	1010	100	2.0	6.49	2.34	20.14	7.00	62.2	-313	2.14
	1015	100	2.5	6.51	2.33	20.11	6.99	61.6	-313	2.13
	1020	100	3.0	6.52	2.33	20.09	6.99	61.0	-314	2.12

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW08**

Sampler(s): Scott Beggsinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW08-2005**04** **DATE/TIME:** 5/4/20 1052 **Pump Inlet Depth:** 38.75

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 1100

Depth to Water - Initial (DTWi) (ft) 16.23

Purge End Date/Time: 5/4/20 1135

Depth to Well Bottom (ft) 43.90

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 33.75 - 43.75

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 38.75

Pump Start Time: 1100

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 16.23

APTIM

Sample Collection Log

Location ID: 04WW08 Sample No: 04WW08-200504

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	1105	100	.5	16.30	3.39	22.64	7.17	37.6	-82	0.87
	1110	100	1.0	16.36	3.44	22.75	7.00	48.9	-85	0.45
	1115	100	1.5	16.40	3.06	22.37	7.16	48.5	[redacted]	0.31
	1120	100	2.0	16.43	2.84	22.35	7.35	47.8	-156	0.28
	1125	100	2.5	16.45	2.84	22.33	7.36	47.2	-158	0.27
	1130	100	3.0	16.46	2.83	22.31	7.36	46.9	-159	0.27
	1135	100	3.5	16.46	2.83	22.30	7.37	46.7	-160	0.26

-135

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW09**

Sampler(s): Scott Baggenger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 04WW09-200505 **DATE/TIME:** 5/5/20 0800 **Pump Inlet Depth:** 18.14

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/5/20 0810

Depth to Water - Initial (DTWi) (ft) 4.43

Purge End Date/Time: 5/5/20 0840

Depth to Well Bottom (ft) 23.47

Discharge Tube Length: NA PID Reading: N

Screen Interval (ft): 13.14 - 23.14

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.14

Pump Start Time: 0810

Ferrous Iron (Required (Y) or N) 3.30 mg/L

2ND DEPTH TO WATER - 4.43

APTIM

Sample Collection Log

Location ID: 04WW09 Sample No: 04WW09-200505

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/5/20	0815	100	.5	4.51	1.88	21.77	4.99	415	-1	0.70
	0820	100	1.0	4.57	1.88	21.52	4.97	392	-10	0.22
	0825	100	1.5	4.61	1.88	21.39	4.97	382	-14	0.05
	0830	100	2.0	4.63	1.88	21.33	4.98	381	-15	0.05
	0835	100	2.5	4.64	1.88	21.25	4.98	380	-16	0.04
↓	0840	100	3.0	4.65	1.88	21.20	4.98	380	-16	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy / RAIN

SAMPLING INFORMATION

Sample No: 04WW10-20050505 **DATE/TIME:** 5/5/20 0850 **Pump Inlet Depth:** 17.27

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER PUMP

Casing ID (in.): 4"

Purge Start Date/Time: 5/5/20 0900

Depth to Water - Initial (DTWi) (ft) 6.65

Purge End Date/Time: 5/5/20 0930

Depth to Well Bottom (ft) 22.53

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.27 - 22.27

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.27

Pump Start Time: 0900

Ferrous Iron (Required (Y) or N) 1.08 mg/L

2ND DEPTH TO WATER - 6.65

APTIM

Sample Collection Log

Location ID: 04WW10 Sample No: 04WW10-200505

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/5/20	0905	100	.5	6.72	3.69	20.84	6.52	17.0	-196	3.16
	0910	100	1.0	6.78	3.81	20.45	6.75	14.3	-254	2.85
	0915	100	1.5	6.82	3.78	20.20	6.83	12.0	-283	2.76
	0920	100	2.0	6.85	3.78	20.15	6.84	11.8	-284	2.74
	0925	100	2.5	6.87	3.77	20.09	6.85	11.4	-285	2.73
↓	0930	100	3.0	6.89	3.77	20.05	6.85	11.1	-286	2.72

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Bressingar

FIELD CONDITIONS

Cloudy / Rain

SAMPLING INFORMATION

Sample No: 04WW10-200505 FD **DATE/TIME:** 5/5/20 0850 **Pump Inlet Depth:** 17.27

Sampling Method: **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point: Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/5/20 0900

Depth to Water - Initial (DTWi) (ft) 6.65

Purge End Date/Time: 5/5/20 0930

Depth to Well Bottom (ft) 22.53

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 12.27 - 22.27

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.27

Pump Start Time: 0900

Ferrous Iron (Required (Y) or N) _____ mg/L

2ND DEPTH TO WATER - 6.65

APTIM

Sample Collection Log

Location ID: 04WW10		Sample No: 04WW10-200505 FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/5/20	0905	100	.5	6.72	3.69	20.84	6.52	17.0	-196	3.16
	0910	100	1.0	6.78	3.81	20.45	6.75	14.3	-254	2.85
	0915	100	1.5	6.82	3.78	20.20	6.83	12.0	-283	2.76
	0920	100	2.0	6.85	3.78	20.15	6.84	11.8	-284	2.74
	0925	100	2.5	6.87	3.77	20.09	6.85	11.4	-285	2.73
↓	0930	100	3.0	6.89	3.77	20.05	6.85	11.1	-286	2.72

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW01**

Sampler(s): Scott Bressinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: LHSMW01-20050504 **DATE/TIME:** 5/4/20 1142 **Pump Inlet Depth:** 12.74

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 4.86

Depth to Well Bottom (ft) 17.95

Screen Interval (ft): 7.74 - 17.74

Approximate depth of pump inlet*(ft): 12.74

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 5/4/20 1150

Purge End Date/Time: 5/4/20 1220

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1150

2nd Depth to water - 4.86

APTIM

Sample Collection Log

Location ID: LHSMW01				Sample No: LHSMW01-200504						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	1155	100	.5	4.93	2.10	22.15	7.12	10.5	60	0.72
	1200	100	1.0	4.99	2.03	21.37	6.67	8.0	83	0.24
	1205	100	1.5	5.03	2.01	21.24	6.58	7.7	93	0.06
	1210	100	2.0	5.05	2.00	21.18	6.57	7.4	94	0.06
	1215	100	2.5	5.06	2.00	21.13	6.57	7.0	95	0.05
↓	1220	100	3.0	5.06	2.00	21.08	6.57	6.7	96	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW02**

Sampler(s): Scott Baggenger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: LHSMW02-20050404 **DATE/TIME:** 5/4/20 0833 **Pump Inlet Depth:** 12.18

Sampling Method: **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 0840

Depth to Water - Initial (DTWi) (ft) 8.64

Purge End Date/Time: 5/4/20 0910

Depth to Well Bottom (ft) 18.98

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 7.18 - 17.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 12.18

Pump Start Time: 0840

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 8.64

APTIM

Sample Collection Log

Location ID: LHSMW02		Sample No: LHSMW02-2005 04								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0845	100	.5	8.78	0.179	19.41	7.12	16.8	120	1.05
	0850	100	1.0	8.78	0.154	18.50	6.21	12.9	163	0.78
	0855	100	1.5	8.82	0.144	18.10	6.00	12.7	167	0.59
	0900	100	2.0	8.85	0.143	17.99	5.99	12.4	168	0.58
	0905	100	2.5	8.87	0.143	17.94	5.98	12.2	169	0.57
	0910	100	3.0	8.89	0.143	17.89	5.97	12.0	170	0.54

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW02**

Sampler(s): Scott Baggingar

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: LHSMW02-200504-FD **DATE/TIME:** 5/4/20 0833 **Pump Inlet Depth:** 12.18

Sampling Method: **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/4/20 0840

Depth to Water - Initial (DTWi) (ft) 8.64

Purge End Date/Time: 5/4/20 0910

Depth to Well Bottom (ft) 18.98

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 7.18-17.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 12.18

Pump Start Time: 0840

Ferrous Iron (Required Y or (N) _____ mg/L

2nd Depth TO WATER - 8.64

APTIM

Sample Collection Log

Location ID: LHSMW02				Sample No: LHSMW02-2005 04-FD						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/4/20	0845	100	.5	8.72	0.179	19.41	7.12	16.8	120	1.05
	0850	100	1.0	8.78	0.154	18.50	6.21	12.9	163	0.78
	0855	100	1.5	8.82	0.144	18.10	6.00	12.7	167	0.59
	0900	100	2.0	8.85	0.143	17.99	5.99	12.4	168	0.58
	0905	100	2.5	8.87	0.143	17.94	5.98	12.2	169	0.57
↓	0910	100	3.0	8.89	0.143	17.89	5.97	12.0	170	0.56

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

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: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: 04LHAAP_Performance Monitoring 05_20ALS	
Prepared By: Scott Beesinger	P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	Analyses: TOC by SM5310	Analyses: Anions (nitrate, nitrite and sulfate) by SW9056 and Alkalinity by SM2320B	Remarks (Preservatives, etc.)	Lab I.D.#
LHSmw01-200810	WG	8/10/20/0750		1	X				
04ww04-200810	WG	8/10/20/0835		1	X				
04ww08-~~200810~~ 200810	WG	8/10/20/0920		1	X				
04ww08-200810-FD	WG	8/10/20/0920		1	X				
04ww02-200810	WG	8/10/20/1000		1	X				
04ww06-200810	WG	8/10/20/1045		1	X				
LHSmw02-200810	WG	8/10/20/1130		1	X				
04ww11-200810	WG	8/10/20/1215		1	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	8/11/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

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

Project No. 501032

Job: 04LHAAP_Performance Monitoring 05_20ALS

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	TOC by SM5310	Anions (nitrate, nitrite and sulfate) by SW9056 and Alkalinity by SM2320B	Remarks (Preservatives, etc.)	Lab
04WW01-200810	WG	8/10/20/1300		1	X				
04WW05-200811	WG	8/11/20/1025		4	X	X	X		
04WW09-200811	WG	8/11/20/1115		4	X	X	X		
04WW10-200811	WG	8/11/20/1200		4	X	X	X		
04WW10-200811-MS	WG	8/11/20/1200		4	X	X	X		
04WW10-200811-MSD	WG	8/11/20/1200		4	X	X	X		
04WW07-200811	WG	8/11/20/1250		4	X	X	X		
04WW07-200811-FD	WG	8/11/20/1250		4	X	X	X		

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.c

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date
Scott Beesinger	8/11/20	1430								

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**
Project No: **501032**

Location ID: **04WW01**
Sampler(s): Scott Bressinear

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW01-2008 16 **DATE/TIME:** 8/10/20 1221 **Pump Inlet Depth:** 21.73

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing
Purging Method/Equipment: Low Flow/Bladder Pump
Casing ID (in.): 4"
Purge Start Date/Time: 8/10/20 1230
Depth to Water - Initial (DTWi) (ft) 9.50
Purge End Date/Time: 8/10/20 1300
Depth to Well Bottom (ft) 27.22
Discharge Tube Length: NA
PID Reading: NA
Screen Interval (ft): 16.73 - 26.73
Discharge Tube Diameter: 1/4"
Immersible Layer: Y / (N)
Approximate depth of pump inlet*(ft): 21.73
Pump Start Time: 1230
Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 9.50

APTIM

Sample Collection Log

Location ID: 04WW01 Sample No: 04WW01-2008ID

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	1235	100	.5	9.58	2.96	26.39	4.84	151	-93	0.77
	1240	100	1.0	9.64	2.95	25.71	5.47	122	-130	0.21
	1245	100	1.5	9.67	2.95	25.58	5.70	109	-187	0.06
	1250	100	2.0	9.69	2.95	25.52	5.71	108	-188	0.06
	1255	100	2.5	9.71	2.95	25.46	5.72	107	-190	0.06
	1300	100	3.0	9.72	2.95	25.40	5.73	106	-191	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW02**

Sampler(s): Scott Bressinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW02-2008_16 **DATE/TIME:** 8/10/20 0924 **Pump Inlet Depth:** 21.90

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 8/10/20 0930

Depth to Water - Initial (DTWi) (ft) 8.31

Purge End Date/Time: 8/10/20 1000

Depth to Well Bottom (ft) 26.70

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.90-26.90

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.90

Pump Start Time: 0930

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER- 8.31

APTIM

Sample Collection Log

Location ID: 04WW02		Sample No: 04WW02-2008 10								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	0935	100	.5	8.38	0.534	27.00	5.31	7.3	126	0.75
	0940	100	1.0	8.44	0.389	27.23	5.93	4.4	66	0.24
	0945	100	1.5	8.48	0.348	27.27	6.00	3.0	66	0.10
	0950	100	2.0	8.51	0.347	27.30	6.01	1.8	67	0.09
	0955	100	2.5	8.53	0.347	27.34	6.01	0.7	67	0.09
↓	1000	100	3.0	8.55	0.347	27.37	6.02	0.0	67	0.09

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW04**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW04-2008 **DATE/TIME:** 8/10/20 0757 **Pump Inlet Depth:** 15.80

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 8/10/20 0805

Depth to Water - Initial (DTWi) (ft) 7.12

Purge End Date/Time: 8/10/20 0835

Depth to Well Bottom (ft) 21.57

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 15.80

Pump Start Time: 0805

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 7.12

APTIM

Sample Collection Log

Location ID: 04WW04		Sample No: 04WW04-2008[10]								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	0810	100	.5	7.20	0.316	25.90	4.56	108	[redacted] 14	0.71
	0815	100	1.0	7.25	0.345	25.62	5.59	90.8	-22	0.26
	0820	100	1.5	7.29	0.359	25.40	6.07	84.0	-42	0.06
	0825	100	2.0	7.31	0.360	25.36	6.07	83.7	-43	0.06
	0830	100	2.5	7.33	0.360	25.33	6.08	83.3	-44	0.05
	0835	100	3.0	7.34	0.360	25.28	6.08	[redacted] 82.9	-45	0.05

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW05**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 04WW05-20081 1 **DATE/TIME:** 8/11/20 0945 **Pump Inlet Depth:** 23.70

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 8.95

Depth to Well Bottom (ft) 29.62

Screen Interval (ft): 18.70 - 28.70

Approximate depth of pump inlet*(ft): 23.70

Ferrous Iron (Required Y or N) 0.73 mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 8/11/20 0955

Purge End Date/Time: 8/11/20 1025

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0955

2ND DEPTH TO WATER - 8.95

APTIM

Sample Collection Log

Location ID: 04WW05				Sample No: 04WW05-200811						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/11/20	1000	100	.5	9.03	1.14	26.21	5.69	73.2	-20	0.86
	1005	100	1.0	9.09	1.27	25.42	5.91	59.7	-40	0.33
	1010	100	1.5	9.12	1.27	25.33	6.24	52.7	-63	0.15
	1015	100	2.0	9.15	1.27	25.28	6.25	52.3	-64	0.15
	1020	100	2.5	9.17	1.27	25.23	6.25	51.8	-65	0.14
↓	1025	100	3.0	9.18	1.27	25.19	6.26	51.2	-66	0.14

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW06**

Sampler(s): Scott Bessinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW06-2008 16 **DATE/TIME:** 8/10/20 1007 **Pump Inlet Depth:** 23.11

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 7.91

Depth to Well Bottom (ft) 28.08

Screen Interval (ft): 18.11 - 28.11

Approximate depth of pump inlet*(ft): 23.11

Ferrous Iron (Required Y or N) (N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 8/10/20 1015

Purge End Date/Time: 8/10/20 1045

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Pump Start Time: 1015

2ND DEPTH TO WATER - 7.91

APTIM

Sample Collection Log

Location ID: 04WW06		Sample No: 04WW06-2008 10								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	1020	100	.5	7.98	1.40	27.27	6.96	3.1	44	0.65
↓	1025	100	1.0	8.04	1.51	26.00	6.67	1.9	44	0.22
	1030	100	1.5	8.07	1.55	25.81	6.52	1.1	43	0.05
	1035	100	2.0	8.10	1.56	25.75	6.52	0.7	42	0.05
	1040	100	2.5	8.12	1.54	25.68	6.51	0.0	41	0.05
↓	1045	100	3.0	8.14	1.56	25.63	6.51	0.0	41	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW07**

Sampler(s): Scott Baesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW07-2008 11 **DATE/TIME:** 8/11/20 1212 **Pump Inlet Depth:** 17.98

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 8.41

Depth to Well Bottom (ft) 22.63

Screen Interval (ft): 12.98 - 22.98

Approximate depth of pump inlet*(ft): 17.98

Ferrous Iron (Required (Y) or (N)) 1.17 mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 8/11/20 1220

Purge End Date/Time: 8/11/20 1250

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Pump Start Time: 1220

2ND Depth to water - 8.41

APTIM

Sample Collection Log

Location ID: 04WW07		Sample No: 04WW07-2008_11								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/11/20	1225	100	.5	8.49	2.40	29.90	5.94	50.7	-56	0.63
	1230	100	1.0	8.55	2.35	29.17	5.98	43.5	-90	0.20
	1235	100	1.5	8.58	2.25	29.02	6.08	40.9	-109	0.05
	1240	100	2.0	8.60	2.25	28.93	6.09	40.2	-110	0.05
	1245	100	2.5	8.61	2.24	28.86	6.09	39.6	-111	0.05
↓	1250	100	3.0	8.62	2.24	28.80	6.10	39.3	-112	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW07**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 04WW07-2008**11**-FD **DATE/TIME:** 8/11/20 1212 **Pump Inlet Depth:** 17.98

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 8.41

Depth to Well Bottom (ft) 22.63

Screen Interval (ft): 12.98 - 22.98

Approximate depth of pump inlet*(ft): 17.98

Ferrous Iron (Required (Y) or N) 1.17 mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 8/11/20 1220

Purge End Date/Time: 8/11/20 1250

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1220

2ND DEPTH TO WATER-8.41

APTIM

Sample Collection Log

Location ID: 04WW07		Sample No: 04WW07-2008 11 -FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/11/20	1225	100	.5	8.49	2.40	29.90	5.94	50.7	-56	0.63
	1230	100	1.0	8.55	2.35	29.17	5.98	43.5	-90	0.20
	1235	100	1.5	8.58	2.25	29.02	6.08	40.9	-109	0.05
	1240	100	2.0	8.60	2.25	28.93	6.09	40.2	-110	0.05
	1245	100	2.5	8.61	2.24	28.86	6.09	39.6	-111	0.05
	1250	100	3.0	8.62	2.24	28.80	6.10	39.3	-112	0.04

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW08**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW08-2008 10 **DATE/TIME:** 8/10/20 0842 **Pump Inlet Depth:** 38.75

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 8/10/20 0850

Depth to Water - Initial (DTWi) (ft) 16.79

Purge End Date/Time: 8/10/20 0920

Depth to Well Bottom (ft) 43.93

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 33.75 - 43.75

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 38.75

Pump Start Time: 0850

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 16.79

APTIM

Sample Collection Log

Location ID: 04WW08 Sample No: 04WW08-2008 10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	0855	100	.5	16.87	2.38	25.57	6.08	11.7	-19	0.69
	0900	100	1.0	16.93	3.69	24.20	6.40	8.3	-23	0.23
	0905	100	1.5	16.97	3.80	24.05	6.63	7.4	-23	0.07
	0910	100	2.0	17.00	3.81	23.99	6.64	6.7	-24	0.07
	0915	100	2.5	17.02	3.82	23.93	6.65	6.1	-25	0.06
	0920	100	3.0	17.03	3.82	23.89	6.65	5.8	-25	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW08**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW08-2008 10 -FD **DATE/TIME:** 8/10/20 **Pump Inlet Depth:** 38.75

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4

Depth to Water - Initial (DTWi) (ft) 16.79

Depth to Well Bottom (ft) 43.43

Screen Interval (ft): 33.75 - 43.75

Approximate depth of pump inlet*(ft): 38.75

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low flow / BLADDER Pump

Purge Start Date/Time: 8/10/20 0850

Purge End Date/Time: 8/10/20 0920

Discharge Tube Length: NA PID Reading: NM

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Pump Start Time: 0850

2ND DEPTH TO WATER - 16.79

APTIM

Sample Collection Log

Location ID: 04WW08		Sample No: 04WW08-2008 10 -FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	0855	100	.5	16.87	2.38	25.57	6.08	11.7	-19	0.69
	0900	100	1.0	16.93	3.69	24.20	6.40	8.3	-23	0.23
	0905	100	1.5	16.97	3.80	24.05	6.63	7.4	-23	0.07
	0910	100	2.0	17.00	3.81	23.99	6.64	6.7	-24	0.07
	0915	100	2.5	17.02	3.82	23.93	6.65	6.1	-25	0.06
	0920	100	3.0	17.03	3.82	23.89	6.65	5.8	-25	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW09**

Sampler(s): Scott Bassinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW09-20081 1 **DATE/TIME:** 8/11/20 1036 **Pump Inlet Depth:** 18.14

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 8/11/20 1045

Depth to Water - Initial (DTWi) (ft) 5.81

Purge End Date/Time: 8/11/20 1115

Depth to Well Bottom (ft) 23.48

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 13.14 - 23.14

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.14

Pump Start Time: 1045

Ferrous Iron (Required Y or N) 1.38 mg/L

2ND DEPTH TO WATER - 5.81

APTIM

Sample Collection Log

Location ID: 04WW09 Sample No: 04WW09-2008 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/11/20	1050	100	.5	5.88	1.76	29.62	5.25	101	-44	0.75
	1055	100	1.0	5.94	1.77	28.91	5.33	88.3	-65	0.23
	1100	100	1.5	5.98	1.77	28.80	5.50	82.6	-85	0.04
	1105	100	2.0	6.01	1.77	28.73	5.51	82.1	-86	0.04
	1110	100	2.5	6.03	1.77	28.69	5.52	81.5	-86	0.03
	1115	100	3.0	6.05	1.77	28.66	5.52	81.0	-87	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW10-2008 11 **DATE/TIME:** 8/11/20 1123 **Pump Inlet Depth:** 17.27

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 8/11/20 1130

Depth to Water - Initial (DTWi) (ft) 8.20

Purge End Date/Time: 8/11/20 1200

Depth to Well Bottom (ft) ~~22.55~~ 22.55

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 12.27 - 22.27

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.27

Pump Start Time: 1130

Ferrous Iron (Required (Y) or N) 0.89 mg/L

2ND DEPTH TO WATER - 8.20

APTIM

Sample Collection Log

Location ID: 04WW10				Sample No: 04WW10-2008_11						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/11/20	1135	100	.5	8.27	4.81	30.11	5.17	2.4	-20	1.65
	1140	100	1.0	8.33	5.28	28.75	6.08	1.3	-40	1.21
	1145	100	1.5	8.37	5.10	27.65	6.32	0.6	-46	1.07
	1150	100	2.0	8.39	5.09	27.56	6.33	0.0	-46	1.05
	1155	100	2.5	8.41	5.08	27.47	6.34	0.0	-47	1.04
	1200	100	3.0	8.42	5.08	27.39	6.34	0.0	-47	1.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW10-2008_11_-MS **DATE/TIME:** 8/11/20 1123 **Pump Inlet Depth:** 17.27

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER PUMP

Casing ID (in.): 4"

Purge Start Date/Time: 8/11/20 1130

Depth to Water - Initial (DTWi) (ft) 8.20

Purge End Date/Time: 8/11/20 1200

Depth to Well Bottom (ft) 22.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.27 - 22.27

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.27

Pump Start Time: 1130

Ferrous Iron (Required (Y) or N) 0.89 mg/L

2ND DEPTH TO WATER - 8.20

APTIM

Sample Collection Log

Location ID: 04WW10				Sample No: 04WW10-2008_11_-MS						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/[illegible]/20	1135	100	.5	8.27	4.81	30.11	5.17	2.4	-20	1.65
	1140	100	1.0	8.33	5.28	28.75	6.08	1.3	-40	1.21
	1145	100	1.5	8.37	5.10	27.65	6.32	0.6	-46	1.07
	1150	100	2.0	8.39	5.09	27.56	6.33	0.0	-46	1.05
	1155	100	2.5	8.41	5.08	27.47	6.34	0.0	-47	1.04
	1200	100	3.0	8.42	5.08	27.39	6.34	0.0	-47	1.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW10-2008 11 -MSD **DATE/TIME:** 8/11/20 1123 **Pump Inlet Depth:** 17.27

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 8.20

Depth to Well Bottom (ft) 22.55

Screen Interval (ft): 12.27 - 22.27

Approximate depth of pump inlet*(ft): 17.27

Ferrous Iron (Required (Y) or N) 0.89 mg/L

Purging Method/Equipment: Low flow / BLADDAR Pump

Purge Start Date/Time: 8/11/20 1130

Purge End Date/Time: 8/11/20 1200

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Pump Start Time: 1130

2ND DEPTH TO WATER - 8.20

APTIM

Sample Collection Log

Location ID: 04WW10 Sample No: 04WW10-2008**11**-MSD

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/11/20	1135	100	.5	8.27	4.81	30.11	5.17	2.4	-20	1.65
	1140	100	1.0	8.33	5.28	28.75	6.08	1.3	-40	1.21
	1145	100	1.5	8.37	5.10	27.65	6.32	0.6	-46	1.07
	1150	100	2.0	8.39	5.09	27.56	6.33	0.0	-46	1.05
	1155	100	2.5	8.41	5.08	27.47	6.34	0.0	-47	1.04
	1200	100	3.0	8.42	5.08	27.39	6.34	0.0	-47	1.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW11**

Sampler(s): Scott Bussinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW11-20081O **DATE/TIME:** 8/10/20 1136 **Pump Inlet Depth:** 13.20

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow /BLADDER Pump

Casing ID (in.): 4 11

Purge Start Date/Time: 8/10/20 1145

Depth to Water - Initial (DTWi) (ft) 8.75

Purge End Date/Time: 8/10/20 1215

Depth to Well Bottom (ft) 18.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 8.20 - 18.20

Discharge Tube Diameter: 1/4 11 Immersible Layer: Y /(N)

Approximate depth of pump inlet*(ft): 13.20

Pump Start Time: 1145

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 8.75

APTIM

Sample Collection Log

Location ID: 04WW11 **Sample No: 04WW11-2008 10**

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	1150	100	.5	8.82	0.577	28.77	5.36	0.8	142	0.70
	1155	100	1.0	8.88	0.591	28.18	6.16	0.0	85	0.20
	1200	100	1.5	8.92	0.606	28.01	6.24	0.0	74	0.04
	1205	100	2.0	8.95	0.607	27.93	6.25	0.0	73	0.04
	1210	100	2.5	8.97	0.607	27.85	6.25	0.0	72	0.04
↓	1215	100	3.0	8.98	0.607	27.80	6.26	0.0	72	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW01**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: LHSMW01-2008 10 **DATE/TIME:** 8/10/20 0710 **Pump Inlet Depth:** 12.74

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 8/10/20 0720

Depth to Water - Initial (DTWi) (ft) 7.71

Purge End Date/Time: 8/10/20 0750

Depth to Well Bottom (ft) 17.90

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 7.74 - 17.74

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 12.74

Pump Start Time: 0720

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 7.71

APTIM

Sample Collection Log

Location ID: LHSMW01				Sample No: LHSMW01-2008 10						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	0725	100	.5	7.80	0.722	26.10	5.17	2.3	171	0.99
	0730	100	1.0	7.86	0.500	25.43	5.38	1.2	147	0.67
	0735	100	1.5	7.90	0.355	25.36	5.59	0.8	145	0.52
	0740	100	2.0	7.93	0.355	25.30	5.60	0.3	144	0.51
	0745	100	2.5	7.95	0.354	25.25	5.61	0.0	143	0.51
	0750	100	3.0	7.97	0.354	25.20	5.61	0.0	143	0.50

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW02**

Sampler(s): Scott Bessinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: LHSMW02-200810 **DATE/TIME:** 8/10/20 1052 **Pump Inlet Depth:** ~~13.00~~ 13.00

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 8/10/20 1100

Depth to Water - Initial (DTWi) (ft) 12.00

Purge End Date/Time: 8/10/20 1130

Depth to Well Bottom (ft) 19.00

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 7.18 - 17.18

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): ~~13.00~~ 13.00

Pump Start Time: 1100

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER

APTIM

Sample Collection Log

Location ID: LHSMW02		Sample No: LHSMW02-2008 10								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
8/10/20	1105	100	.5	12.07	0.487	26.73	5.93	1.4	155	0.77
	1110	100	1.0	12.13	0.340	26.01	5.72	1.0	158	0.28
	1115	100	1.5	12.17	0.274	25.81	5.53	0.5	163	0.08
	1120	100	2.0	12.20	0.274	25.73	5.52	0.0	164	0.08
	1125	100	2.5	12.22	0.273	25.67	5.51	0.0	165	0.07
	1130	100	3.0	12.24	0.273	25.60	5.50	0.0	165	0.07

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

01041522

EQUIPMENT CALIBRATION DAILY LOG

Date:	11/4/20	Project Name:	LHAAP-04
Project Number:	501032	Recorded By:	Scott Beesinger

PID	Model:		Bulb: 10.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model: U-52 HORIBA				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time: 0605	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	11/20	9GK061	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 9.01	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:

01041523

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/5/20

Project Number: 501032

Project Name: LHAAP 04

Recorded By: Scott Beesinger

PID

Model:

Bulb: 10.6 meV

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	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER

Model:

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	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model: U-52 HORIBA

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot#	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time: 0635	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	11/20	9G1L061	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 9.0	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:

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW01**

Sampler(s): Scott Bressinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW01-201104 **DATE/TIME:** 11/4/20 1136 **Pump Inlet Depth:** 21.73

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/4/20 1140

Depth to Water - Initial (DTWi) (ft) 10.10

Purge End Date/Time: 11/4/20 1210

Depth to Well Bottom (ft) 27.22

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 16.73 - 26.73

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 21.73

Pump Start Time: 1140

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 10.10

APTIM

Sample Collection Log

Location ID: 04WW01		Sample No: 04WW01-201104								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	1145	100	.5	10.17	3.12	20.70	6.73	16.6	-77	0.70
	1150	100	1.0	10.23	3.16	20.72	6.71	13.9	-98	0.19
	1155	100	1.5	10.27	3.16	20.74	6.71	13.7	-113	0.04
	1200	100	2.0	10.30	3.15	20.77	6.70	13.4	-114	0.04
	1205	100	2.5	10.32	3.15	20.79	6.70	13.2	-114	0.03
↓	1210	100	3.0	10.34	3.15	20.82	6.70	13.0	-115	0.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW02**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW02-201104 **DATE/TIME:** 11/4/20 0844 **Pump Inlet Depth:** 21.90

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 7.82

Depth to Well Bottom (ft) 26.67

Screen Interval (ft): 16.90-26.90

Approximate depth of pump inlet*(ft): 21.90

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 11/4/20 0850

Purge End Date/Time: 11/4/20 0920

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0850

2ND Depth to water-7.82

APTIM

Sample Collection Log

Location ID: 04WW02				Sample No: 04WW02-2011_04						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	0855	100	.5	7.90	0.378	21.10	6.48	4.5	10	0.85
	0900	100	1.0	7.95	0.331	22.12	6.25	2.9	33	0.62
	0905	100	1.5	7.99	0.312	22.36	6.08	2.4	57	0.59
	0910	100	2.0	8.02	0.311	22.43	6.07	1.7	58	0.58
	0915	100	2.5	8.04	0.311	22.48	6.06	1.0	59	0.58
↓	0920	100	3.0	8.06	0.311	22.52	6.05	0.5	60	0.57

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW04**

Sampler(s): Scott Baggingar

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW04-201104 **DATE/TIME:** 11/4/20 0725 **Pump Inlet Depth:** 15.80

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/4/20 0730

Depth to Water - Initial (DTWi) (ft) 7.05

Purge End Date/Time: 11/4/20 0800

Depth to Well Bottom (ft) 21.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 10.80 - 20.80

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 15.80

Pump Start Time: 0730

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water 7.05

APTIM

Sample Collection Log

Location ID: 04WW04		Sample No: 04WW04-2011 04								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%	16.82	±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	0735	100	.5	7.12	0.284	[illegible]	5.46	267	214	0.75
	0740	100	1.0	7.17	0.300	17.89	5.07	245	152	0.50
	0745	100	1.5	7.20	0.319	18.15	5.04	233	130	0.47
	0750	100	2.0	7.22	0.319	18.24	5.03	232	129	0.47
	0755	100	2.5	7.23	0.320	18.31	5.03	231	128	0.46
	0800	100	3.0	7.24	0.320	18.37	5.03	230	127	0.45

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW05**

Sampler(s): Scott Baesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW05-201105 **DATE/TIME:** 11/5/20 0655 **Pump Inlet Depth:** 23.70

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/5/20 0705

Depth to Water - Initial (DTWi) (ft) 9.66

Purge End Date/Time: 11/5/20 0735

Depth to Well Bottom (ft) 29.57

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.70 - 28.70

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.70

Pump Start Time: 0705

Ferrous Iron (Required (Y) or N) 3.30 mg/L

2ND DEPTH TO WATER - 9.66

APTIM

Sample Collection Log

Location ID: 04WW05		Sample No: 04WW05-201105								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/5/20	~~0800~~ 0710	100	.5	9.73	1.39	15.85	6.94	37.3	[redacted]	0.77
	0715	100	1.0	9.79	1.57	16.21	6.63	30.5	-16	0.32
	0720	100	1.5	9.83	1.64	16.45	6.56	28.0	-34	0.16
	0725	100	2.0	9.87	1.65	16.54	6.56	27.7	-35	0.15
	0730	100	2.5	9.89	1.66	16.61	6.57	27.2	-36	0.15
↓	0735	100	3.0	9.91	1.66	16.68	6.55	26.6	-36	0.15

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW06**

Sampler(s): Scott Baesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW06-201104 **DATE/TIME:** 11/4/20 0926 **Pump Inlet Depth:** 23.11

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/4/20 0930

Depth to Water - Initial (DTWi) (ft) 7.84

Purge End Date/Time: 11/4/20 1000

Depth to Well Bottom (ft) 28.05

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 18.11 - 28.11

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 23.11

Pump Start Time: 0930

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 7.84

APTIM

Sample Collection Log

Location ID: 04WW06				Sample No: 04WW062011 04						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	0935	100	.5	7.91	1.44	22.95	6.57	4.5	77	0.80
	0940	100	1.0	7.97	1.58	23.22	6.65	2.1	58	0.44
	0945	100	1.5	8.01	1.70	23.45	6.70	1.0	39	0.15
	0950	100	2.0	8.04	1.71	23.54	6.71	0.4	38	0.15
	0955	100	2.5	8.06	1.72	23.59	6.72	0.0	37	0.14
↓	1000	100	3.0	8.08	1.72	23.66	6.73	0.0	37	0.14

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW07**

Sampler(s): Scott Baggingar

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW07-2011 05 **DATE/TIME:** 11/5/20 0927 **Pump Inlet Depth:** 17.98

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDAR Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/20 0935

Depth to Water - Initial (DTWi) (ft) 8.39

Purge End Date/Time: 11/5/20 1005

Depth to Well Bottom (ft) 22.63

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.98-22.98

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.98

Pump Start Time: 0935

Ferrous Iron (Required (Y) or N) 2.59 mg/L

2ND DEPTH TO WATER - 8.39

APTIM

Sample Collection Log

Location ID: 04WW07		Sample No: 04WW07-201105								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/5/20	0940	100	.5	8.46	3.24	22.53	6.94	36.5	-40	0.65
	0945	100	1.0	8.52	3.23	22.73	6.90	31.1	-76	0.18
	0950	100	1.5	8.55	3.18	22.01	6.85	28.8	-102	0.04
	0955	100	2.0	8.57	3.17	22.08	6.84	28.1	-103	0.04
	1000	100	2.5	8.59	3.17	22.15	6.83	27.6	-104	0.04
↓	1005	100	3.0	8.60	3.17	23.20	6.83	27.2	-105	0.03

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW08**

Sampler(s): Scott Beasinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW08-20111104 **DATE/TIME:** 11/4/20 0806 **Pump Inlet Depth:** 38.75

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/4/20 0810

Depth to Water - Initial (DTWi) (ft) ~~16.63~~ 16.63

Purge End Date/Time: 11/4/20 0840

Depth to Well Bottom (ft) 43.65

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 33.75 - 43.75

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 38.75

Pump Start Time: 0810

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 16.63

APTIM

Sample Collection Log

Location ID: 04WW08					Sample No: 04WW08-201104					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria	13	± 10% or 0.2 mg/L
11/4/20	0815	100	.5	16.70	2.88	18.00	6.11	171	[redacted]	1.21
	0820	100	1.0	16.76	3.02	18.75	6.43	155	-11	0.97
	0825	100	1.5	16.80	2.91	19.28	6.50	145	-9	0.83
	0830	100	2.0	16.82	2.90	19.36	6.51	144	-9	0.82
	0835	100	2.5	16.83	2.90	19.45	6.52	144	-8	0.81
	0840	100	3.0	16.83	2.89	19.56	6.52	143	-8	0.80

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW09**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW09-201105 **DATE/TIME:** 11/5/20 0745 **Pump Inlet Depth:** 18.14

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/20 0750

Depth to Water - Initial (DTWi) (ft) 7.95

Purge End Date/Time: 11/5/20 0820

Depth to Well Bottom (ft) 23.47

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 13.14 - 23.14

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.14

Pump Start Time: 0750

Ferrous Iron (Required (Y) or N) 3.87 mg/L

2ND DEPTH TO WATER - 7.95

APTIM

Sample Collection Log

Location ID: 04WW09		Sample No: 04WW09-201105								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/5/20	0755	100	.5	8.03	1.72	17.36	6.24	80.3	-51	0.82
	0800	100	1.0	8.08	1.69	19.23	6.14	74.5	-73	0.22
	0805	100	1.5	8.12	1.63	20.58	6.10	71.6	-88	0.03
	0810	100	2.0	8.15	1.63	20.67	6.10	71.1	-89	0.03
	0815	100	2.5	8.17	1.62	20.75	6.09	70.4	-90	0.02
↓	0820	100	3.0	8.19	1.62	20.83	6.09	70.0	-91	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW09**

Sampler(s): Scott Bessinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW09-201105-FD **DATE/TIME:** 11/5/20 0745 **Pump Inlet Depth:** 18.14

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/20 0750

Depth to Water - Initial (DTWi) (ft) 7.95

Purge End Date/Time: 11/5/20 0820

Depth to Well Bottom (ft) 23.47

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 13.14 - 23.14

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 18.14

Pump Start Time: 0750

Ferrous Iron (Required (Y) or N) 3.87 mg/L

2ND DEPTH TO WATER- 7.95

APTIM

Sample Collection Log

Location ID: 04WW09		Sample No: 04WW09-201105-FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/5/20	0755	100	.5	8.03	1.72	17.36	6.21	80.3	-51	0.82
	0800	100	1.0	8.08	1.69	19.23	6.14	74.5	-73	0.22
	0805	100	1.5	8.12	1.63	20.58	6.10	71.6	-88	0.03
	0810	100	2.0	8.15	1.63	20.67	6.10	71.1	-89	0.03
	0815	100	2.5	8.17	1.62	20.75	6.09	70.4	-90	0.02
	0820	100	3.0	8.19	1.62	20.83	6.09	70.0	-91	0.02

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Beesingar

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW10-2011 05 **DATE/TIME:** 11/5/20 0833 **Pump Inlet Depth:** 17.27

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 7.72

Depth to Well Bottom (ft) 22.52

Screen Interval (ft): 12.27 - 22.27

Approximate depth of pump inlet*(ft): 17.27

Ferrous Iron (Required (Y) or N) 3.14 mg/L

Purging Method/Equipment: Low flow / BLADDER Pump

Purge Start Date/Time: 11/5/20 0840

Purge End Date/Time: 11/5/20 0910

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0840

2ND DEPTH TO WATER 7.72

APTIM

Sample Collection Log

Location ID: 04WW10 Sample No: 04WW10-201105

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/5/20	0845	100	.5	7.79	4.48	20.41	6.51	7.5	-25	0.63
	0850	100	1.0	7.84	4.34	20.85	6.67	4.3	-45	0.20
	0855	100	1.5	7.87	4.19	21.39	6.74	2.9	-60	0.12
	0900	100	2.0	7.89	4.18	21.47	6.74	1.1	-61	0.11
	0905	100	2.5	7.90	4.17	21.58	6.75	0.7	-62	0.11
↓	0910	100	3.0	7.91	4.17	21.68	6.75	0.0	-62	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW10-2011**05**-MS **DATE/TIME:** 11/5/20 0833 **Pump Inlet Depth:** 17.27

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/20 0840

Depth to Water - Initial (DTWi) (ft) 7.72

Purge End Date/Time: 11/5/20 0910

Depth to Well Bottom (ft) 22.52

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.27 - 22.27

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.27

Pump Start Time: 0840

Ferrous Iron (Required (Y) or N) 3.14 mg/L

2ND DEPTH TO WATER- 7.72

APTIM

Sample Collection Log

Location ID: 04WW10 Sample No: 04WW10-201105-MS

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/5/20	0845	100	.5	7.79	4.48	20.41	6.51	7.5	-25	0.63
	0850	100	1.0	7.84	4.34	20.85	6.67	4.3	-45	0.20
	0855	100	1.5	7.87	4.19	21.39	6.74	2.9	-60	0.12
	0900	100	2.0	7.89	4.18	21.47	6.74	1.1	-61	0.11
	0905	100	2.5	7.90	4.17	21.58	6.75	0.7	-62	0.11
	0910	100	3.0	7.91	4.17	21.68	6.75	0.0	-62	0.11

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW10**

Sampler(s): Scott Baesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW10-2011105-MSD **DATE/TIME:** 11/5/20 0833 **Pump Inlet Depth:** 17.27

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (nitrite, nitrate, sulfate) by SW9056-W, Alkalinity in Water by SM2320B-W/shared	1 x 125 mL HPDE	Cool 4C
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/5/20 0840

Depth to Water - Initial (DTWi) (ft) 7.72

Purge End Date/Time: 11/5/20 0910

Depth to Well Bottom (ft) 22.52

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 12.27-22.27

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 17.27

Pump Start Time: 0840

Ferrous Iron (Required (Y) or N) 3.14 mg/L

2ND DEPTH TO WATER - 7.72

APTIM

Sample Collection Log

Location ID: 04WW10	Sample No: 04WW10-201105-MSD									
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/5/20	0845	100	.5	7.79	4.48	20.41	6.51	7.5	-25	0.63
	0850	100	1.0	7.84	4.34	20.85	6.67	4.3	-45	0.20
	0855	100	1.5	7.87	4.19	21.39	6.74	2.9	-60	0.12
	0900	100	2.0	7.89	4.18	21.47	6.74	1.1	-61	0.11
	0905	100	2.5	7.90	4.17	21.58	6.75	0.7	-62	0.11
	0910	100	3.0	7.91	4.17	21.68	6.75	0.0	-62	0.11

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW11**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 04WW11-20110404 **DATE/TIME:** 11/4/20 1051 **Pump Inlet Depth:** 13.20

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/4/20 1100

Depth to Water - Initial (DTWi) (ft) 9.32

Purge End Date/Time: 11/4/20 1130

Depth to Well Bottom (ft) 18.49

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 8.20 - 18.20

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.20

Pump Start Time: 1100

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 9.32

APTIM

Sample Collection Log

Location ID: 04WW11		Sample No: 04WW11-201104								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	1105	100	.5	9.40	0.613	20.61	6.95	4.0	59	2.03
↓	1110	100	1.0	9.46	0.616	20.69	6.73	2.5	67	1.81
	1115	100	1.5	9.50	0.619	20.84	6.42	1.3	84	1.71
	1120	100	2.0	9.52	0.620	20.90	6.41	0.6	85	1.69
	1125	100	2.5	9.54	0.620	20.96	6.41	0.0	86	1.67
↓	1130	100	3.0	9.56	0.620	21.03	6.40	0.0	86	1.66

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **04WW11**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 04WW11-201104-FD **DATE/TIME:** 11/4/20 1051 **Pump Inlet Depth:** 13.20

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/4/20 1100

Depth to Water - Initial (DTWi) (ft) 9.32

Purge End Date/Time: 11/4/20 1130

Depth to Well Bottom (ft) 18.49

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 8.20 - 18.20

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 13.20

Pump Start Time: 1100

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 9.32

APTIM

Sample Collection Log

Location ID: 04WW11		Sample No: 04WW11-201104-FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	1105	100	.5	9.40	0.613	20.61	6.95	4.0	59	2.03
	1110	100	1.0	9.46	0.616	20.69	6.73	2.5	67	1.81
	1115	100	1.5	9.50	0.619	20.84	6.42	1.3	84	1.71
	1120	100	2.0	9.52	0.620	20.90	6.41	0.6	85	1.69
	1125	100	2.5	9.54	0.620	20.96	6.41	0.0	86	1.67
↓	1130	100	3.0	9.56	0.620	21.03	6.40	0.0	86	1.66

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW01**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: LHSMW01-20110404 **DATE/TIME:** 11/4/20 0640 **Pump Inlet Depth:** 12.74

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4

Purge Start Date/Time: 11/4/20 0650

Depth to Water - Initial (DTWi) (ft) 7.32

Purge End Date/Time: 11/4/20 0720

Depth to Well Bottom (ft) 17.95

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 7.74 - 17.74

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 12.74

Pump Start Time: 0650

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 7.32

APTIM

Sample Collection Log

Location ID: LHSMW01 Sample No: LHSMW01-2011 04

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/4/20	0655	100	.5	7.40	0.546	13.95	6.22	5.1	160	0.98
	0700	100	1.0	7.46	0.303	14.60	5.91	2.7	205	0.65
	0705	100	1.5	7.50	0.288	14.84	5.80	2.2	210	0.54
	0710	100	2.0	7.52	0.287	14.90	5.79	1.8	211	0.54
	0715	100	2.5	7.54	0.287	14.96	5.78	1.1	211	0.53
	0720	100	3.0	7.55	0.287	15.02	5.77	0.8	211	0.53

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW02**

Sampler(s): Scott Blessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: LHSMW02-201104 **DATE/TIME:** 11/4/20 1006 **Pump Inlet Depth:** 14.75

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Perchlorate in Water by 6850	1 x 125 mL HDPE	Cool 4C

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/4/20 1015

Depth to Water - Initial (DTWi) (ft) 13.90

Purge End Date/Time: 11/4/20 1045

Depth to Well Bottom (ft) 19.10

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 7.18 - 17.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 14.75 Pump Start Time: 1015

Ferrous Iron (Required Y or (N)) _____ mg/L

2nd Depth to water - 13.90

APTIM

Sample Collection Log

Location ID: LHSMW02					Sample No: LHSMW02-2011 04					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0. ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/4/20	1020	100	.5	13.97	0.989	21.25	6.77	3.3	80	0.75
↓	1025	100	1.0	14.03	0.959	20.59	6.15	2.5	100	0.28
	1030	100	1.5	14.07	0.921	20.23	5.95	1.8	100	0.18
	1035	100	2.0	14.10	0.921	20.15	5.94	0.9	101	0.18
	1040	100	2.5	14.12	0.920	20.07	5.93	0.0	102	0.18
↓	1045	100	3.0	14.14	0.920	20.00	5.93	0.0	102	0.17

Logged by: _____ Date: _____

QC d by: _____ Date: _____

Appendix D

Laboratory Analytical Data Packages

(Provided electronically on CD and the Portal)

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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February 20, 2020

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

Work Order: **HS20020160**

Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 14 sample(s) on Feb 05, 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: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20020160

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20020160-01	LHSMW01-200203	Groundwater		03-Feb-2020 09:20	05-Feb-2020 08:41	☐
HS20020160-02	04WW08-200203	Groundwater		03-Jan-2020 10:05	05-Feb-2020 08:41	☐
HS20020160-03	04WW04-200203	Groundwater		03-Feb-2020 10:50	05-Feb-2020 08:41	☐
HS20020160-04	04WW06-200203	Groundwater		03-Feb-2020 11:35	05-Feb-2020 08:41	☐
HS20020160-05	LHSMW02-200203	Groundwater		03-Feb-2020 12:20	05-Feb-2020 08:41	☐
HS20020160-06	LHSMW02-200203-FD	Groundwater		03-Feb-2020 12:20	05-Feb-2020 08:41	☐
HS20020160-07	04WW02-200203	Groundwater		03-Feb-2020 13:10	05-Feb-2020 08:41	☐
HS20020160-08	04WW01-200204	Groundwater		04-Feb-2020 08:10	05-Feb-2020 08:41	☐
HS20020160-09	04WW11-200204	Groundwater		04-Feb-2020 08:55	05-Feb-2020 08:41	☐
HS20020160-10	04WW05-200204	Groundwater		04-Feb-2020 09:40	05-Feb-2020 08:41	☐
HS20020160-11	04WW10-200204	Groundwater		04-Feb-2020 10:30	05-Feb-2020 08:41	☐
HS20020160-12	04WW07-200204	Groundwater		04-Feb-2020 11:15	05-Feb-2020 08:41	☐
HS20020160-13	04WW09-200204	Groundwater		04-Feb-2020 12:05	05-Feb-2020 08:41	☐
HS20020160-14	04WW09-200204-FD	Groundwater		04-Feb-2020 12:05	05-Feb-2020 08:41	☐

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant
Work Order: HS20020160

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

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

WetChemistry by Method SW9056

Batch ID: R356112

Sample ID: 04WW09-200204 (HS20020160-13)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N),Nitrogen, Nitrite (As N),Sulfate)

WetChemistry by Method SM2320B

Batch ID: R355855

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW01-200203
Collection Date: 03-Feb-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**	
Project:	Longhorn Army Ammunition Plant	WorkOrder:HS20020160	
Sample ID:	04WW08-200203	Lab ID:HS20020160-02	
Collection Date:	03-Jan-2020 10:05	Matrix:Groundwater	

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn Army Ammunition Plant	WorkOrder:HS20020160
Sample ID:	04WW04-200203	Lab ID:HS20020160-03
Collection Date:	03-Feb-2020 10:50	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW06-200203
Collection Date: 03-Feb-2020 11:35

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn Army Ammunition Plant	WorkOrder:HS20020160
Sample ID:	LHSMW02-200203	Lab ID:HS20020160-05
Collection Date:	03-Feb-2020 12:20	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW02-200203-FD
Collection Date: 03-Feb-2020 12:20

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW02-200203
Collection Date: 03-Feb-2020 13:10

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn Army Ammunition Plant	WorkOrder:HS20020160
Sample ID:	04WW01-200204	Lab ID:HS20020160-08
Collection Date:	04-Feb-2020 08:10	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW11-200204
Collection Date: 04-Feb-2020 08:55

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW05-200204
Collection Date: 04-Feb-2020 09:40

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**535**		**5.00**	**5.00**	**5.00**	**mg/L**	1	07-Feb-2020 01:34
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Nitrogen, Nitrate (As N)	**0.0475**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	05-Feb-2020 22:58
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	05-Feb-2020 22:58
Sulfate	**41.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	05-Feb-2020 22:58
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-Feb-2020 17:14

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW10-200204
Collection Date: 04-Feb-2020 10:30

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**565**		**5.00**	**5.00**	**5.00**	**mg/L**	1	07-Feb-2020 02:04
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Nitrogen, Nitrate (As N)	**0.109**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	05-Feb-2020 23:52
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	05-Feb-2020 23:52
Sulfate	**368**		**2.00**	**5.00**	**5.00**	**mg/L**	10	06-Feb-2020 00:10
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-Feb-2020 17:14

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW07-200204
Collection Date: 04-Feb-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**1,130**		**5.00**	**5.00**	**5.00**	**mg/L**	1	07-Feb-2020 02:20
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Feb-2020 00:28
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Feb-2020 00:28
Sulfate	**2.60**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-Feb-2020 00:28
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-Feb-2020 17:14

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW09-200204
Collection Date: 04-Feb-2020 12:05

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**332**		**5.00**	**5.00**	**5.00**	**mg/L**	1	07-Feb-2020 02:32
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	06-Feb-2020 01:41
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	06-Feb-2020 01:41
Sulfate	**0.732**	J	**0.400**	**1.00**	**1.00**	**mg/L**	2	06-Feb-2020 01:41
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-Feb-2020 17:14

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW09-200204-FD
Collection Date: 04-Feb-2020 12:05

ANALYTICAL REPORT
WorkOrder:HS20020160
Lab ID:HS20020160-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**332**		**5.00**	**5.00**	**5.00**	**mg/L**	1	07-Feb-2020 02:42
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	06-Feb-2020 02:17
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	06-Feb-2020 02:17
Sulfate	**0.659**	J	**0.400**	**1.00**	**1.00**	**mg/L**	2	06-Feb-2020 02:17
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Feb-2020 09:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-Feb-2020 17:14

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

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20020160

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R355855 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20020160-10	04WW05-200204	04 Feb 2020 09:40			07 Feb 2020 01:34	1
HS20020160-11	04WW10-200204	04 Feb 2020 10:30			07 Feb 2020 02:04	1
HS20020160-12	04WW07-200204	04 Feb 2020 11:15			07 Feb 2020 02:20	1
HS20020160-13	04WW09-200204	04 Feb 2020 12:05			07 Feb 2020 02:32	1
HS20020160-14	04WW09-200204-FD	04 Feb 2020 12:05			07 Feb 2020 02:42	1
Batch ID: R356112 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20020160-10	04WW05-200204	04 Feb 2020 09:40			05 Feb 2020 22:58	1
HS20020160-11	04WW10-200204	04 Feb 2020 10:30			06 Feb 2020 00:10	10
HS20020160-11	04WW10-200204	04 Feb 2020 10:30			05 Feb 2020 23:52	1
HS20020160-12	04WW07-200204	04 Feb 2020 11:15			06 Feb 2020 00:28	1
HS20020160-13	04WW09-200204	04 Feb 2020 12:05			06 Feb 2020 01:41	2
HS20020160-14	04WW09-200204-FD	04 Feb 2020 12:05			06 Feb 2020 02:17	2
Batch ID: R356331 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20020160-10	04WW05-200204	04 Feb 2020 09:40			14 Feb 2020 17:14	1
HS20020160-11	04WW10-200204	04 Feb 2020 10:30			14 Feb 2020 17:14	1
HS20020160-12	04WW07-200204	04 Feb 2020 11:15			14 Feb 2020 17:14	1
HS20020160-13	04WW09-200204	04 Feb 2020 12:05			14 Feb 2020 17:14	1
HS20020160-14	04WW09-200204-FD	04 Feb 2020 12:05			14 Feb 2020 17:14	1
Batch ID: R356523 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20020160-01	LHSMW01-200203	03 Feb 2020 09:20			19 Feb 2020 09:28	1
HS20020160-02	04WW08-200203	03 Jan 2020 10:05			19 Feb 2020 09:28	1
HS20020160-03	04WW04-200203	03 Feb 2020 10:50			19 Feb 2020 09:28	1
HS20020160-04	04WW06-200203	03 Feb 2020 11:35			19 Feb 2020 09:28	1
HS20020160-05	LHSMW02-200203	03 Feb 2020 12:20			19 Feb 2020 09:28	1
HS20020160-06	LHSMW02-200203-FD	03 Feb 2020 12:20			19 Feb 2020 09:28	1
HS20020160-07	04WW02-200203	03 Feb 2020 13:10			19 Feb 2020 09:28	1
HS20020160-08	04WW01-200204	04 Feb 2020 08:10			19 Feb 2020 09:28	1
HS20020160-09	04WW11-200204	04 Feb 2020 08:55			19 Feb 2020 09:28	1
HS20020160-10	04WW05-200204	04 Feb 2020 09:40			19 Feb 2020 09:28	1
HS20020160-11	04WW10-200204	04 Feb 2020 10:30			19 Feb 2020 09:28	1
HS20020160-12	04WW07-200204	04 Feb 2020 11:15			19 Feb 2020 09:28	1
HS20020160-13	04WW09-200204	04 Feb 2020 12:05			19 Feb 2020 09:28	1
HS20020160-14	04WW09-200204-FD	04 Feb 2020 12:05			19 Feb 2020 09:28	1

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20020160

QC BATCH REPORT

Batch ID: R355855 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW2-200206** Units: **mg/L** Analysis Date: **06-Feb-2020 22:40**
Client ID: Run ID: **ManTech01_355855** SeqNo: **5464009** 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: **LCS2-200206** Units: **mg/L** Analysis Date: **06-Feb-2020 22:49**
Client ID: Run ID: **ManTech01_355855** SeqNo: **5464010** 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)	1042	5.00	1000	0	104	85 - 115				

LCSD Sample ID: **LCSD2-200206** Units: **mg/L** Analysis Date: **06-Feb-2020 22:58**
Client ID: Run ID: **ManTech01_355855** SeqNo: **5464011** 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)	1030	5.00	1000	0	103	85 - 115	1042	1.16	20	

DUP Sample ID: **HS20020057-01DUP** Units: **mg/L** Analysis Date: **06-Feb-2020 23:29**
Client ID: Run ID: **ManTech01_355855** SeqNo: **5464015** 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)	527.3	5.00					526.9	0.0854	20	

The following samples were analyzed in this batch: HS20020160-10 HS20020160-11 HS20020160-12 HS20020160-13 HS20020160-14

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20020160

QC BATCH REPORT

Batch ID: R356112 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-020520** Units: **mg/L** Analysis Date: **05-Feb-2020 22:04**
Client ID: Run ID: **ICS-Integrion_356112** SeqNo: **5469295** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-020520** Units: **mg/L** Analysis Date: **05-Feb-2020 22:22**
Client ID: Run ID: **ICS-Integrion_356112** SeqNo: **5469296** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.08	0.100	4	0	102	80 - 120				
Nitrogen, Nitrite (As N)	4.284	0.100	4	0	107	80 - 120				
Sulfate	20.33	0.500	20	0	102	80 - 120				

LCSD Sample ID: **WLCSDW1-020520** Units: **mg/L** Analysis Date: **05-Feb-2020 22:40**
Client ID: Run ID: **ICS-Integrion_356112** SeqNo: **5469297** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.074	0.100	4	0	102	80 - 120	4.08	0.157	20	
Nitrogen, Nitrite (As N)	4.272	0.100	4	0	107	80 - 120	4.284	0.276	20	
Sulfate	20.23	0.500	20	0	101	80 - 120	20.33	0.486	20	

MS Sample ID: **HS20020160-10MS** Units: **mg/L** Analysis Date: **05-Feb-2020 23:16**
Client ID: **04WW05-200204** Run ID: **ICS-Integrion_356112** SeqNo: **5469299** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.977	0.100	2	0.0475	96.5	80 - 120				
Nitrogen, Nitrite (As N)	2.11	0.100	2	0	105	80 - 120				
Sulfate	49.8	0.500	10	41.06	87.5	80 - 120				O

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20020160

QC BATCH REPORT

Batch ID: R356112 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20020160-10MSD** Units: **mg/L** Analysis Date: **05-Feb-2020 23:34**
Client ID: **04WW05-200204** Run ID: **ICS-Integrion_356112** SeqNo: **5469300** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.997	0.100	2	0.0475	97.5	80 - 120	1.977	1	20	
Nitrogen, Nitrite (As N)	2.128	0.100	2	0	106	80 - 120	2.11	0.892	20	
Sulfate	50.21	0.500	10	41.06	91.5	80 - 120	49.8	0.813	20	O

The following samples were analyzed in this batch: HS20020160-10 HS20020160-11 HS20020160-12 HS20020160-13 HS20020160-14

ALS Houston, US Date: 20-Feb-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20020160**

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	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 20-Feb-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20020160
Date/Time Received: **05-Feb-2020 08:41**
Received by: **AC**

Checklist completed by: *Paresh M. Giga* eSignature 5-Feb-2020 Date
Reviewed by: *RJ Modashia* eSignature 5-Feb-2020 Date

Matrices: **GW**
Carrier name: **FedEx**

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):	0.8c U/C	IR25	
Cooler(s)/Kit(s):	45564		
Date/Time sample(s) sent to storage:	2/5/2020 14:00		
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:

APTIM

Page 1 of _____

COC ID: 04LHAAP-Performance Monitoring 01__20-ALS TURNAROUND TIME: RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Email Invoice To	FedInvoices@aptim.com		
Project Number	501032			Lab Contact	RJ Modashia						
	LHAAP-04			Email	RJ.Modashia@alsglobal.com			Email Report To	Susan.Huang@aptim.com		
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd., Suite 210			Mail Reports To	Susan Huang		
	PMB 202							Address	4005 Port Chicago Highway, Suite 200		
City	Marshall	State	TX	City	Houston	State	TX	City	Concord	State	CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	Postal Code	94520	Country	USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656						
Project Manager	Praveen Srivastav							Shipping Company			

SAMPLE DETAILS / ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	2-40ml Amber/ H2SO4	1-125ml HPDE/Cool to 4°C	1-500ml HDPE/Cool to 4°C					
									ANALYSIS	TOC by SM5310	Perchlorate by SW6850	Alkalinity by SM2320B	Anions (nitrate, nitrite and sulfate) by SW9056				
LHSmw01-200203	LHAAP 04				WG	2/3/20	0920	1			X						
04ww08-200203	LHAAP 04				WG	2/3/20	1005	1			X						
04ww04-200203	LHAAP 04				WG	2/3/20	1050	1			X						
04WW06-200203	LHAAP 04				WG	2/3/20	1135	1			X						
LHSmw02-200203	LHAAP 04				WG	2/3/20	1220	1			X						
LHSmw02-200203-FD	LHAAP 04				WG	2/3/20	1220	1			X						
04WW02-200203	LHAAP 04				WG	2/3/20	1310	1			X						
04WW01-200204	LHAAP 04				WG	2/4/20	0810	1			X						
04ww11-200204	LHAAP 04				WG	2/4/20	0855	1			X						
04ww11-200204-MS	LHAAP 04				WG	2/4/20	0855	1			X						
04ww11-200204-MSD	LHAAP 04				WG	2/4/20	0855	1			X						
04WW05-200204	LHAAP 04				WG	2/4/20	0940	4		X	X	X	X				
04WW10-200204	LHAAP 04				WG	2/4/20	1030	4		X	X	X	X				
04WW07-200204	LHAAP 04				WG	2/4/20	1115	4		X	X	X	X				
04WW09-200204	LHAAP 04				WG	2/4/20	1205	4		X	X	X	X				
04WW09-200204-FD	LHAAP 04				WG	2/4/20	1205	4		X	X	X	X				

HS20020160

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS

RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
Scott Dessinger / BHATE	2/4/20 1430	AC / ALS	02/5/2020 08:41

U/C 0.8 IR#25 CF0.0 455641

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45564

CUSTODY SEAL

Date: 2/4/20 Time: 1430
Name: Scott Beesinger
Company: BHATS

Seal Broken By: SMJ
Date: 02/05/20

45564 FEB 05 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

45564

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

SHIP DATE: 27JAN20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 4 - RJ

RMA:

FedEx Express

FedEx
TRK# 0221 1251 0293 9810

WED - 05 FEB 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 3865960 04FEB20 GGGA 56AC2/049E/05A2

Part # 159469-434 RIT2 EXP 10/20

551C2/DF82/104C

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2004545; 2004546; 2004547; 2004548

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2350 (257242)

General Set Information: There were nineteen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field sample 2004545001 was analyzed and reported from a 1:1,000 dilution. Field sample 2004548012 was re-analyzed and reported from a 1:10 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 695966) was less than 1/2 the CRDL. The recovery for the LCS (695963) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 2004548015/16 (Client ID: 04WW11-200204). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 695964) is reported from the analysis of the Laboratory Control Sample (LCS – 695963) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 17JAND16/20/27. Field sample 2004548008 was re-analyzed at a 1:5 dilution and undiluted to confirm the positive result and split peak chromatography.

Thomas Bosch February 18, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: February 18, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2004548**
Project ID: HS20020160
Purchase Order: HS20020160
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
LHSMW01-200203	2004548001	02/03/20	02/13/20	HS20020160-01
04WW08-200203	2004548002	02/03/20	02/13/20	HS20020160-01
04WW04-200203	2004548003	02/03/20	02/13/20	HS20020160-01
04WW06-200203	2004548004	02/03/20	02/13/20	HS20020160-01
LHSMW02-200203	2004548005	02/03/20	02/13/20	HS20020160-01
LHSMW02-200203-FD	2004548006	02/03/20	02/13/20	HS20020160-01
04WW02-200203	2004548007	02/03/20	02/13/20	HS20020160-01
04WW01-200204	2004548008	02/04/20	02/13/20	HS20020160-01
04WW11-200204	2004548009	02/04/20	02/13/20	HS20020160-01
04WW05-200204	2004548010	02/04/20	02/13/20	HS20020160-01
04WW10-200204	2004548011	02/04/20	02/13/20	HS20020160-01
04WW07-200204	2004548012	02/04/20	02/13/20	HS20020160-01
04WW09-200204	2004548013	02/04/20	02/13/20	HS20020160-01
04WW09-200204-FD	2004548014	02/04/20	02/13/20	HS20020160-01

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
04WW11-200204 MS	2004548015	02/04/20	02/13/20	HS20020160-01
04WW11-200204 MSD	2004548016	02/04/20	02/13/20	HS20020160-01

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-2004548
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **LHSMW01-200203** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548001 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 10:25 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW08-200203** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548002 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 10:39 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW04-200203** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548003 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 10:53 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW06-200203** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548004 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 11:07 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

ANALYTICAL REPORT

Workorder: 34-2004548
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **LHSMW02-200203** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548005 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 11:21 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **LHSMW02-200203-FD** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548006 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 11:35 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW02-200203** | Sampling Site: HS20020160-01 | Collected: 02/03/2020
Lab ID: 2004548007 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 11:49 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW01-200204** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548008 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 12:16 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**19**	1.0	2.0	4.0	1	

ANALYTICAL REPORT

Workorder: 34-2004548
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **04WW11-200204** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548009 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 12:30 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW05-200204** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548010 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 12:44 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW10-200204** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548011 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 12:58 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **04WW07-200204** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548012 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 16:04 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**86**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-2004548
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **04WW09-200204** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548013 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 13:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**18**	1.0	2.0	4.0	1	

Sample ID: **04WW09-200204-FD** | Sampling Site: HS20020160-01 | Collected: 02/04/2020
Lab ID: 2004548014 | Media: 125 mL Nalgene | Received: 02/13/2020
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2350 (HBN: 257242) | **%Solids:** NA
Analyzed: 02/17/2020 13:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**22**	1.0	2.0	4.0	1	

Comments

Workorder: **2004548**

Field sample 2004548012 was re-analyzed and reported from a 1:10 dilution. The reporting limit has been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 02/18/2020 09:40	/S/ Stephen Brose 02/18/2020 13:55

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-2004548
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 2004548

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2350 (HBN: 257242)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 695966
Analyzed: 02/17/2020 09:30
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 695963
Analyzed: 02/17/2020 09:02
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	2.99	3.00	99.8	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample: 2004548009	**MS:** 2004548015	**MSD:** 2004548016
Analyzed: 02/17/2020 12:30	**Analyzed:** 02/17/2020 14:54	**Analyzed:** 02/17/2020 15:08
Dilution: 1	**Dilution:** 1	**Dilution:** 1
Units: ug/L	**Units:** ug/L	**Units:** ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	3.2	3	107	78.8	123.8	3.1	105	3.17	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
02/18/2020 09:45	02/18/2020 13:55

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

2004548

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

18698/#2

SAMPLING STATE: **Texas** **COC ID:** **13327**

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

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:	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:	HS20020160
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20020160-01**	**LHSMW01-200203**	**Groundwater**	**03 Feb 2020 09:20**
	SUB_Perch-6850			13 Feb 2020
2.	**HS20020160-02**	**04WW08-200203**	**Groundwater**	**03 Jan 2020 10:05**
	SUB_Perch-6850			13 Feb 2020
3.	**HS20020160-03**	**04WW04-200203**	**Groundwater**	**03 Feb 2020 10:50**
	SUB_Perch-6850			13 Feb 2020
4.	**HS20020160-04**	**04WW06-200203**	**Groundwater**	**03 Feb 2020 11:35**
	SUB_Perch-6850			13 Feb 2020
5.	**HS20020160-05**	**LHSMW02-200203**	**Groundwater**	**03 Feb 2020 12:20**
	SUB_Perch-6850			13 Feb 2020
6.	**HS20020160-06**	**LHSMW02-200203-FD**	**Groundwater**	**03 Feb 2020 12:20**
	SUB_Perch-6850			13 Feb 2020
7.	**HS20020160-07**	**04WW02-200203**	**Groundwater**	**03 Feb 2020 13:10**
	SUB_Perch-6850			13 Feb 2020
8.	**HS20020160-08**	**04WW01-200204**	**Groundwater**	**04 Feb 2020 08:10**
	SUB_Perch-6850			13 Feb 2020
9.	**HS20020160-09**	**04WW11-200204**	**Groundwater**	**04 Feb 2020 08:55**

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **13327**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
	SUB_Perch-6850			13 Feb 2020
10.	**HS20020160-10**	**04WW05-200204**	**Groundwater**	**04 Feb 2020 09:40**
	SUB_Perch-6850			13 Feb 2020
11.	**HS20020160-11**	**04WW10-200204**	**Groundwater**	**04 Feb 2020 10:30**
	SUB_Perch-6850			13 Feb 2020
12.	**HS20020160-12**	**04WW07-200204**	**Groundwater**	**04 Feb 2020 11:15**
	SUB_Perch-6850			13 Feb 2020
13.	**HS20020160-13**	**04WW09-200204**	**Groundwater**	**04 Feb 2020 12:05**
	SUB_Perch-6850			13 Feb 2020
14.	**HS20020160-14**	**04WW09-200204-FD**	**Groundwater**	**04 Feb 2020 12:05**
	SUB_Perch-6850			13 Feb 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
MS/MSD ON Sample HS20020160-09

QC Level: DOD IV (DoD Data Package)

Relinquished By: NA Date/Time: 2-12-20 18:30

Received By: Dawn Russell Date/Time: 02-13-20 9:46

Cooler ID(s): Temperature(s):

ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 12FEB20
ACTWGT: 18.55 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20020160/474/473/472 - RJ

FedEx Express

THU - 13 FEB 3:00P
STANDARD OVERNIGHT

TRK# 0201 1251 0294 5024

AX BTFA

84123
UT - US SLC

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site:

Date/Time of Receipt: 02-13-20 9:46

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Cooler/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	Good	2 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: [signature] (Signature) T. Vantassell (Printed Name) 02-13-20 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Recv'd 3 of the 9 VOA Samples. TV 02-13-20

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20020160-01	***Split:***	**Workorder ID:** 2004548	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM	COOL
1	02/03/2020 09:20	LHSMW01-200203	2004548001		Water	A	1	A	
2	02/03/2020 10:05	04WW08-200203	2004548002		Water	A	1	A	
3	02/03/2020 10:50	04WW04-200203	2004548003		Water	A	1	A	
4	02/03/2020 11:35	04WW06-200203	2004548004		Water	A	1	A	
5	02/03/2020 12:20	LHSMW02-200203	2004548005		Water	A	1	A	
6	02/03/2020 12:20	LHSMW02-200203-FD	2004548006		Water	A	1	A	
7	02/03/2020 13:10	04WW02-200203	2004548007		Water	A	1	A	
8	02/04/2020 08:10	04WW01-200204	2004548008		Water	A	1	A	
9	02/04/2020 08:55	04WW11-200204	2004548009		Water	A	1	A	
10	02/04/2020 09:40	04WW05-200204	2004548010		Water	A	1	A	

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
VanTassell, Tami	02/13/2020 09:46	ALS Sample Receiving	Sample Login
Jennifer Russell R.33.1	02-13-20 16:00 02-14-20 09:00	ISC T. Bush	Storage CLOA analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20020160-01	***Split:***	**Workorder ID: 2004548**	**Level:** ENV_LVL4	**Requested Analysis**
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly	
Comments:			**Preservatives**	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
11	02/04/2020 10:30	04WW10-200204	2004548011		Water	A	1	A
12	02/04/2020 11:15	04WW07-200204	2004548012		Water	A	1	A
13	02/04/2020 12:05	04WW09-200204	2004548013		Water	A	1	A
14	02/04/2020 12:05	04WW09-200204-FD	2004548014		Water	A	1	A
1	02/04/2020 08:55	04WW11-200204 MS	2004548015	MS	Water	A	1	A
2	02/04/2020 08:55	04WW11-200204 MSD	2004548016	MSD	Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
VanTassell, Tami	02/13/2020 09:46	ALS Sample Receiving	Sample Login
Tami VanTassell R.33.1	02-13-2016:00 02.14.20/09:00	15C T. Bosch	Storage CLP analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

Batch Worklist

Batch: ELMS/ 2350
Rule: EPA 6850, DoD QSM Water

Created: 2/17/2020 07:43
Analyst: T. Bosch

Instrument:
Status: WP

HBN: 257242

Workorder: 2004545 [ENV_LVL4]
Workorder: 2004546 [ENV_LVL4]
Workorder: 2004547 [ENV_LVL4]
Workorder: 2004548 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	695962	CCV for HBN 257242 [ELMS/2350]				CCV	3		E685041C3Q	5311		2/26/2020	
2	695963	LCS for HBN 257242 [ELMS/2350]				LCS	3		E6850Q413Q	5311		2/26/2020	
3	695964	RLVS for HBN 257242 [ELMS/2350				RLVS	3		E685041C3Q	5311		2/26/2020	
4	695965	ICS for HBN 257242 [ELMS/2350]				ICS	3		E6850..D3Q	5311		2/26/2020	
5	695966	LMB for HBN 257242 [ELMS/2350]				LMB	3		E6850Q413Q	5311		2/26/2020	
6	2004545001	LH18/24-SP140_021120				SAMPLE	3	2004545001-A	E6850Q41.3	5480	3/10/2020	2/26/2020	
7	2004546001	LH18/24-SP650_021120_BIX Water				SAMPLE	3	2004546001-A	E6850Q41.3	5480	3/10/2020	2/26/2020	
8	2004547001	LH18/24-SP650_021120_BIX Water				SAMPLE	3	2004547001-A	E6850Q41.3	5480	3/10/2020	2/26/2020	
9	2004548001	LHSMW01-200203				SAMPLE	3	2004548001-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
10	2004548002	04WW08-200203				SAMPLE	3	2004548002-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
11	2004548003	04WW04-200203				SAMPLE	3	2004548003-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
12	2004548004	04WW06-200203				SAMPLE	3	2004548004-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
13	2004548005	LHSMW02-200203				SAMPLE	3	2004548005-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
14	2004548006	LHSMW02-200203-FD				SAMPLE	3	2004548006-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
15	2004548007	04WW02-200203				SAMPLE	3	2004548007-A	E6850Q41.3	5480	3/2/2020	2/26/2020	
16	695967	CCV for HBN 257242 [ELMS/2350]				CCV	3		E685041C3Q	5311		2/26/2020	
17	2004548008	04WW01-200204				SAMPLE	3	2004548008-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
18	2004548009	04WW11-200204				SAMPLE	3	2004548009-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
19	2004548010	04WW05-200204				SAMPLE	3	2004548010-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
20	2004548011	04WW10-200204				SAMPLE	3	2004548011-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
21	2004548012	04WW07-200204				SAMPLE	3	2004548012-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
22	2004548013	04WW09-200204				SAMPLE	3	2004548013-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
23	2004548014	04WW09-200204-FD				SAMPLE	3	2004548014-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
24	2004548015	04WW11-200204 MS				MS	3	2004548015-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
25	2004548016	04WW11-200204 MSD				MSD	3	2004548016-A	E6850Q41.3	5480	3/3/2020	2/26/2020	
26	695968	CCV for HBN 257242 [ELMS/2350]				CCV	3		E685041C3Q	5311		2/26/2020	

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
27	696082	CCV for HBN 257242 [ELMS/2350]				CCV	3		E685041C3Q	5311		2/26/2020	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2004545 (001); 2004546 (001); 2004547 (001); 2004548 (001-16)
ELMS Batch/HBN ID: 2350 (256242)
Prep Date: 02/14/2020 Analysis Date: 02/17/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\FEB\17FEB20D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/5%ACN (B&J Lot DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 8 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 695963; Target = 3.0µg/L. ASTM type II water was used for LMB 695966.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on samples 2004548015/16 (Client ID: 04WW11-200204). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field sample 2004545001 was analyzed and reported from a 1:1,000 dilution. Field sample 2004548012 was re-analyzed and reported from a 1:10 dilution. The reporting limits have been adjusted accordingly. Field sample 2004548008 was re-analyzed at a 1:5 dilution and undiluted to confirm the positive result and split peak chromatography.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\FEB\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\256242-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 695964) is reported from the analysis of the Laboratory Control Sample (LCS – 695963) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafile 17JAND16/20/27.

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5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2350 HBN: 257242 **Sample Set IDs if Applicable:** 2004545/2004546/2004547/2004548	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020
MFG Lot: TNB: 09/20/2019	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 47863	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK			Description - 6850 WKG Std 100.ug/L
Standard: 49948	**Created By:** Thomas Bosch	**Amount:** 10 mL	
MFG: ALS/SLC	**Create Date:** 09/20/2019 03:09PM	**Expires:** 07/25/2020	
MFG Lot: TNB: 09/20/2019		**Usable:** Yes	
Pipette ID: Not Provided		**Lab Lot:** CLO4 WRK	

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		**Description - 6850 Stock AccStd 1,000ug/mL**
Standard: 43659	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: AccuStandard	**Create Date:** 09/17/2018 09:09AM	**Expires:** 07/25/2020
MFG Lot: 218065075		**Usable:** Yes
Part ID: IC-PER-10X-1		**Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		**Description - ASTM Type II Water**
Standard: 109	**Created By:** ALS Support (Lims)	**Amount:** 1000 L
MFG: DCL In House	**Create Date:** 10/06/2005 09:10AM	**Expires:** 11/07/2025
MFG Lot: Not Provided		**Usable:** Yes
Part ID: Not Provided		**Lab Lot:** LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT		Description - 6850 Intermdt AccStd 10.ug/mL
Standard: 49947	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK	Description - 6850 QC WKG STD 100ug/L

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			**Description - ASTM Type II Water**
Standard: 109	**Created By:** ALS Support (Lims)	**Amount:** 1000 L	
MFG: DCL In House	**Create Date:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		**Description - 6850 QC Stock STD 1,000ug/mL**
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT	Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 05/06/2019 03:05PM **Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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USA

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CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO 17034 Scope of Accreditation: Yes

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

AccuStandard

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ISO 9001 ISO GUIDE 34 ISO 17025 ULTRA

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ACCREDITED TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO 9001 • ISO GUIDE 34 • ISO 17025

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED PRODUCER REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED CALIBRATION TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

250 SMITH STREET • NORTH KINGSTOWN, RHODE ISLAND 02852 • WWW.ULTRASCI.COM

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

Lot Number: SDIH-016

Catalog Number: OLM-7310-S

Product Information

Chemical Purity Specification:	≥ 98%
MW*: *For isotopically labeled compounds, MW listed is for the fully enriched product.	130.44
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

$NaCl^{18}O_4$

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\17JAN20D\17FEB20S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	695962 CCV@25	Vial 71	1	Control	1	1.92768e6	7.930	24.86639
*	695963 LCS@3.	Vial 72	1	Control	2	2.01219e5	7.529	2.99456
*	695964 ICS@3.0	Vial 73	1	Control	3	1.44924e5	7.156	2.76338
*	695966 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2004545001 100	Vial 75	1	Sample	5	9.91954e6	7.281	1.06828e4
*	2004546001	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2004547001	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2004548001	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2004548002	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2004548003	Vial 80	1	Sample	10	0.00000	0.000	0.00000
*	2004548004	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	2004548005	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	2004548006	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	2004548007	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	695967 CCV@25	Vial 71	1	Control	15	1.72959e6	7.246	25.26416
*	2004548008	Vial 85	1	Sample	16	7.48879e5	7.008	18.97843
*	2004548009	Vial 86	1	Sample	17	0.00000	0.000	0.00000
*	2004548010	Vial 87	1	Sample	18	0.00000	0.000	0.00000
*	2004548011	Vial 88	1	Sample	19	0.00000	0.000	0.00000
*	2004548012	Vial 89	1	Sample	20	4.27720e6	6.875	94.65050
*	2004548013	Vial 90	1	Sample	21	1.18569e6	6.905	17.51257
*	2004548014	Vial 91	1	Sample	22	1.20862e6	6.879	21.88966
*	2004548015 MS	Vial 92	1	Sample	23	2.05915e5	6.973	3.19687
*	2004548016 MSD	Vial 93	1	Sample	24	1.99352e5	7.026	3.13852
*	2004545001 1K	Vial 94	1	Sample	25	6.98274e5	7.287	1.06347e4
*	695968 CCV@25	Vial 71	1	Control	26	1.54321e6	7.193	25.75234
*	2004548008 RE	Vial 85	1	Sample	27	6.97532e5	6.972	18.60668
*	2004548012 10X	Vial 95	1	Sample	28	5.64190e5	7.108	86.45192
*	2004548008 5X	Vial 96	1	Sample	29	2.64237e5	7.093	17.29449
*	696082 CCV@25	Vial 71	1	Control	30	1.61866e6	7.208	26.26917

TB 2.18.20

N.R. – NOT REPORTED (RERUN + DILUTION) TB 2.18.20

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	695962 CCV@25	Vial 71	1	Control	1	2.65029e5	7.950	5.00000
*	695963 LCS@3.	Vial 72	1	Control	2	2.47234e5	7.555	5.00000
*	695964 ICS@3.0	Vial 73	1	Control	3	1.92731e5	7.177	5.00000
*	695966 LMB	Vial 74	1	Control	4	2.29809e5	7.346	5.00000
*	2004545001 100	Vial 75	1	Sample	5	2.35908e5	7.306	500.00000
*	2004546001	Vial 76	1	Sample	6	2.19401e5	7.052	5.00000
*	2004547001	Vial 77	1	Sample	7	2.15048e5	7.060	5.00000
*	2004548001	Vial 78	1	Sample	8	2.54205e5	7.021	5.00000
*	2004548002	Vial 79	1	Sample	9	1.96395e5	6.630	5.00000
*	2004548003	Vial 80	1	Sample	10	2.66482e5	7.157	5.00000
*	2004548004	Vial 81	1	Sample	11	2.45154e5	7.031	5.00000
*	2004548005	Vial 82	1	Sample	12	2.58211e5	6.986	5.00000
*	2004548006	Vial 83	1	Sample	13	2.44279e5	6.981	5.00000
*	2004548007	Vial 84	1	Sample	14	2.65820e5	7.133	5.00000
*	695967 CCV@25	Vial 71	1	Control	15	2.33668e5	7.257	5.00000
*	2004548008	Vial 85	1	Sample	16	1.38230e5	7.032	5.00000
*	2004548009	Vial 86	1	Sample	17	2.27262e5	6.903	5.00000
*	2004548010	Vial 87	1	Sample	18	2.50415e5	6.920	5.00000
*	2004548011	Vial 88	1	Sample	19	2.67412e5	6.947	5.00000
*	2004548012	Vial 89	1	Sample	20	1.19387e5	6.898	5.00000
*	2004548013	Vial 90	1	Sample	21	2.38618e5	6.920	5.00000
*	2004548014	Vial 91	1	Sample	22	1.91102e5	6.901	5.00000
*	2004548015 MS	Vial 92	1	Sample	23	2.37178e5	7.001	5.00000

Batch Report: C:\HPCHEM\1\DATA\17JAN20D\17FEB20S.B

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	2004548016 MSD	Vial 93	1	Sample	24	2.33840e5	7.035	5.00000
*	2004545001 1K	Vial 94	1	Sample	25	2.37891e5	7.310	5000.00000
*	695968 CCV@25	Vial 71	1	Control	26	2.04125e5	7.215	5.00000
*	2004548008 RE	Vial 85	1	Sample	27	1.31527e5	6.998	5.00000
*	2004548012 10X	Vial 95	1	Sample	28	2.38166e5	7.128	50.00000
*	2004548008 5X	Vial 96	1	Sample	29	2.81500e5	7.121	25.00000
*	696082 CCV@25	Vial 71	1	Control	30	2.09447e5	7.223	5.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	695962 CCV@25	Vial 71	1	Control	1	5.76713e5	7.946	24.43478
*	695963 LCS@3.	Vial 72	1	Control	2	6.49552e4	7.544	3.08073
*	695964 ICS@3.0	Vial 73	1	Control	3	4.99792e4	7.163	3.03921
*	695966 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2004545001 100	Vial 75	1	Sample	5	2.92982e6	7.295	1.05759e4
*	2004546001	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2004547001	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2004548001	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2004548002	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2004548003	Vial 80	1	Sample	10	0.00000	0.000	0.00000
*	2004548004	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	2004548005	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	2004548006	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	2004548007	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	695967 CCV@25	Vial 71	1	Control	15	5.12273e5	7.259	24.60220
*	2004548008	Vial 85	1	Sample	16	2.46751e5	7.031	20.35009
*	2004548009	Vial 86	1	Sample	17	0.00000	0.000	0.00000
*	2004548010	Vial 87	1	Sample	18	0.00000	0.000	0.00000
*	2004548011	Vial 88	1	Sample	19	0.00000	0.000	0.00000
*	2004548012	Vial 89	1	Sample	20	1.38274e6	6.890	100.27945
*	2004548013	Vial 90	1	Sample	21	3.97137e5	6.920	19.06294
*	2004548014	Vial 91	1	Sample	22	4.02089e5	6.893	23.69193
*	2004548015 MS	Vial 92	1	Sample	23	7.45778e4	6.989	3.70934
*	2004548016 MSD	Vial 93	1	Sample	24	7.01320e4	7.029	3.53314
*	2004545001 1K	Vial 94	1	Sample	25	2.11343e5	7.302	1.04716e4
*	695968 CCV@25	Vial 71	1	Control	26	4.53507e5	7.209	24.90409
*	2004548008 RE	Vial 85	1	Sample	27	2.26847e5	6.989	19.70833
*	2004548012 10X	Vial 95	1	Sample	28	1.80717e5	7.130	89.77314
*	2004548008 5X	Vial 96	1	Sample	29	8.81854e4	7.119	18.47589
*	696082 CCV@25	Vial 71	1	Control	30	4.74563e5	7.222	25.35553

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2020\FEB\17FEB20D.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	695962	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	695963	LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	695964	ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	695966	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2004545001	100	CLO4-AQN	1	Sample		
6	Vial 76	2004546001		CLO4-AQN	1	Sample		
7	Vial 77	2004547001		CLO4-AQN	1	Sample		
8	Vial 78	2004548001		CLO4-AQN	1	Sample		
9	Vial 79	2004548002		CLO4-AQN	1	Sample		
10	Vial 80	2004548003		CLO4-AQN	1	Sample		
11	Vial 81	2004548004		CLO4-AQN	1	Sample		
12	Vial 82	2004548005		CLO4-AQN	1	Sample		
13	Vial 83	2004548006		CLO4-AQN	1	Sample		
14	Vial 84	2004548007		CLO4-AQN	1	Sample		
15	Vial 71	695967	CCV@25	CLO4-AQN	1	Ctrl Samp		
16	Vial 85	2004548008		CLO4-AQN	1	Sample		
17	Vial 86	2004548009		CLO4-AQN	1	Sample		
18	Vial 87	2004548010		CLO4-AQN	1	Sample		
19	Vial 88	2004548011		CLO4-AQN	1	Sample		
20	Vial 89	2004548012		CLO4-AQN	1	Sample		
21	Vial 90	2004548013		CLO4-AQN	1	Sample		
22	Vial 91	2004548014		CLO4-AQN	1	Sample		
23	Vial 92	2004548015	MS	CLO4-AQN	1	Sample		
24	Vial 93	2004548016	MSD	CLO4-AQN	1	Sample		
25	Vial 94	2004545001	1K	CLO4-AQN	1	Sample		
26	Vial 71	695968	CCV@25	CLO4-AQN	1	Ctrl Samp		
27	Vial 85	2004548008	RE	CLO4-AQN	1	Sample		
28	Vial 95	2004548012	10X	CLO4-AQN	1	Sample		
29	Vial 96	2004548008	5X	CLO4-AQN	1	Sample		
30	Vial 71	696082	CCV@25	CLO4-AQN	1	Ctrl Samp		

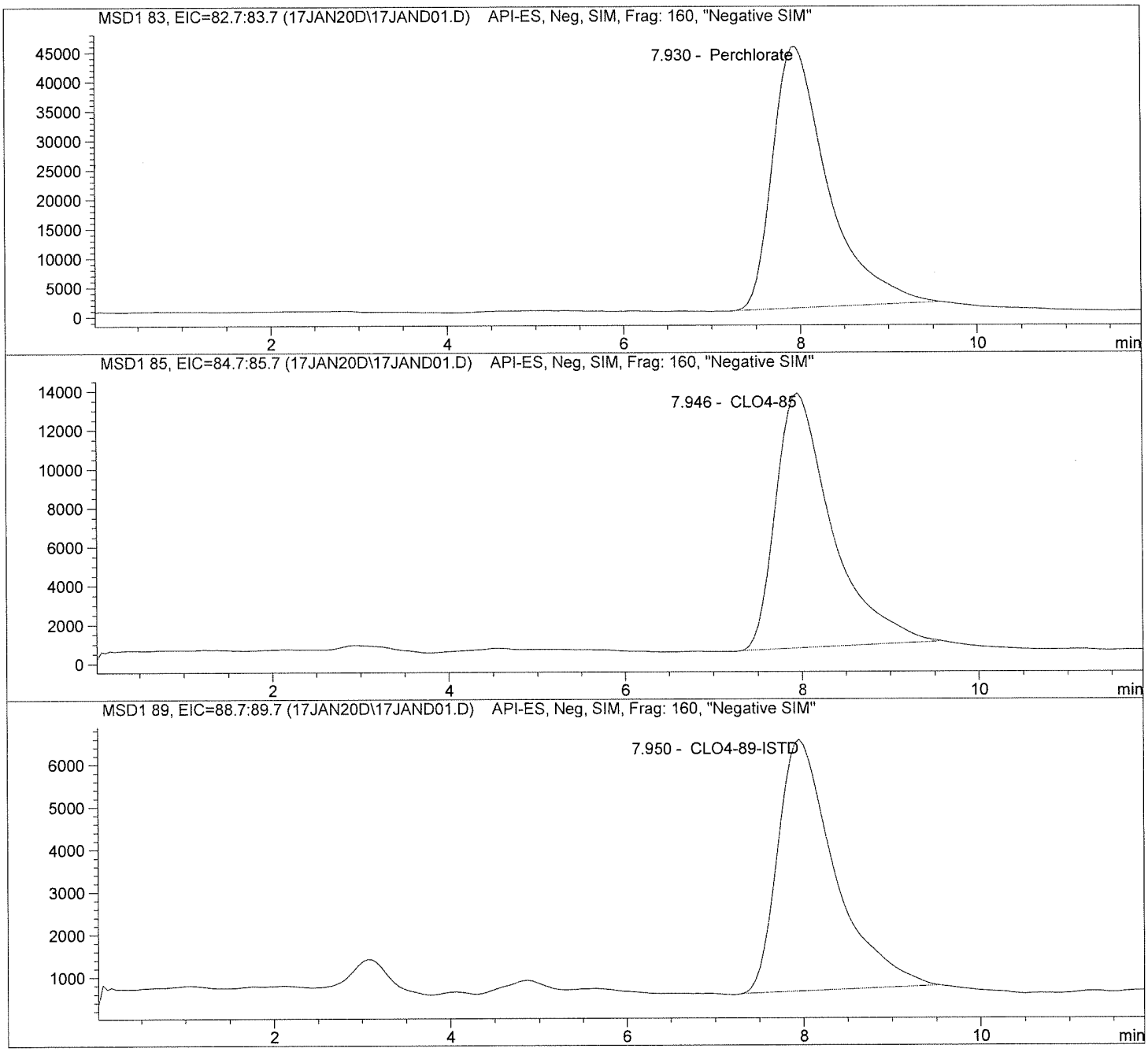
TB 2.18.20

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND01.D Sample Name: 695962 CCV@25

Injection Date:	2/17/2020 08:48:29	Seq Line:	1
Sample Name:	695962 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND01.D Sample Name: 695962 CCV@25

Injection Date:	2/17/2020 08:48:29	Seq Line:	1
Sample Name:	695962 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.930	PBA	1927676.2	24.8664	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.946	PBA	576713.4	24.4348	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.950	PBA	265029.5	5.0000	CLO4-89-ISTD

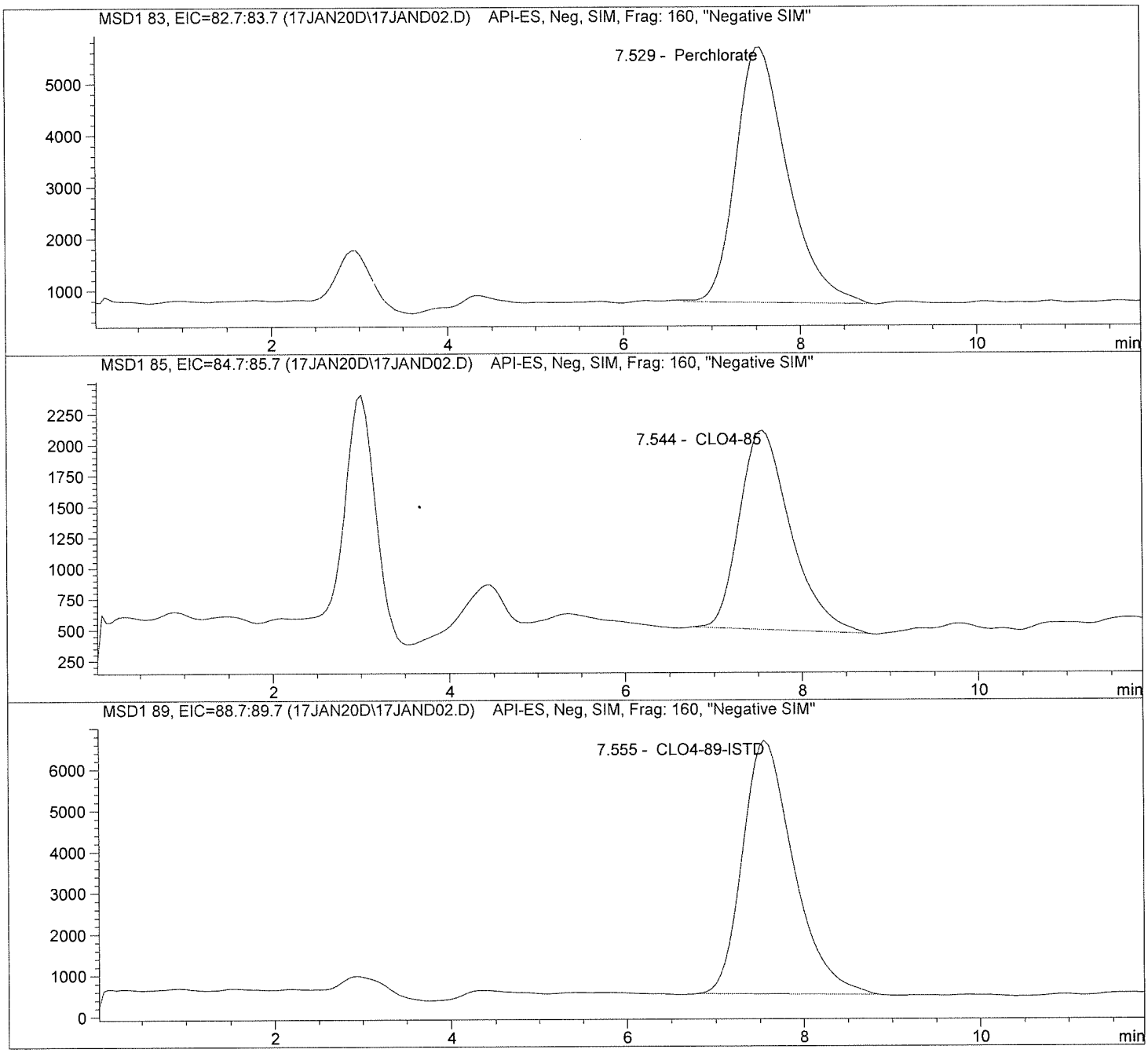
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND02.D Sample Name: 695963 LCS@3.

Injection Date:	2/17/2020 09:02:20	Seq Line:	2
Sample Name:	695963 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND02.D Sample Name: 695963 LCS@3.

Injection Date:	2/17/2020 09:02:20	Seq Line:	2
Sample Name:	695963 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.529	BBA	201219.2	2.9946	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.544	PBA	64955.2	3.0807	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.555	BBA	247234.1	5.0000	CLO4-89-ISTD

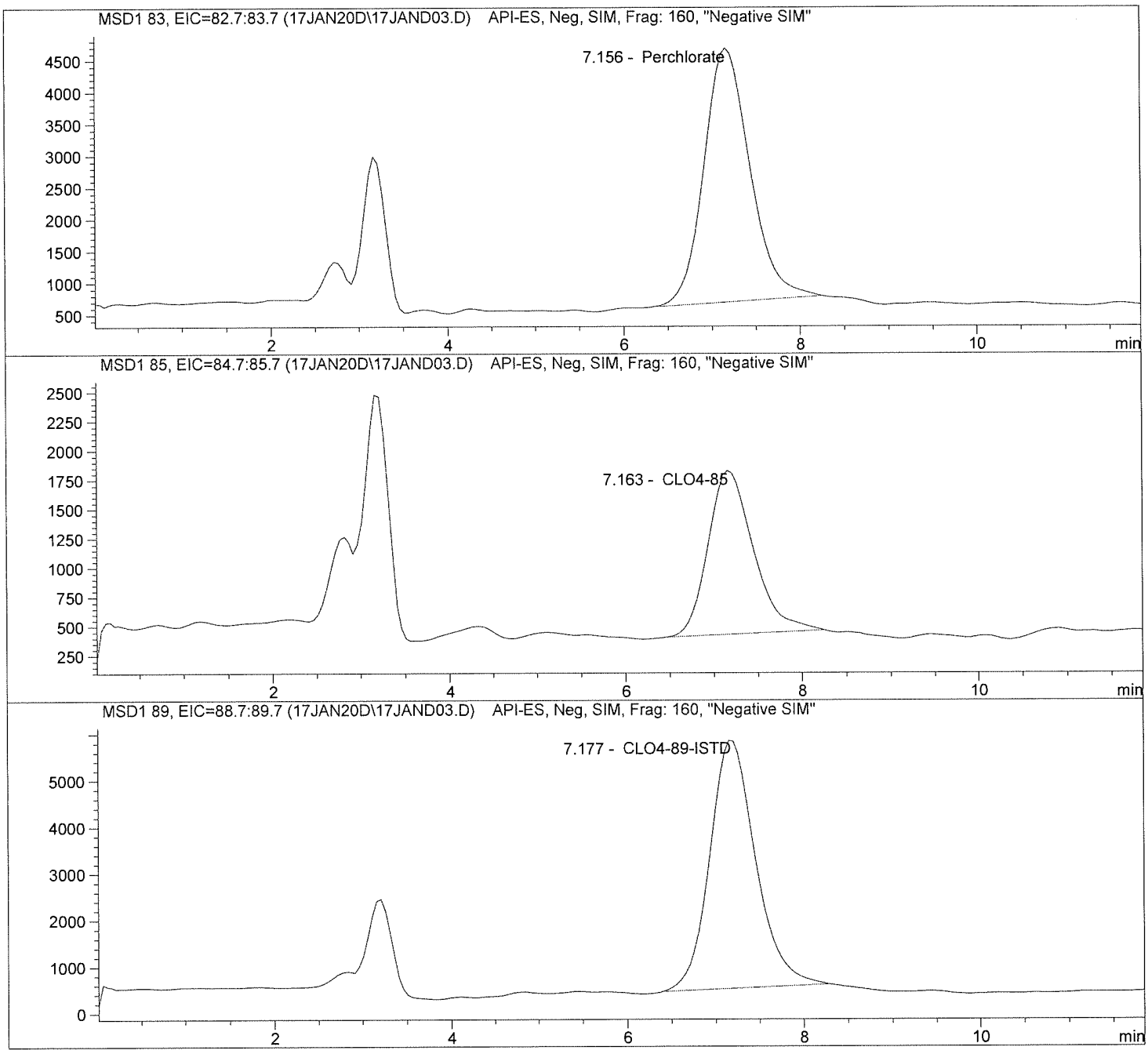
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND03.D Sample Name: 695964 ICS@3.0

Injection Date:	2/17/2020 09:16:11	Seq Line:	3
Sample Name:	695964 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND03.D Sample Name: 695964 ICS@3.0

Injection Date:	2/17/2020 09:16:11	Seq Line:	3
Sample Name:	695964 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.156	BBA	144924.0	2.7634	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.163	PBA	49979.2	3.0392	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.177	PBA	192730.7	5.0000	CLO4-89-ISTD

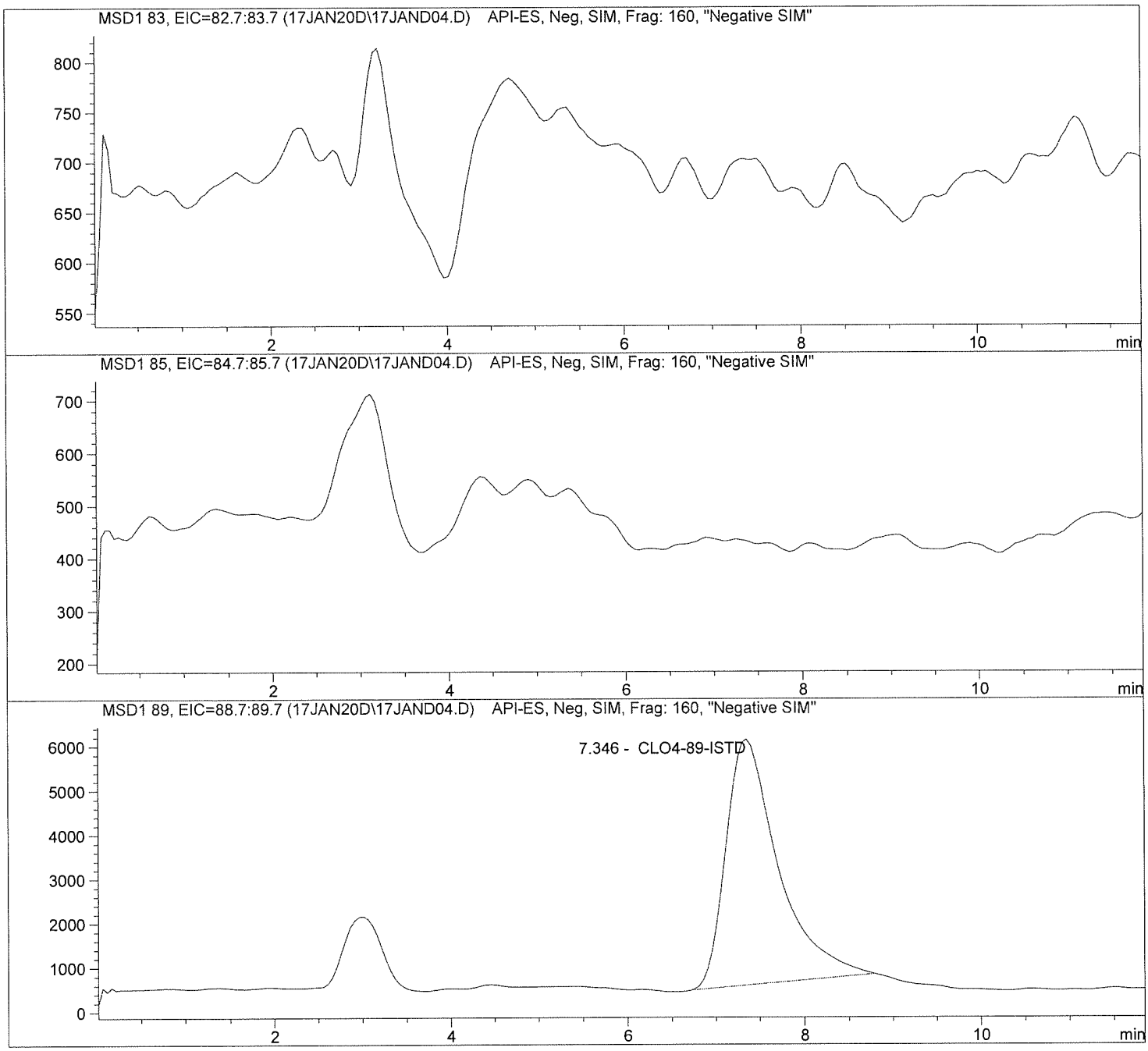
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND04.D Sample Name: 695966 LMB

Injection Date:	2/17/2020 09:30:08	Seq Line:	4
Sample Name:	695966 LMB	Location:	Via1 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND04.D Sample Name: 695966 LMB

Injection Date:	2/17/2020 09:30:08	Seq Line:	4
Sample Name:	695966 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.346	PBA	229809.2	5.0000	CLO4-89-ISTD

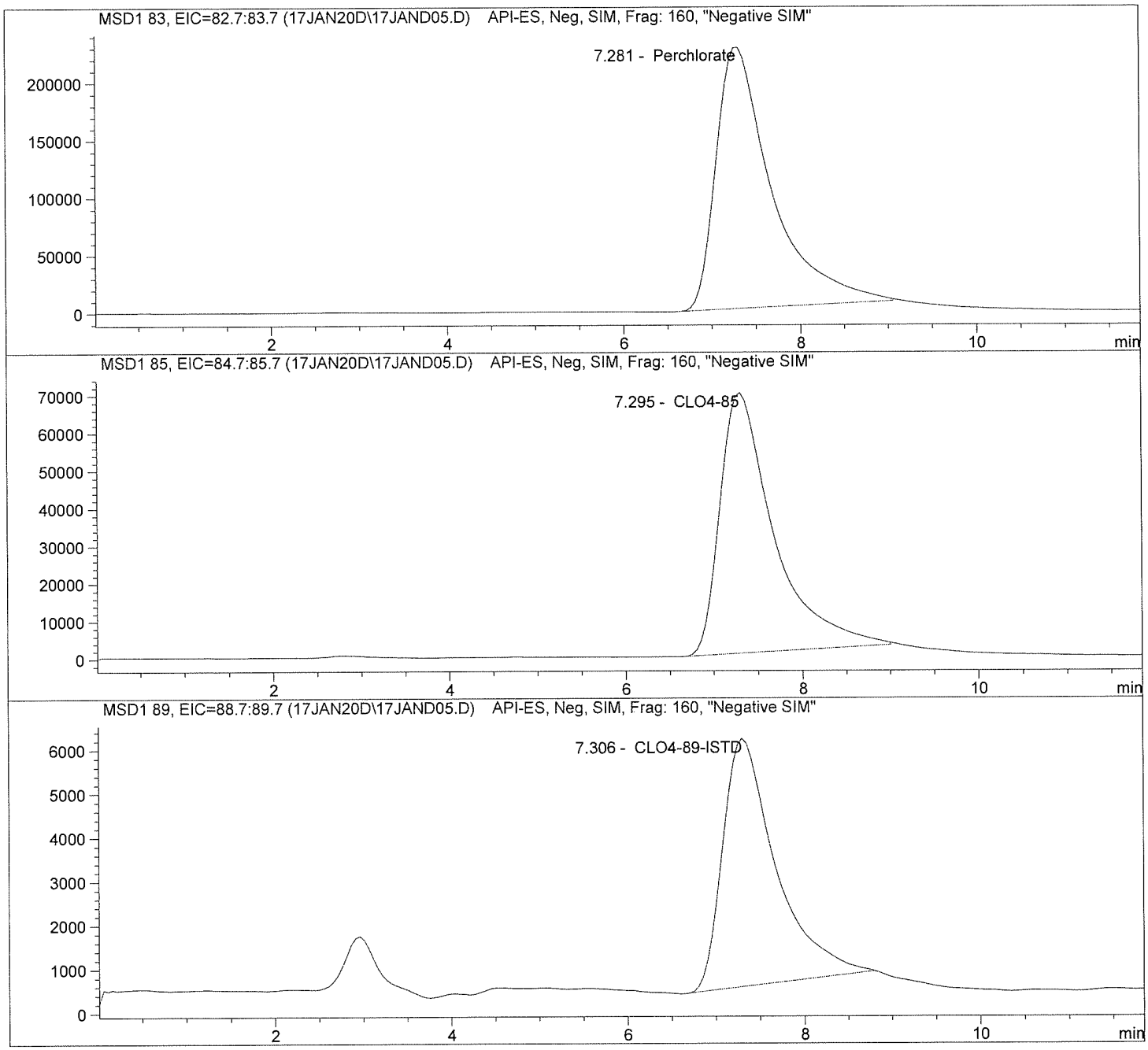
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND05.D Sample Name: 2004545001 100

Injection Date:	2/17/2020 09:44:01	Seq Line:	5
Sample Name:	2004545001 100	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND05.D Sample Name: 2004545001 100

Injection Date:	2/17/2020 09:44:01	Seq Line:	5
Sample Name:	2004545001 100	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.281	PBA	9919537.0	10682.7974	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.295	PBA	2929815.8	10575.9042	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.306	PBA	235908.1	500.0000	CLO4-89-ISTD

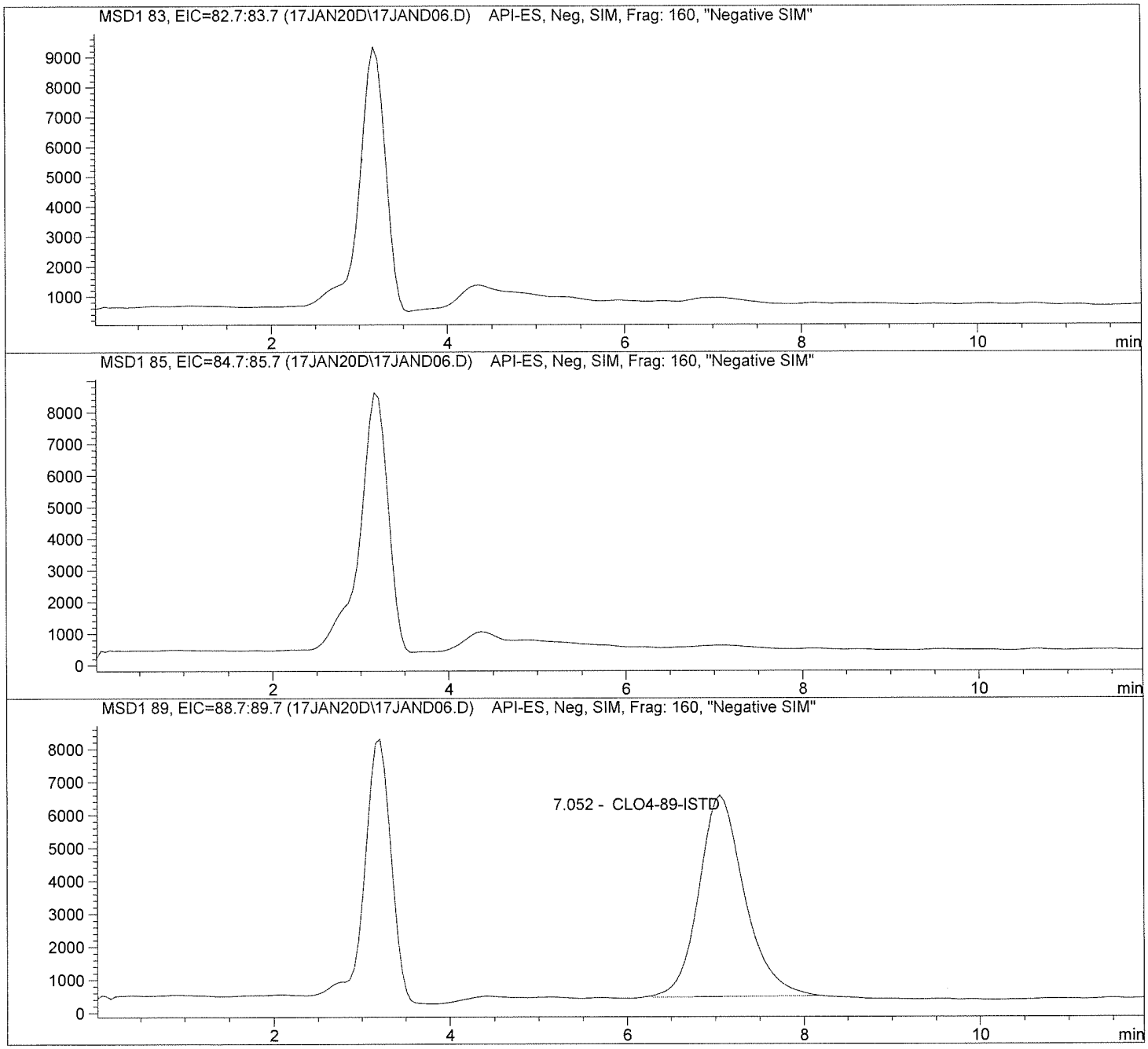
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND06.D Sample Name: 2004546001

Injection Date:	2/17/2020 09:57:56	Seq Line:	6
Sample Name:	2004546001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND06.D Sample Name: 2004546001

Injection Date:	2/17/2020 09:57:56	Seq Line:	6
Sample Name:	2004546001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.052	BBA	219400.8	5.0000	CLO4-89-ISTD

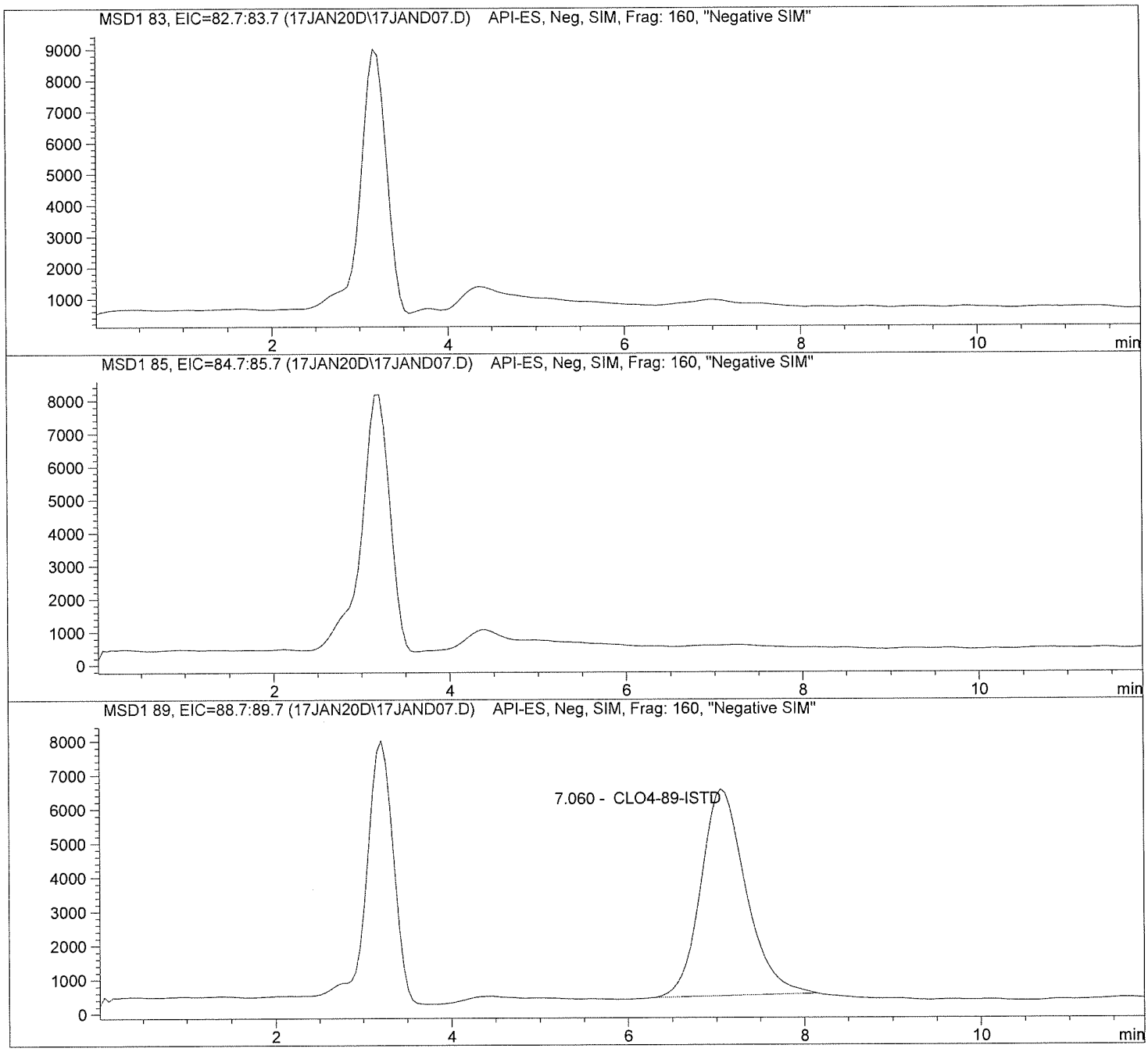
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND07.D Sample Name: 2004547001

Injection Date:	2/17/2020 10:11:50	Seq Line:	7
Sample Name:	2004547001	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND07.D Sample Name: 2004547001

Injection Date:	2/17/2020 10:11:50	Seq Line:	7
Sample Name:	2004547001	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.060	BBA	215048.0	5.0000	CLO4-89-ISTD

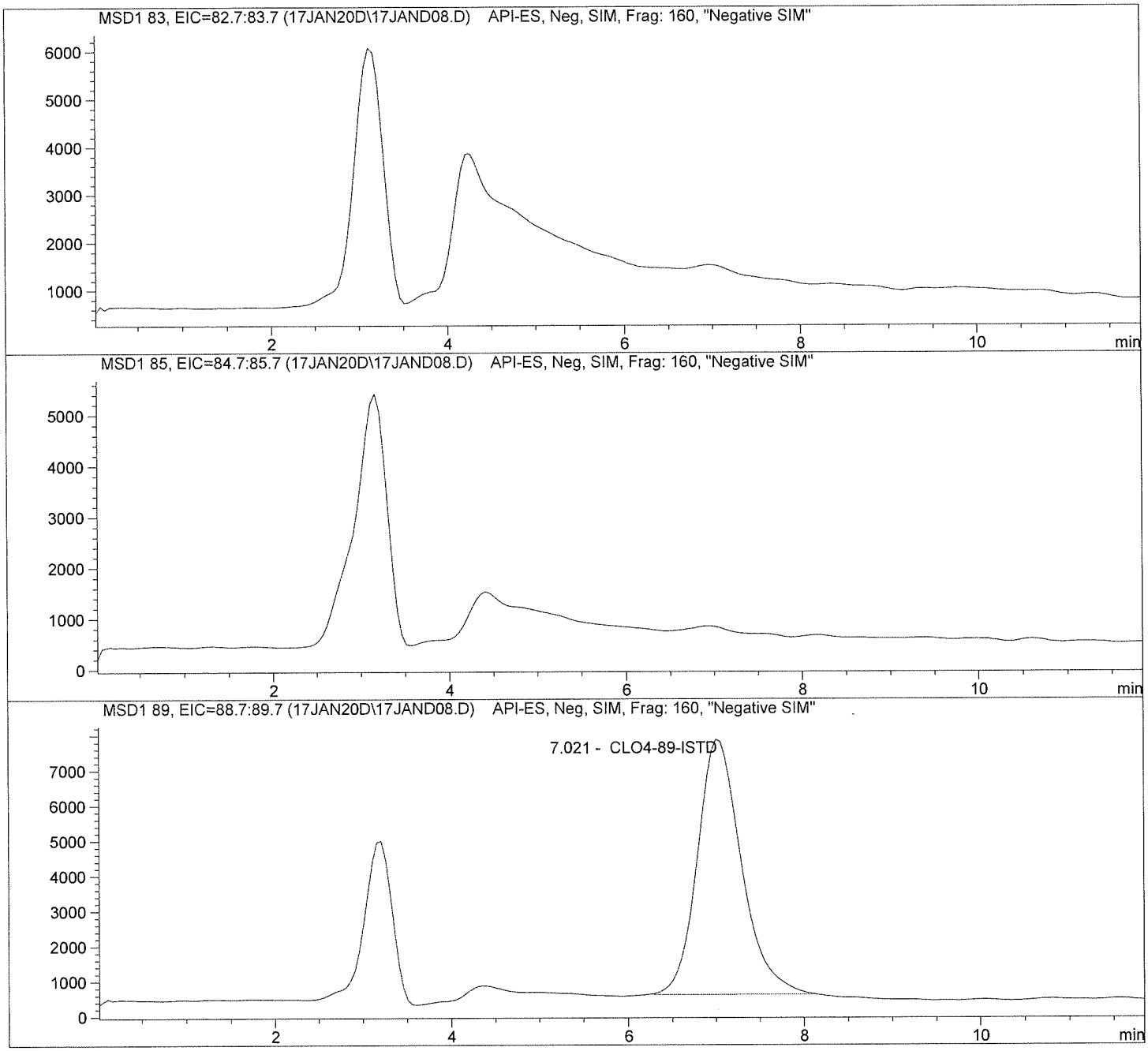
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND08.D Sample Name: 2004548001

Injection Date:	2/17/2020 10:25:44	Seq Line:	8
Sample Name:	2004548001	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND08.D Sample Name: 2004548001

Injection Date:	2/17/2020 10:25:44	Seq Line:	8
Sample Name:	2004548001	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.021	BBA	254205.5	5.0000	CLO4-89-ISTD

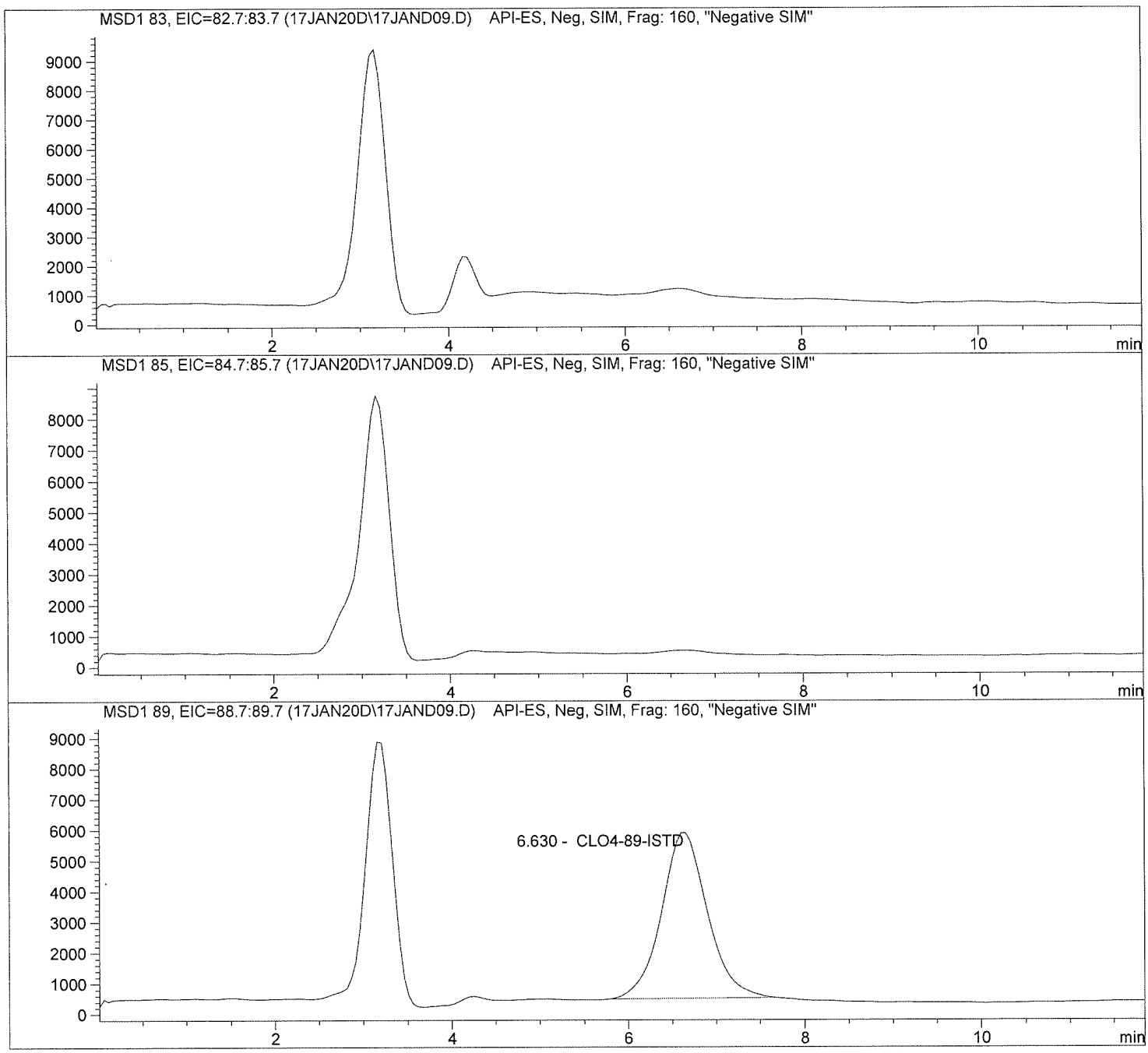
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND09.D Sample Name: 2004548002

Injection Date:	2/17/2020 10:39:36	Seq Line:	9
Sample Name:	2004548002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND09.D Sample Name: 2004548002

Injection Date:	2/17/2020 10:39:36	Seq Line:	9
Sample Name:	2004548002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.630	PBA	196394.8	5.0000	CLO4-89-ISTD

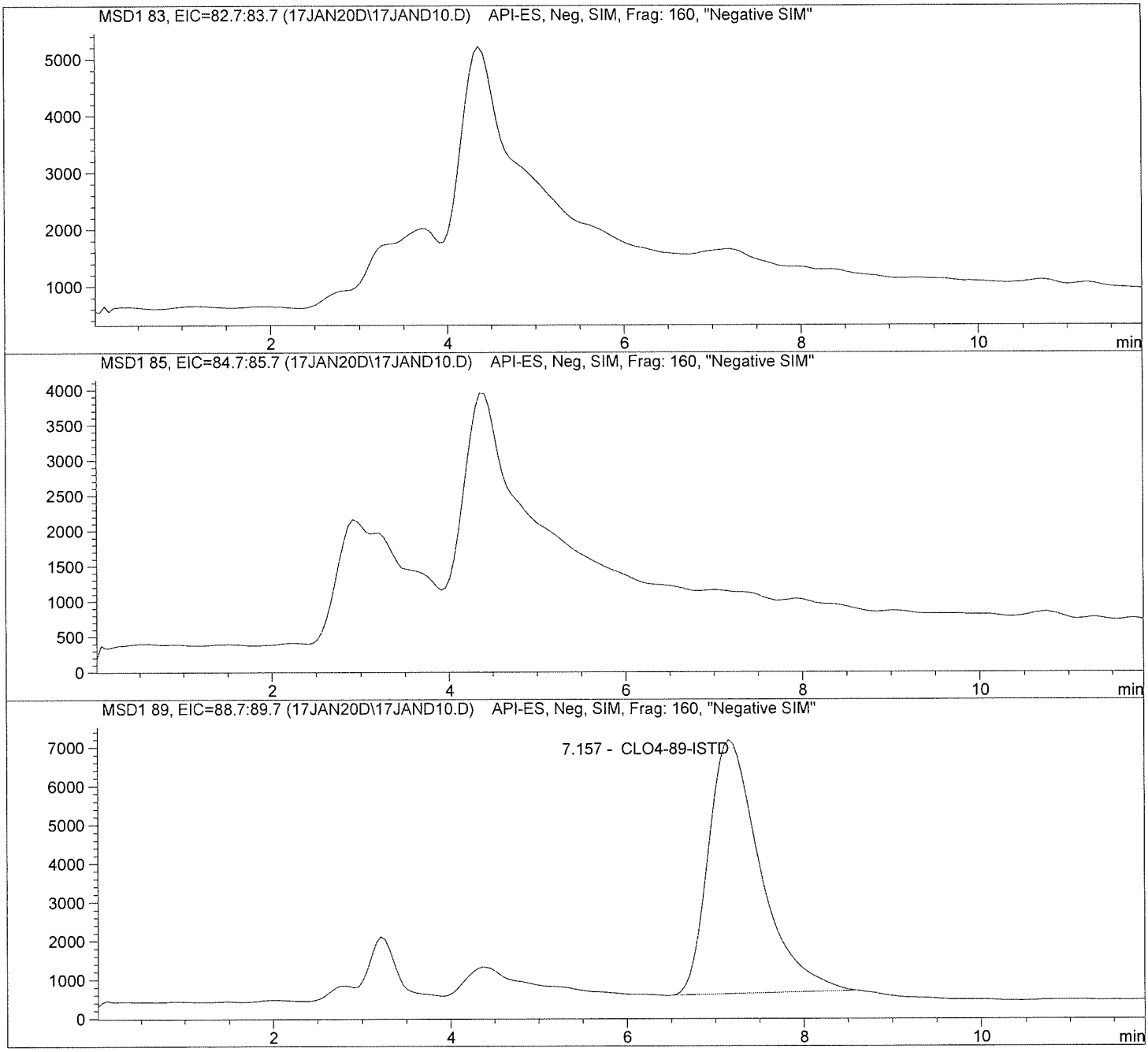
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND10.D Sample Name: 2004548003

Injection Date:	2/17/2020 10:53:30	Seq Line:	10
Sample Name:	2004548003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND10.D Sample Name: 2004548003

Injection Date:	2/17/2020 10:53:30	Seq Line:	10
Sample Name:	2004548003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.157	PBA	266482.4	5.0000	CLO4-89-ISTD

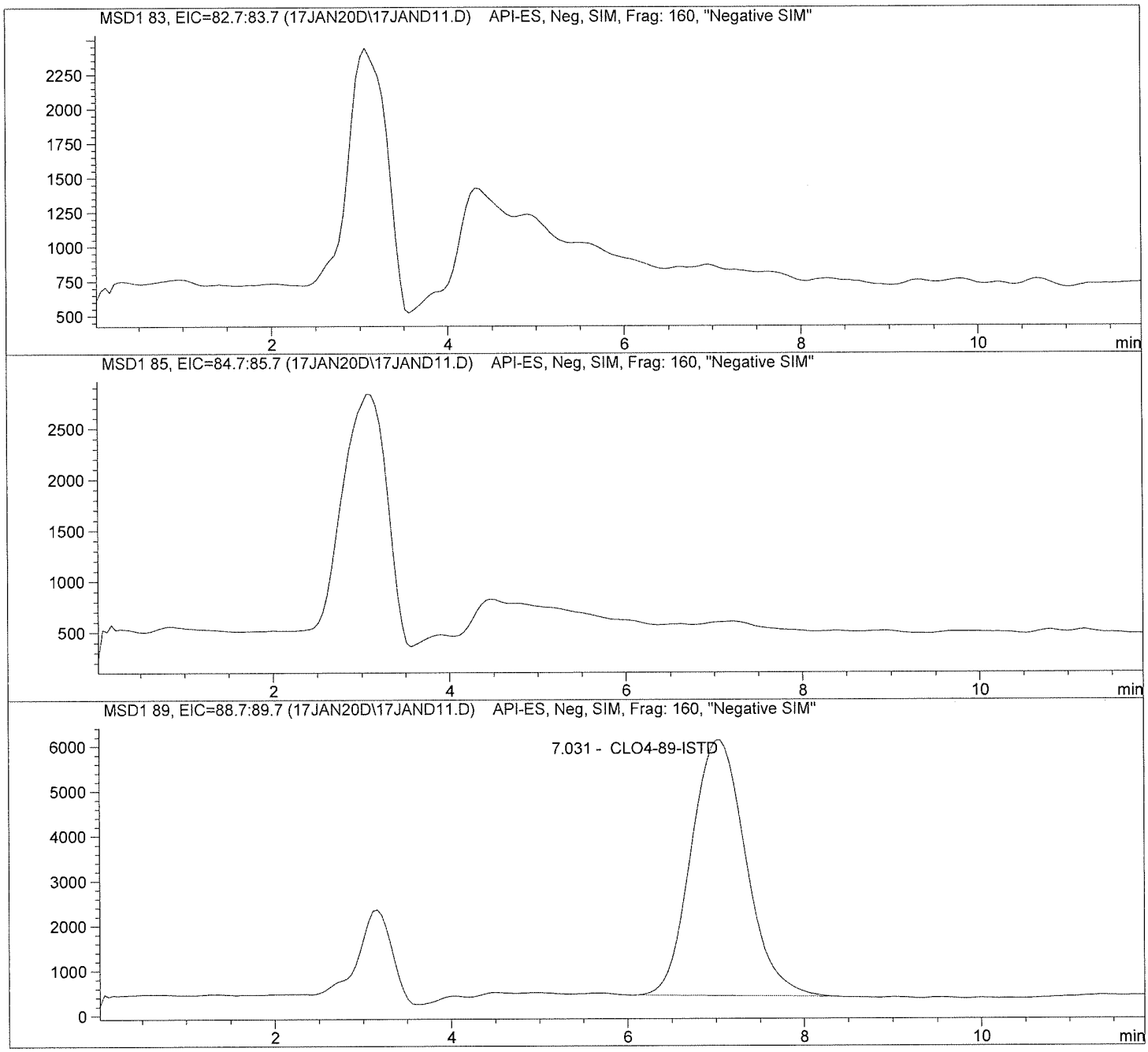
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND11.D Sample Name: 2004548004

Injection Date:	2/17/2020 11:07:22	Seq Line:	11
Sample Name:	2004548004	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND11.D Sample Name: 2004548004

Injection Date:	2/17/2020 11:07:22	Seq Line:	11
Sample Name:	2004548004	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.031	PBA	245153.6	5.0000	CLO4-89-ISTD

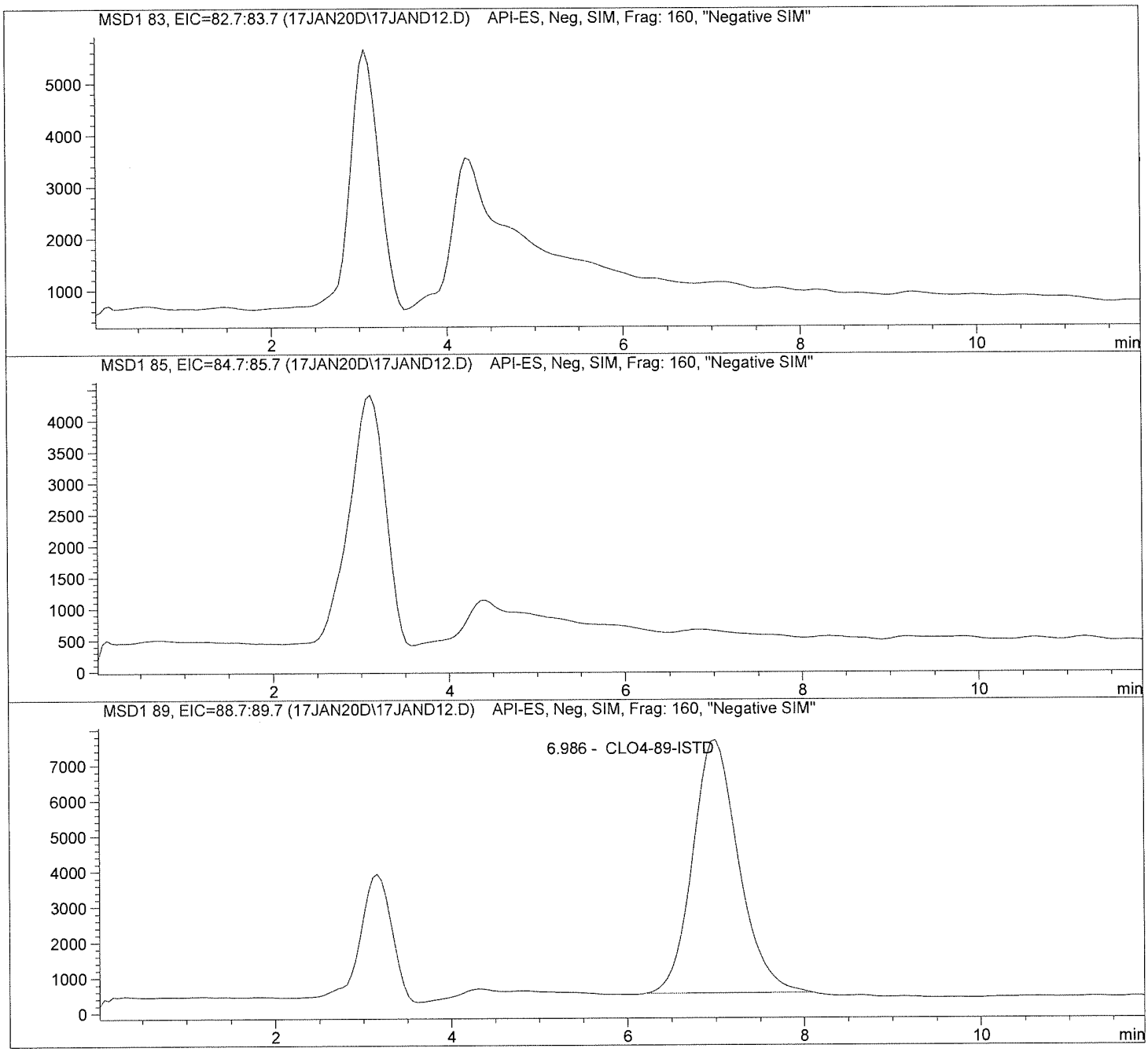
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND12.D Sample Name: 2004548005

Injection Date:	2/17/2020 11:21:13	Seq Line:	12
Sample Name:	2004548005	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND12.D Sample Name: 2004548005

Injection Date:	2/17/2020 11:21:13	Seq Line:	12
Sample Name:	2004548005	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.986	PBA	258211.1	5.0000	CLO4-89-ISTD

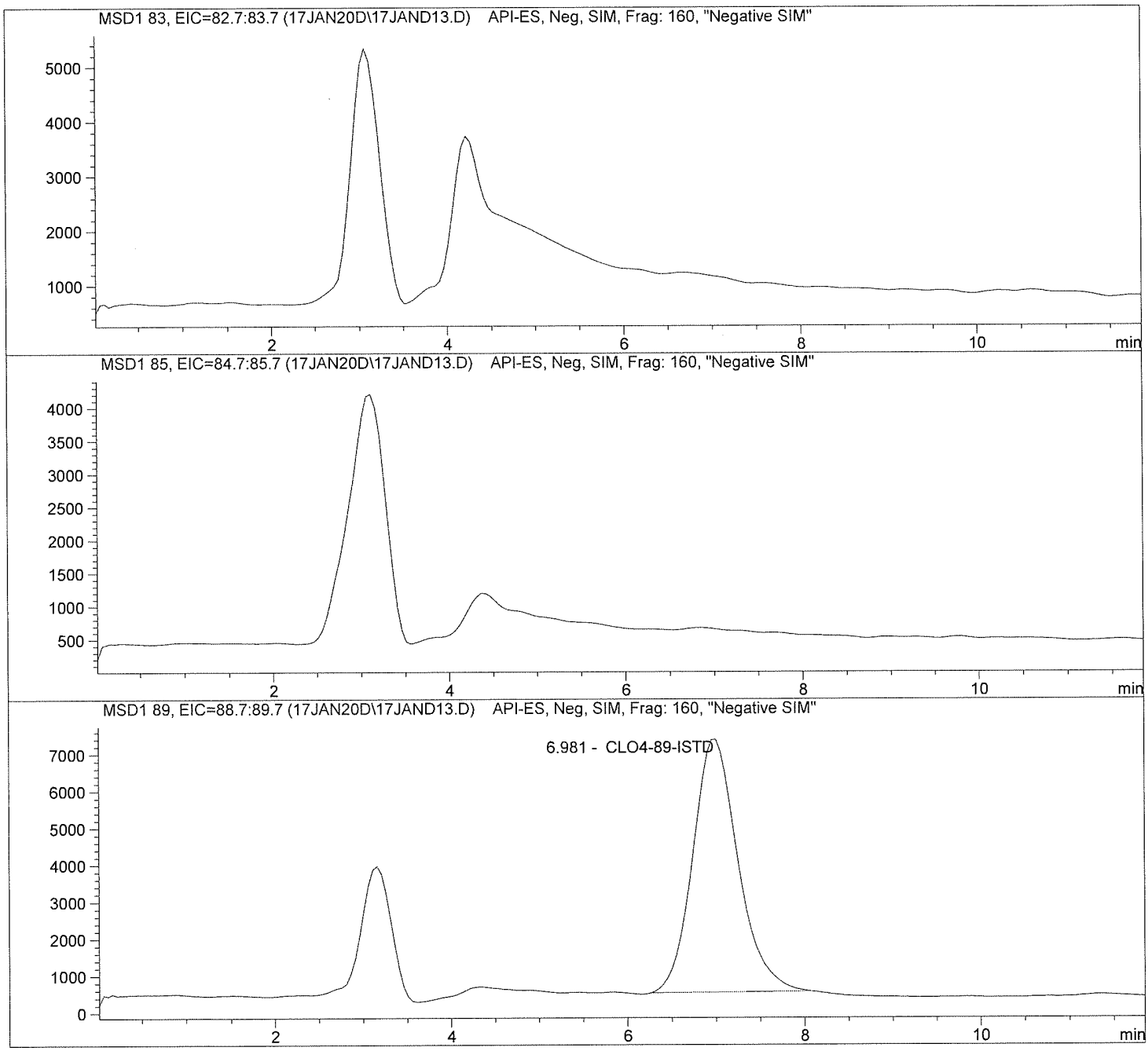
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND13.D Sample Name: 2004548006

Injection Date:	2/17/2020 11:35:03	Seq Line:	13
Sample Name:	2004548006	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND13.D Sample Name: 2004548006

Injection Date:	2/17/2020 11:35:03	Seq Line:	13
Sample Name:	2004548006	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.981	PBA	244278.8	5.0000	CLO4-89-ISTD

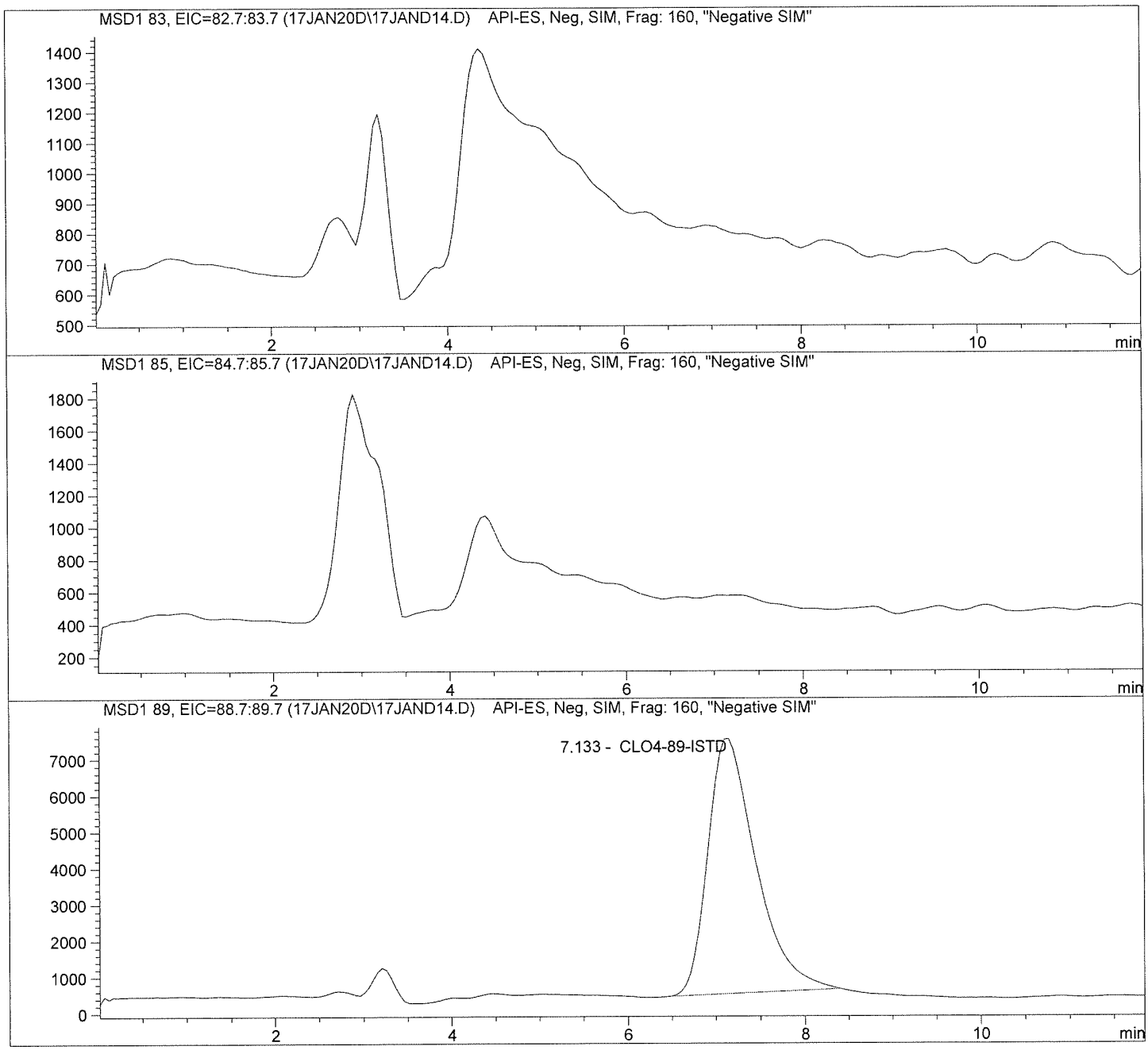
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND14.D Sample Name: 2004548007

Injection Date:	2/17/2020 11:49:00	Seq Line:	14
Sample Name:	2004548007	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND14.D Sample Name: 2004548007

Injection Date:	2/17/2020 11:49:00	Seq Line:	14
Sample Name:	2004548007	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.133	PBA	265819.8	5.0000	CLO4-89-ISTD

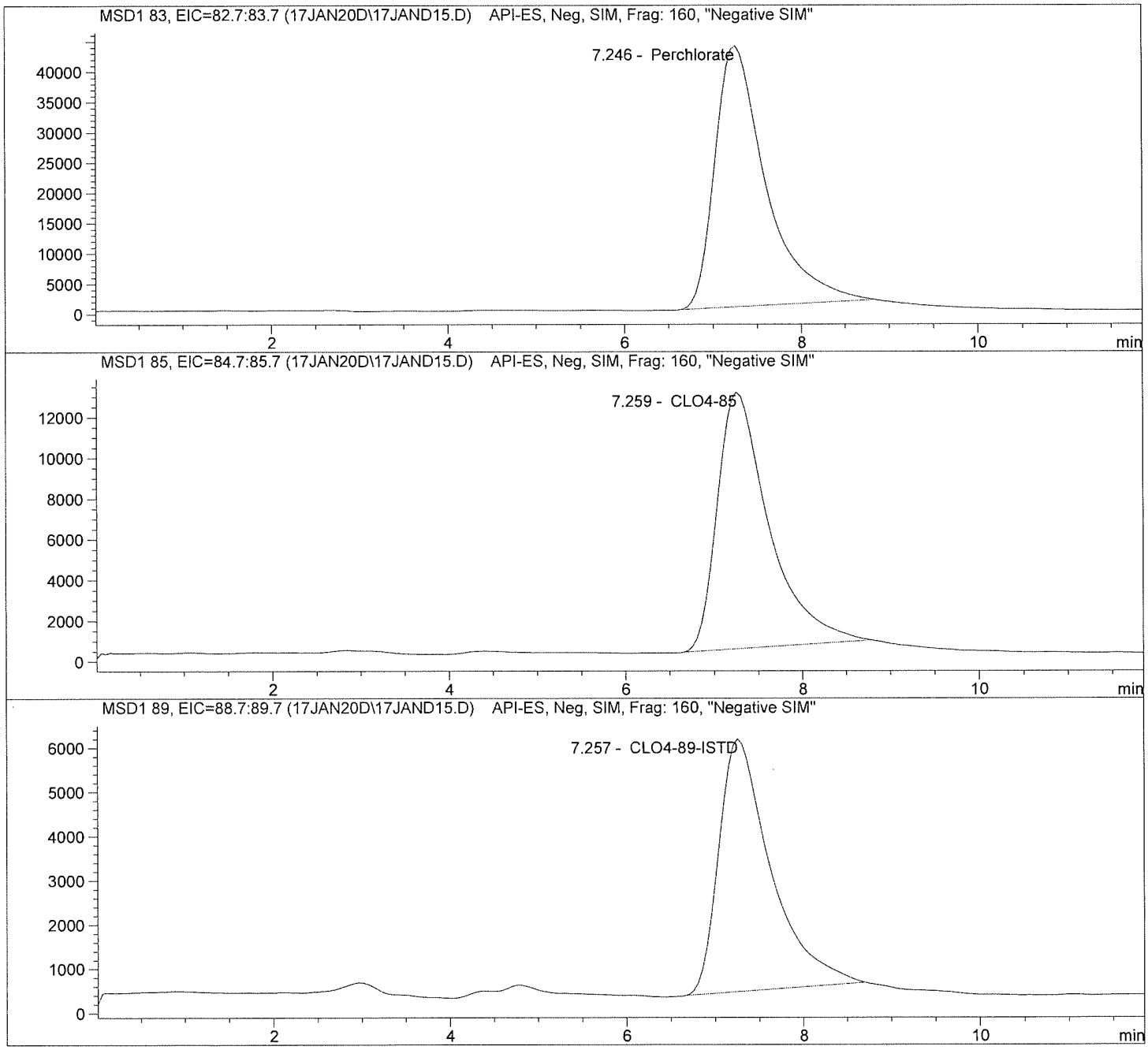
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND15.D Sample Name: 695967 CCV@25

Injection Date:	2/17/2020 12:02:52	Seq Line:	15
Sample Name:	695967 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND15.D Sample Name: 695967 CCV@25

Injection Date:	2/17/2020 12:02:52	Seq Line:	15
Sample Name:	695967 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.246	PBA	1729590.0	25.2642	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.259	PBA	512272.7	24.6022	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.257	PBA	233667.8	5.0000	CLO4-89-ISTD

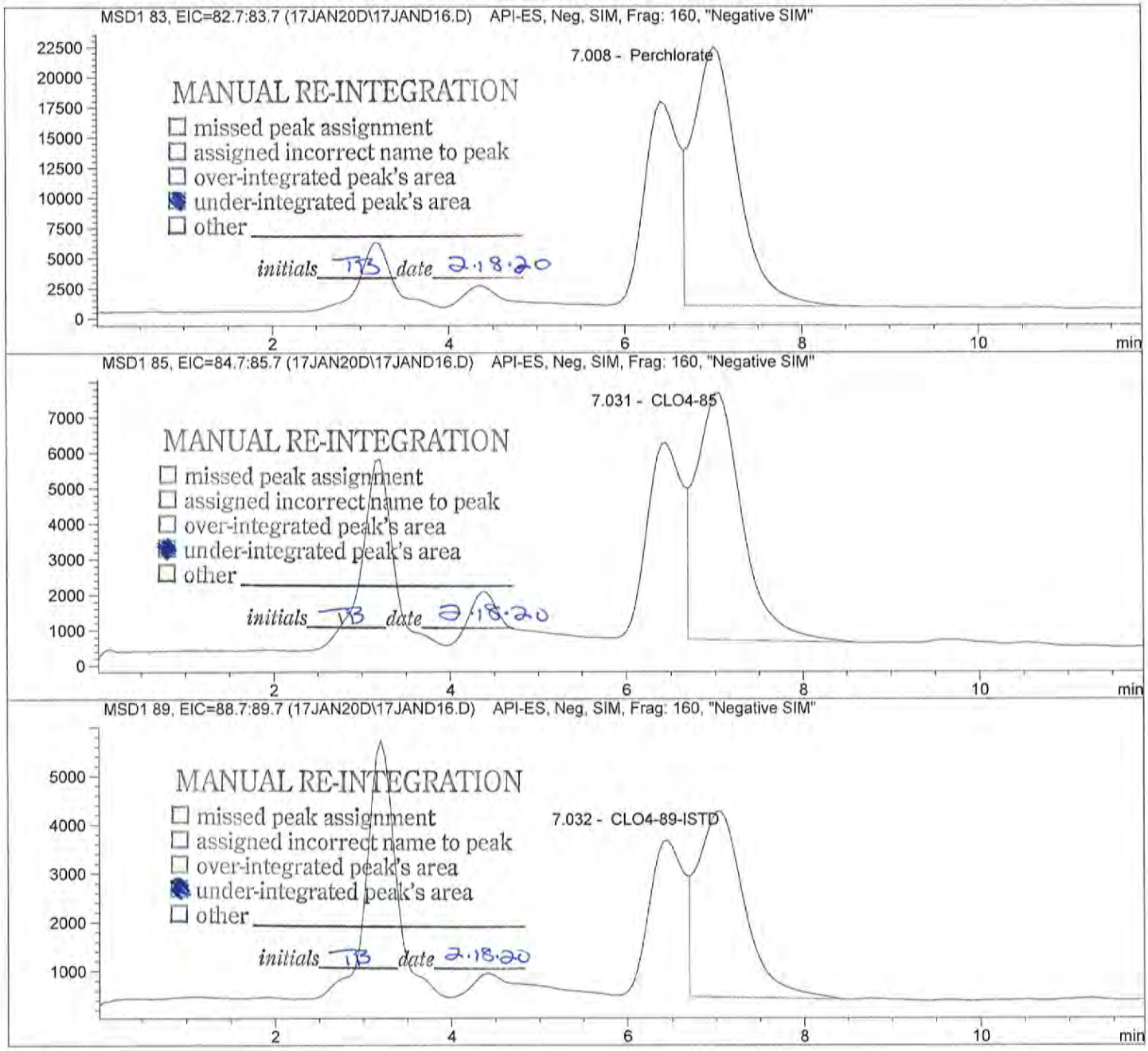
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND16.D Sample Name: 2004548008

Injection Date:	2/17/2020 12:16:47	Seq Line:	16
Sample Name:	2004548008	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND16.D Sample Name: 2004548008

Injection Date:	2/17/2020 12:16:47	Seq Line:	16
Sample Name:	2004548008	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.008	FM	748879.1	18.9784	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.031	FM	246750.5	20.3501	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.032	FM	138229.9	5.0000	CLO4-89-ISTD

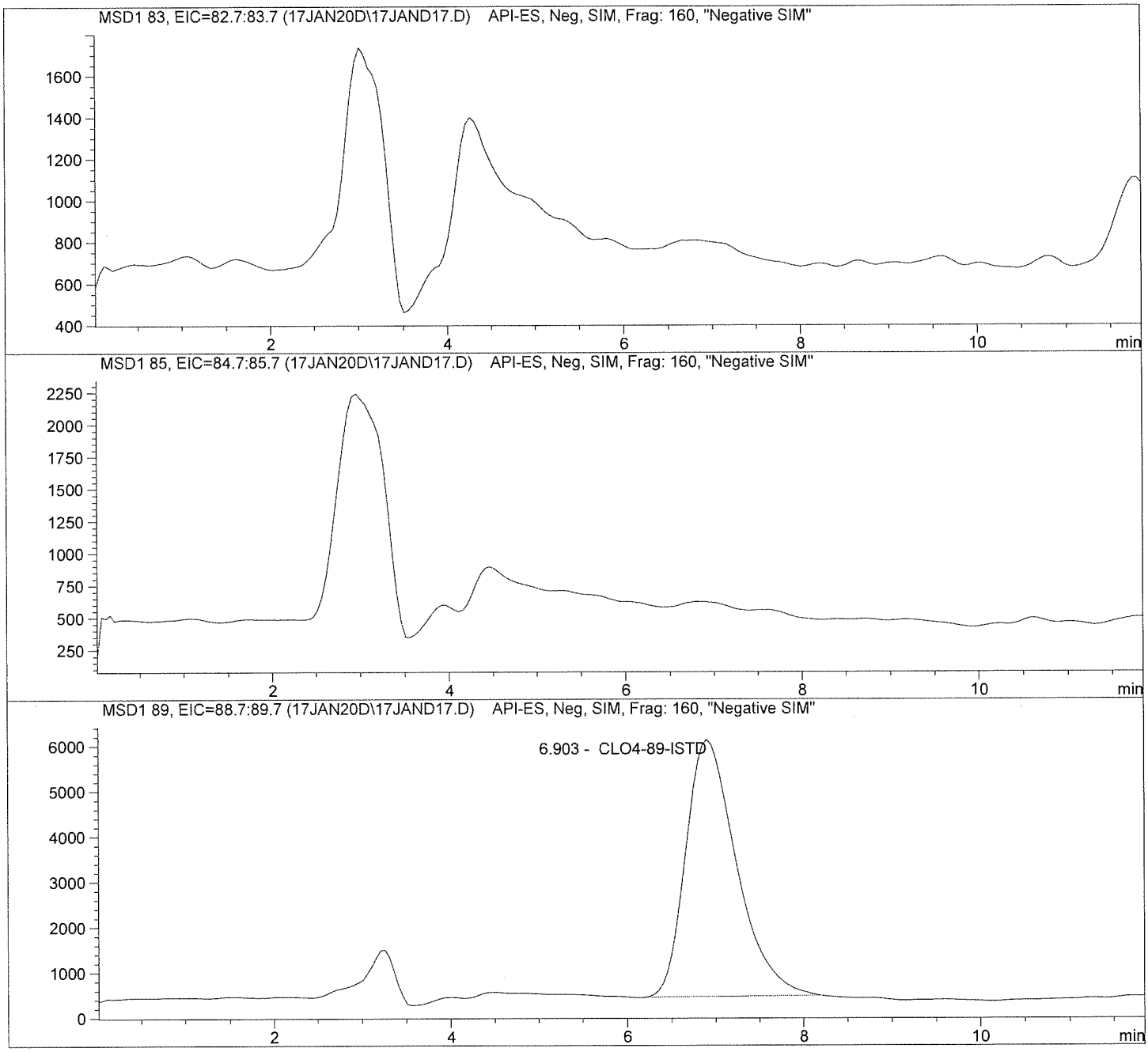
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND17.D Sample Name: 2004548009

Injection Date:	2/17/2020 12:30:39	Seq Line:	17
Sample Name:	2004548009	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND17.D Sample Name: 2004548009

Injection Date:	2/17/2020 12:30:39	Seq Line:	17
Sample Name:	2004548009	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.903	PBA	227261.6	5.0000	CLO4-89-ISTD

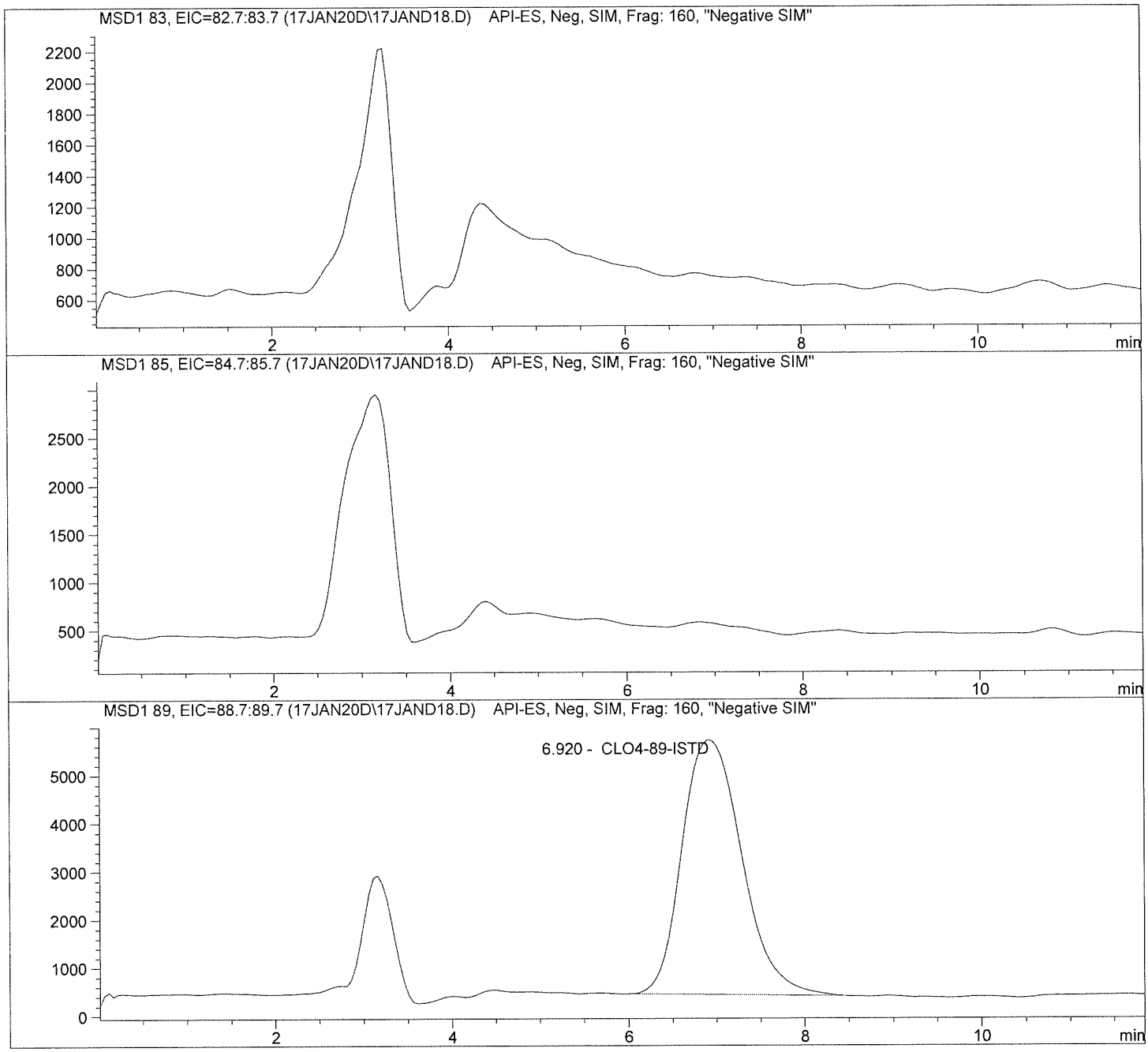
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND18.D Sample Name: 2004548010

Injection Date:	2/17/2020 12:44:31	Seq Line:	18
Sample Name:	2004548010	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND18.D Sample Name: 2004548010

Injection Date:	2/17/2020 12:44:31	Seq Line:	18
Sample Name:	2004548010	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.920	PBA	250414.9	5.0000	CLO4-89-ISTD

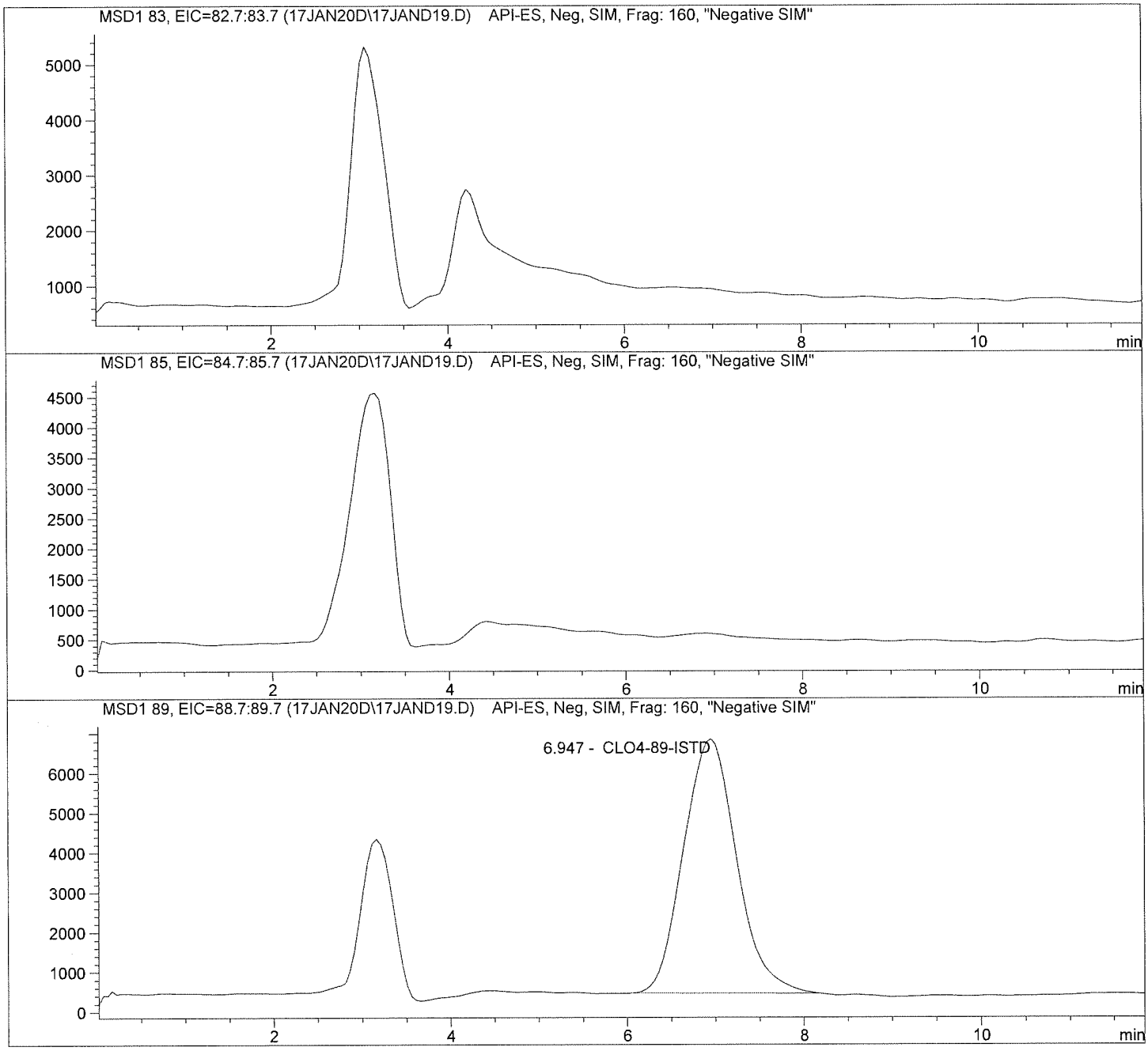
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND19.D Sample Name: 2004548011

Injection Date:	2/17/2020 12:58:22	Seq Line:	19
Sample Name:	2004548011	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND19.D Sample Name: 2004548011

Injection Date:	2/17/2020 12:58:22	Seq Line:	19
Sample Name:	2004548011	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.947	PBA	267411.8	5.0000	CLO4-89-ISTD

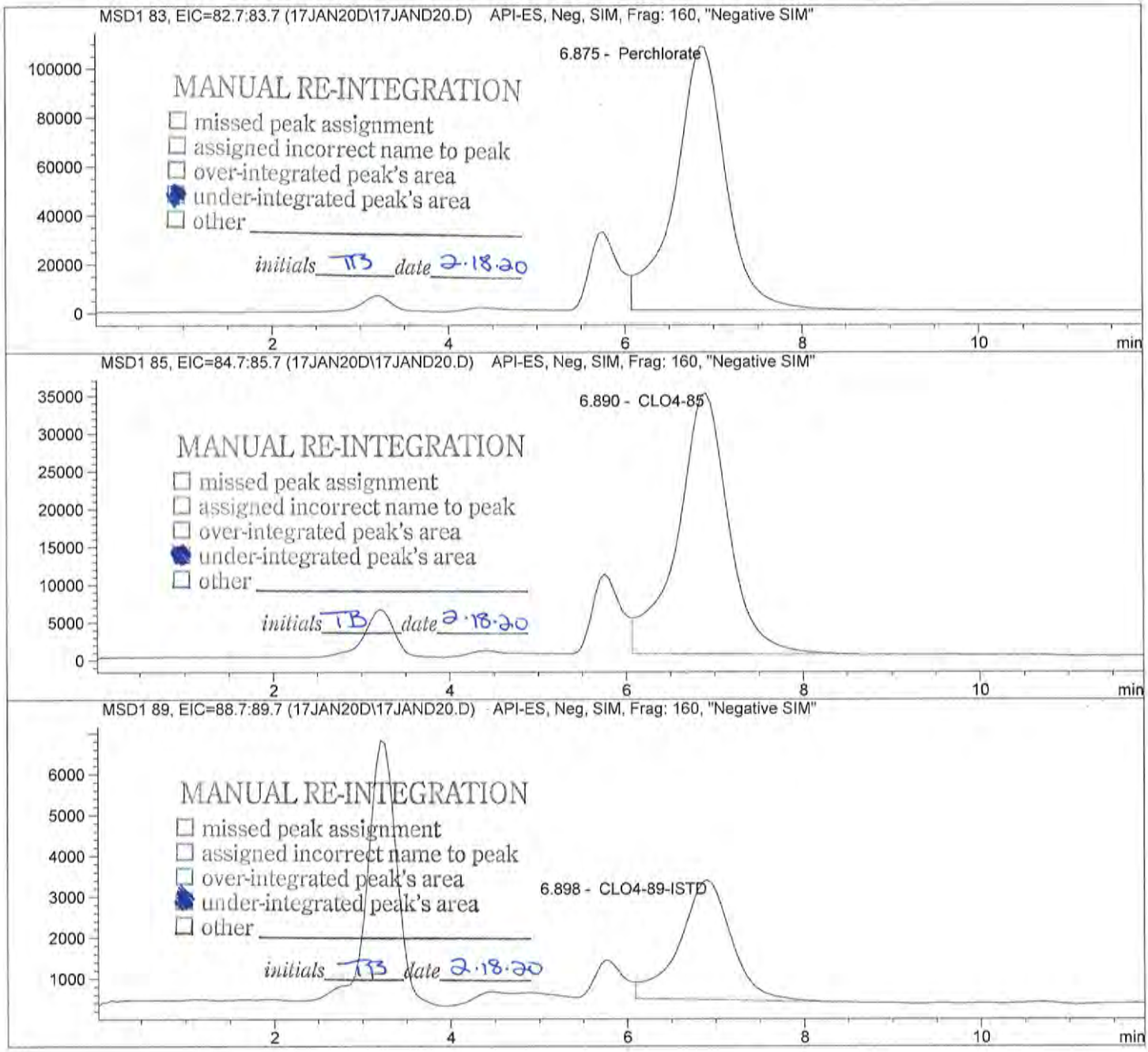
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND20.D Sample Name: 2004548012

Injection Date:	2/17/2020 13:12:19	Seq Line:	20
Sample Name:	2004548012	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND20.D Sample Name: 2004548012

Injection Date:	2/17/2020 13:12:19	Seq Line:	20
Sample Name:	2004548012	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.875	FM	4277198.5	94.6505	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.890	FM	1382737.4	100.2794	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.898	FM	119387.1	5.0000	CLO4-89-ISTD

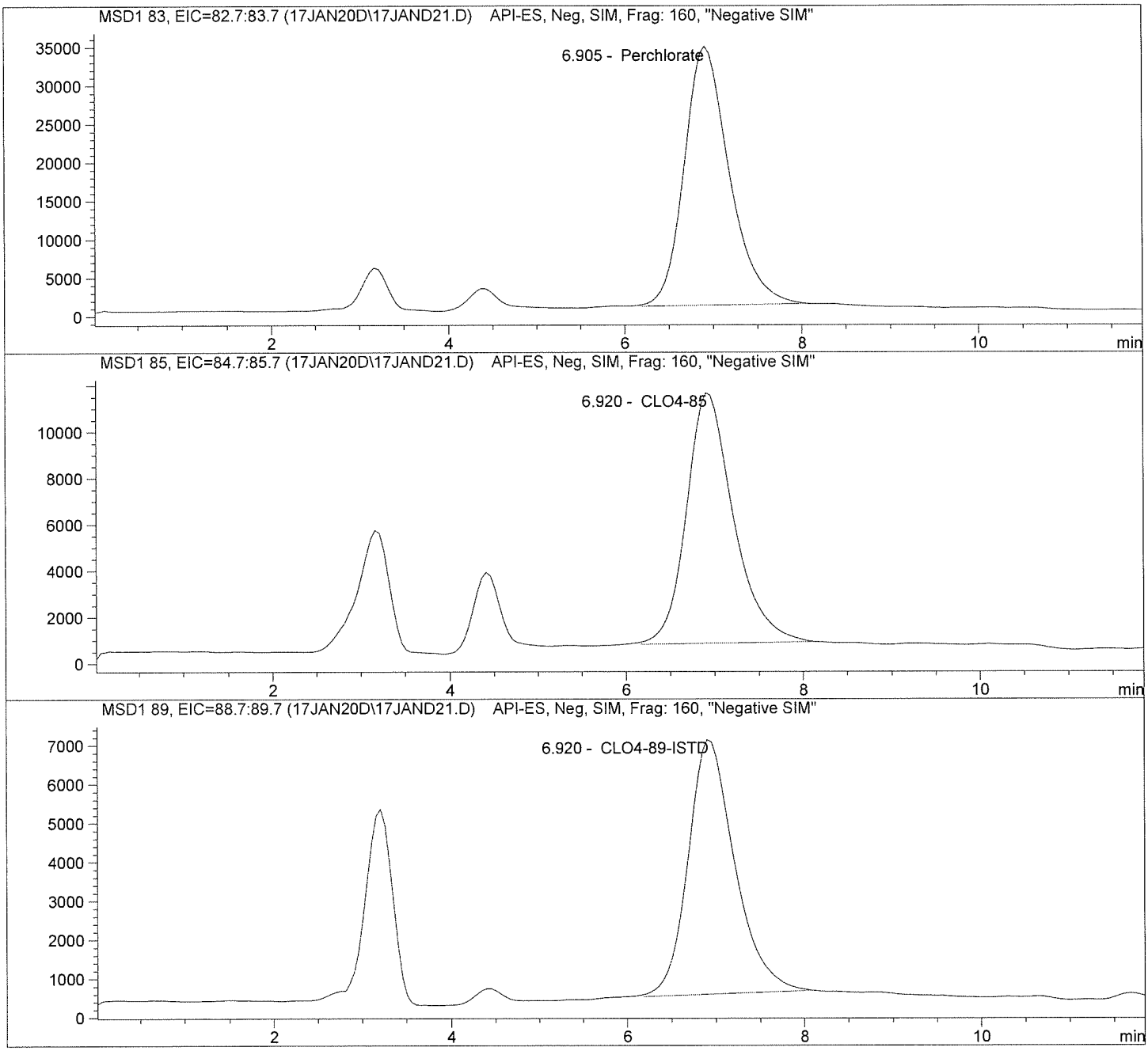
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND21.D Sample Name: 2004548013

Injection Date:	2/17/2020 13:26:12	Seq Line:	21
Sample Name:	2004548013	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND21.D Sample Name: 2004548013

Injection Date:	2/17/2020 13:26:12	Seq Line:	21
Sample Name:	2004548013	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.905	BBA	1185693.1	17.5126	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.920	BBA	397137.3	19.0629	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.920	BBA	238618.0	5.0000	CLO4-89-ISTD

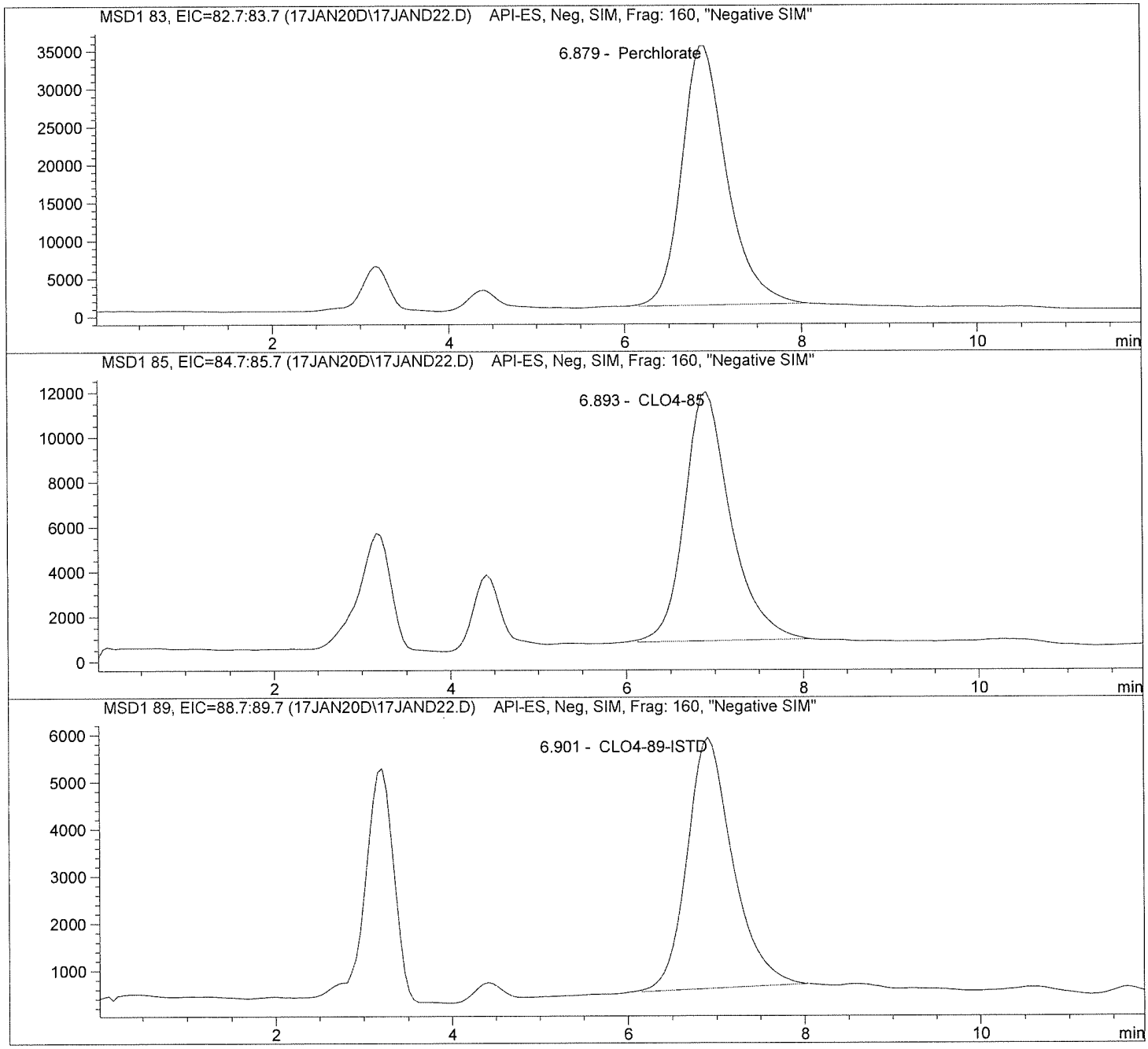
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND22.D Sample Name: 2004548014

Injection Date:	2/17/2020 13:40:06	Seq Line:	22
Sample Name:	2004548014	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND22.D Sample Name: 2004548014

Injection Date:	2/17/2020 13:40:06	Seq Line:	22
Sample Name:	2004548014	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.879	BBA	1208615.6	21.8897	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.893	BBA	402089.2	23.6919	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.901	BBA	191102.0	5.0000	CLO4-89-ISTD

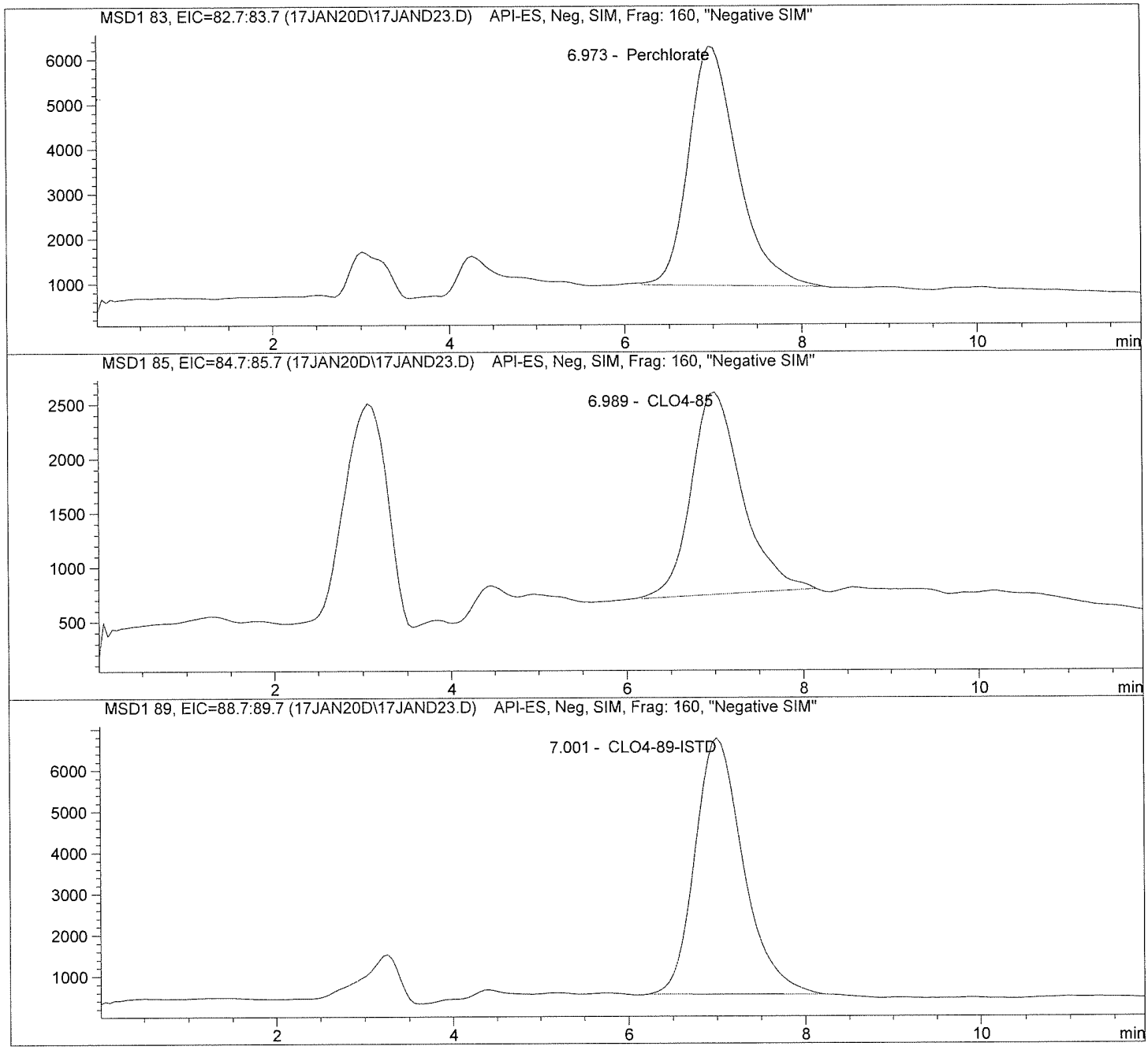
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND23.D Sample Name: 2004548015 MS

Injection Date:	2/17/2020 14:54:53	Seq Line:	23
Sample Name:	2004548015 MS	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND23.D Sample Name: 2004548015 MS

Injection Date:	2/17/2020 14:54:53	Seq Line:	23
Sample Name:	2004548015 MS	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.973	BBA	205914.9	3.1969	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.989	BBA	74577.8	3.7093	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.001	PBA	237178.4	5.0000	CLO4-89-ISTD

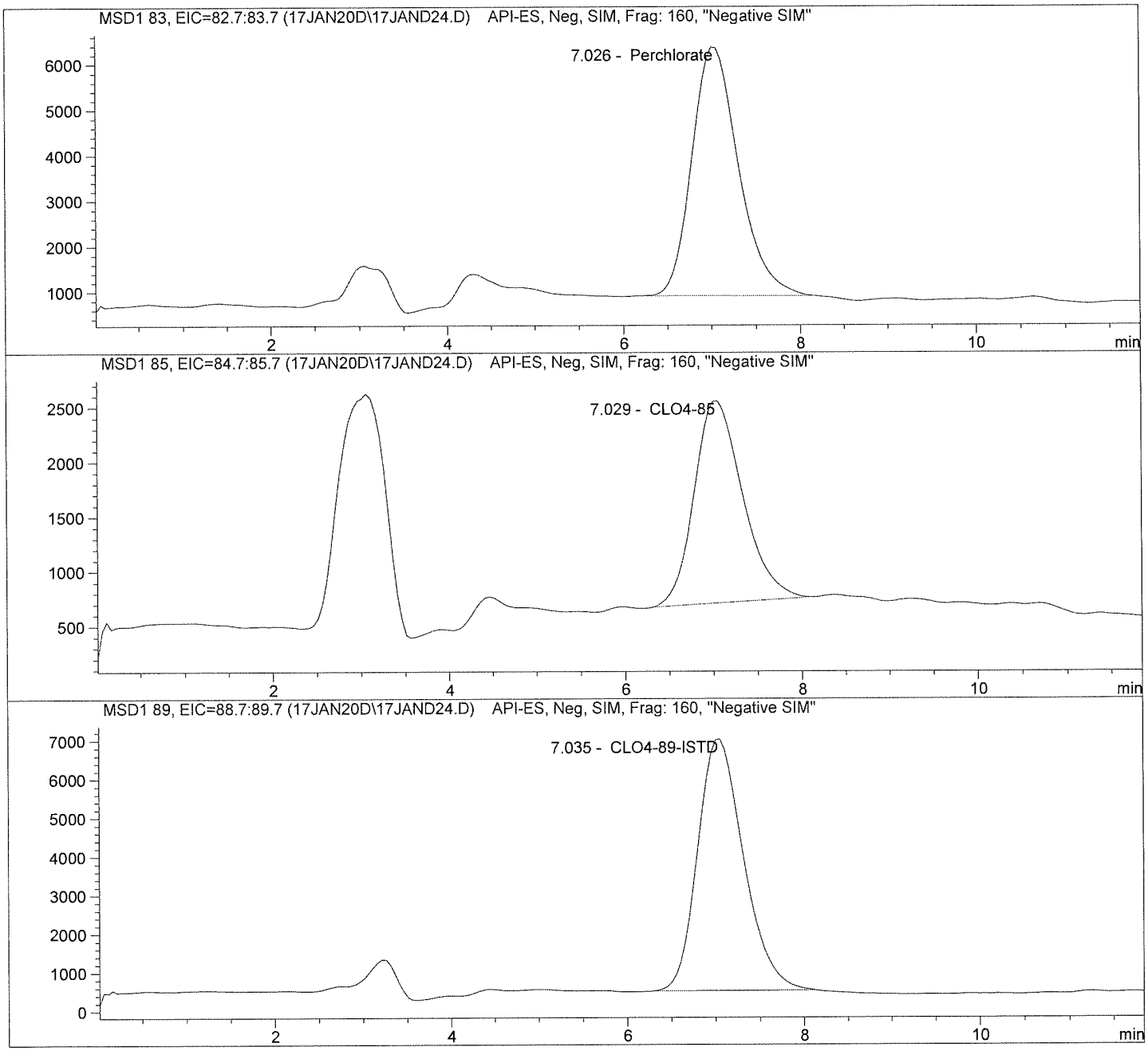
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND24.D Sample Name: 2004548016 MSD

Injection Date:	2/17/2020 15:08:46	Seq Line:	24
Sample Name:	2004548016 MSD	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND24.D Sample Name: 2004548016 MSD

Injection Date:	2/17/2020 15:08:46	Seq Line:	24
Sample Name:	2004548016 MSD	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.026	BBA	199352.0	3.1385	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.029	PBA	70132.0	3.5331	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.035	PBA	233840.1	5.0000	CLO4-89-ISTD

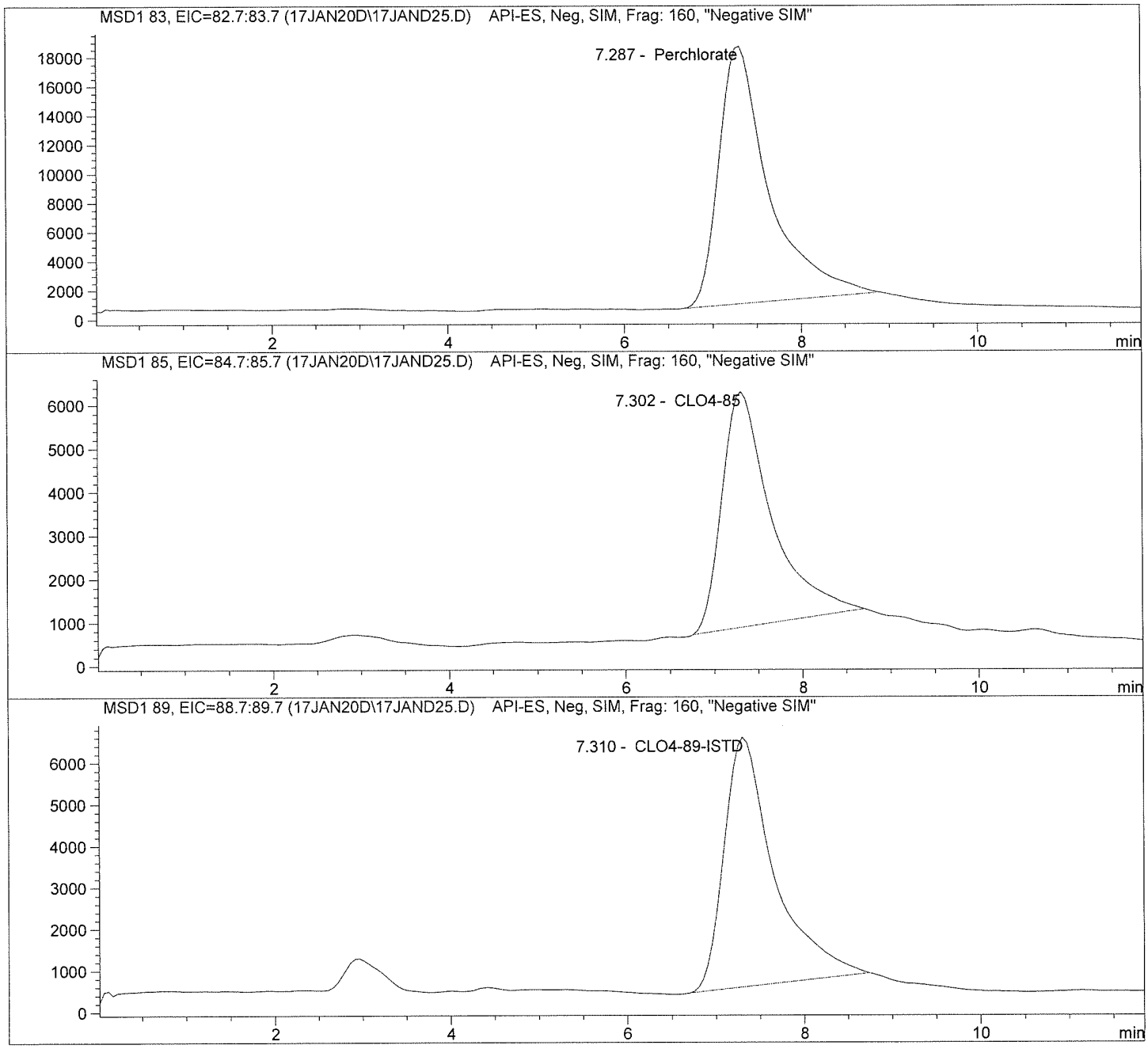
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND25.D Sample Name: 2004545001 1K

Injection Date:	2/17/2020 15:22:38	Seq Line:	25
Sample Name:	2004545001 1K	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND25.D Sample Name: 2004545001 1K

Injection Date:	2/17/2020 15:22:38	Seq Line:	25
Sample Name:	2004545001 1K	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.287	PBA	698274.0	10634.7156	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.302	PBA	211342.7	10471.5946	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.310	PBA	237890.8	5000.0000	CLO4-89-ISTD

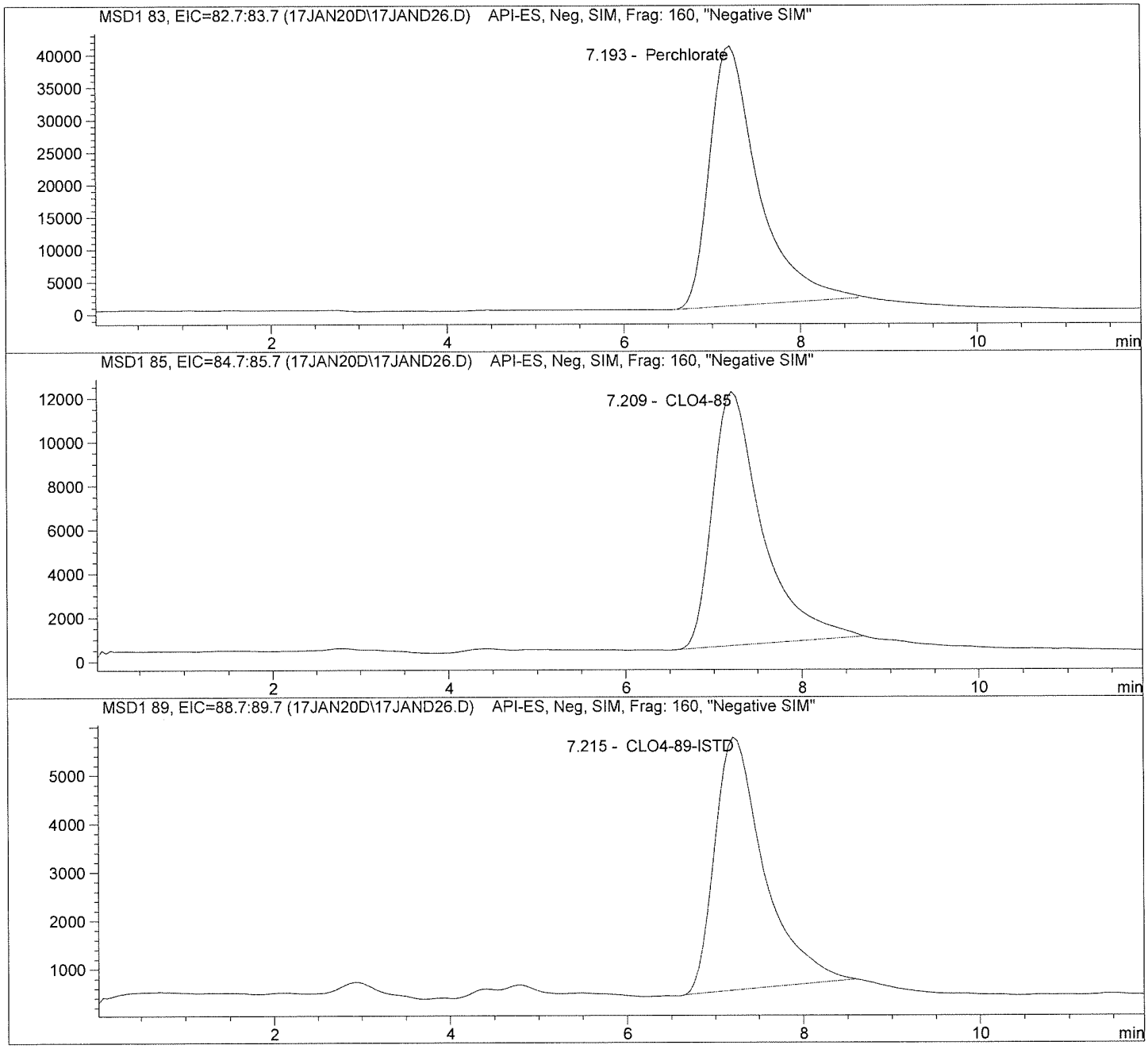
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND26.D Sample Name: 695968 CCV@25

Injection Date:	2/17/2020 15:36:30	Seq Line:	26
Sample Name:	695968 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND26.D Sample Name: 695968 CCV@25

Injection Date:	2/17/2020 15:36:30	Seq Line:	26
Sample Name:	695968 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.193	PBA	1543213.8	25.7523	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.209	PBA	453507.4	24.9041	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.215	PBA	204125.2	5.0000	CLO4-89-ISTD

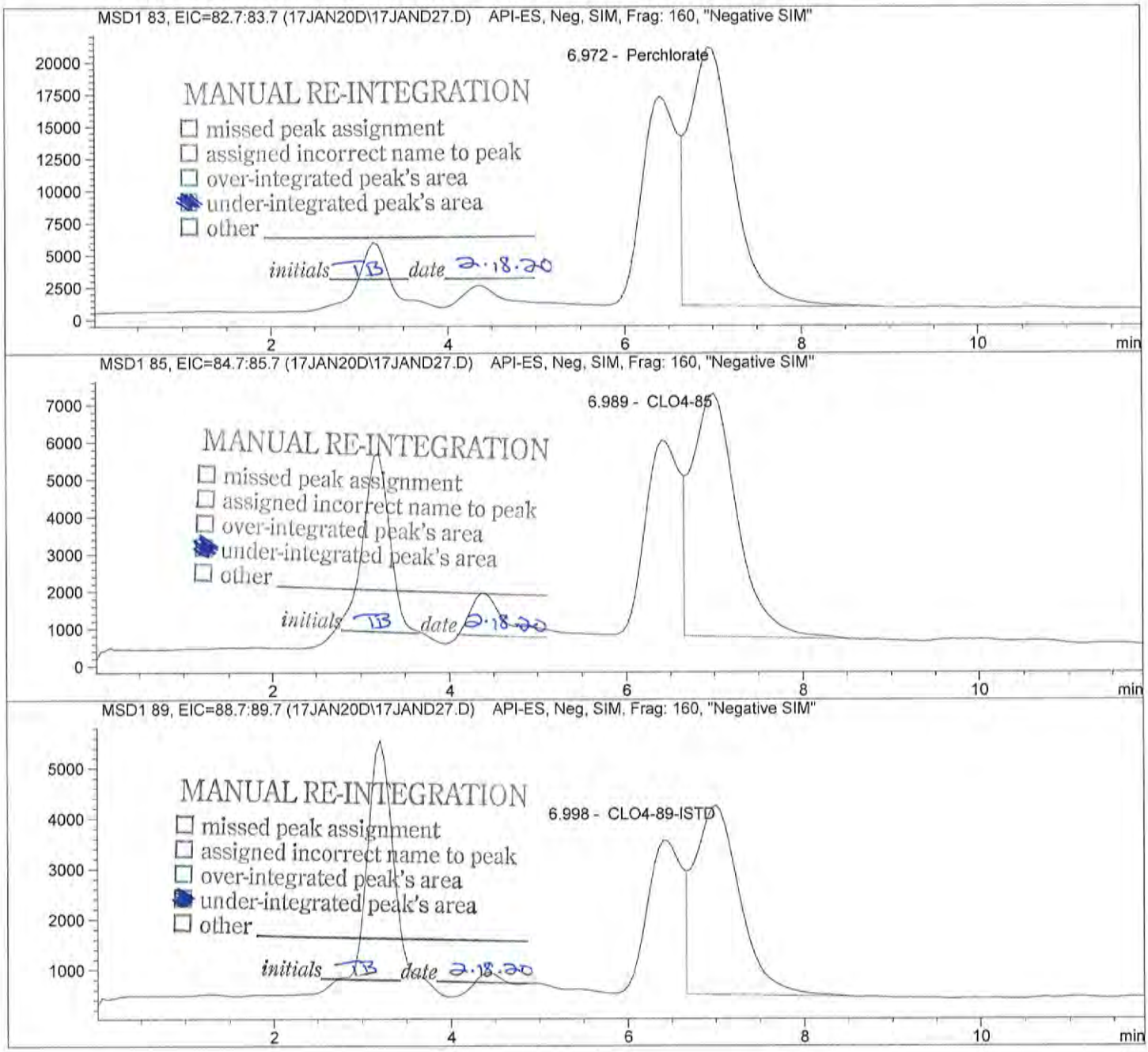
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND27.D Sample Name: 2004548008 RE

Injection Date:	2/17/2020 15:50:22	Seq Line:	27
Sample Name:	2004548008 RE	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND27.D Sample Name: 2004548008 RE

Injection Date:	2/17/2020 15:50:22	Seq Line:	27
Sample Name:	2004548008 RE	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.972	FM	697531.6	18.6067	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.989	FM	226846.6	19.7083	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.998	FM	131526.5	5.0000	CLO4-89-ISTD

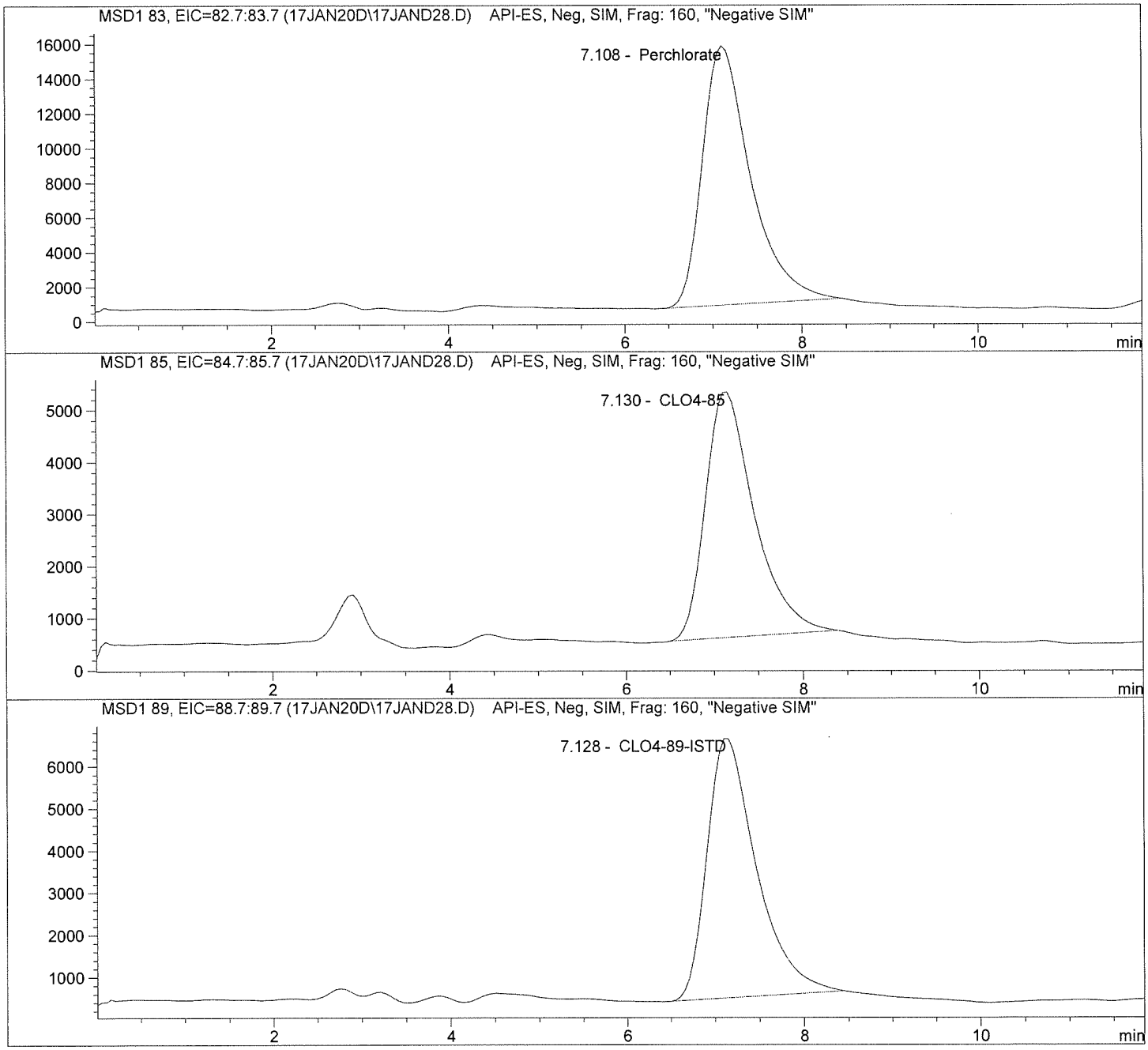
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND28.D Sample Name: 2004548012 10X

Injection Date:	2/17/2020 16:04:15	Seq Line:	28
Sample Name:	2004548012 10X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND28.D Sample Name: 2004548012 10X

Injection Date:	2/17/2020 16:04:15	Seq Line:	28
Sample Name:	2004548012 10X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.108	PBA	564189.9	86.4519	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.130	PBA	180716.6	89.7731	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.128	PBA	238166.1	50.0000	CLO4-89-ISTD

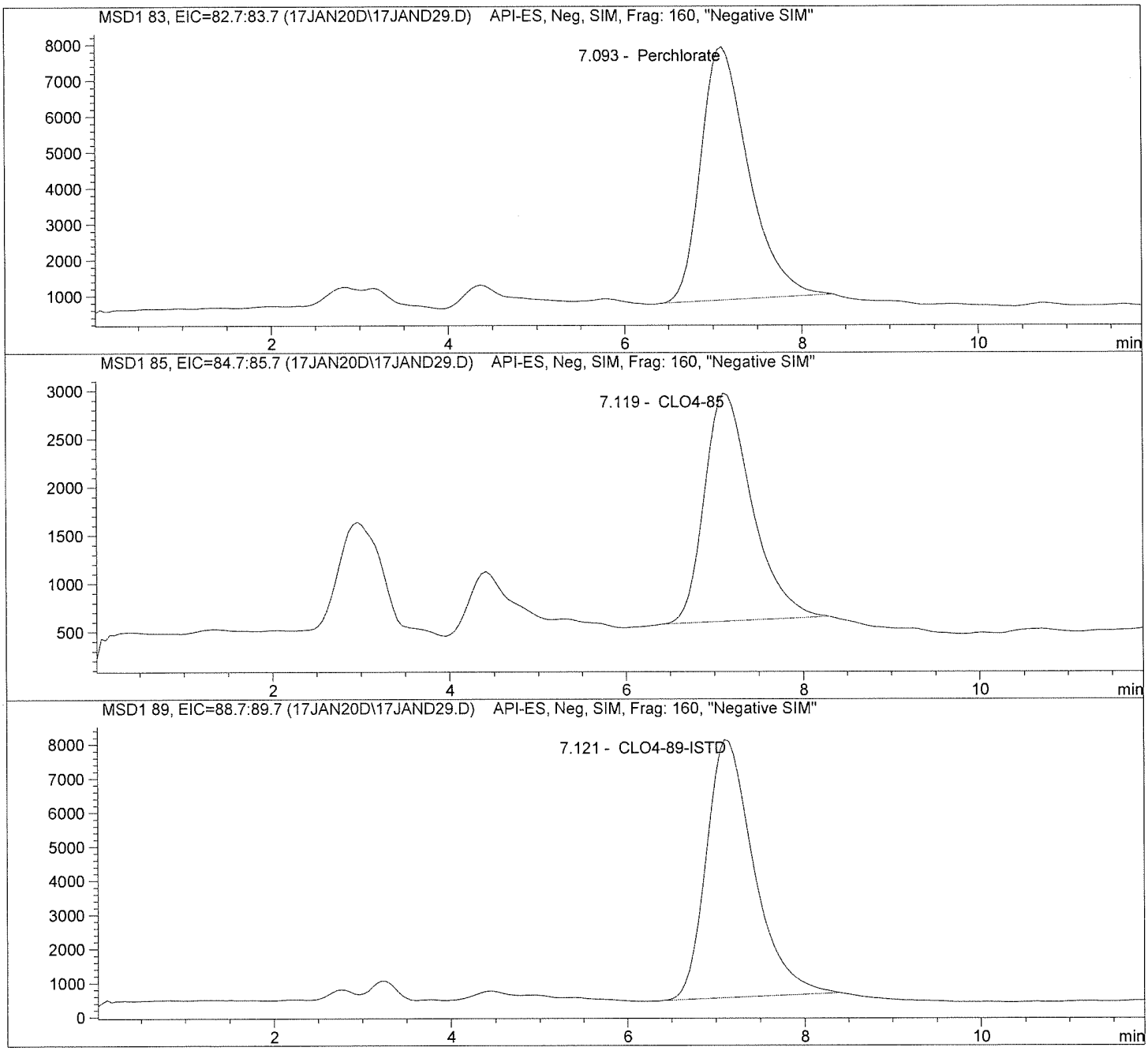
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND29.D Sample Name: 2004548008 5X

Injection Date:	2/17/2020 16:20:33	Seq Line:	29
Sample Name:	2004548008 5X	Location:	Vial 96
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND29.D Sample Name: 2004548008 5X

Injection Date:	2/17/2020 16:20:33	Seq Line:	29
Sample Name:	2004548008 5X	Location:	Vial 96
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	5.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.093	PBA	264236.7	17.2945	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.119	BBA	88185.4	18.4759	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.121	PBA	281500.3	25.0000	CLO4-89-ISTD

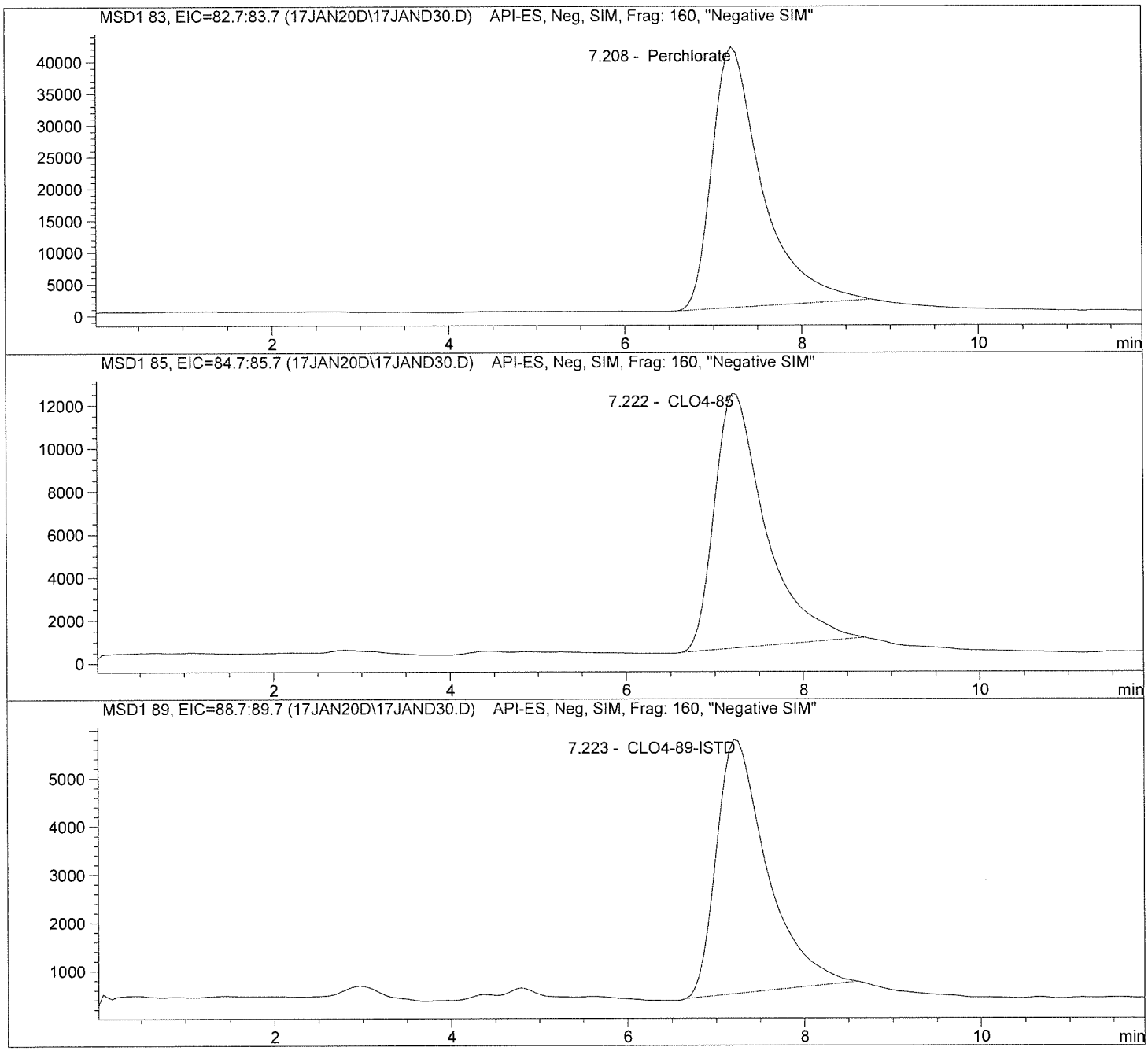
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND30.D Sample Name: 696082 CCV@25

Injection Date:	2/17/2020 16:34:25	Seq Line:	30
Sample Name:	696082 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND30.D Sample Name: 696082 CCV@25

Injection Date:	2/17/2020 16:34:25	Seq Line:	30
Sample Name:	696082 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.208	PBA	1618661.2	26.2692	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.222	PBA	474563.2	25.3555	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.223	PBA	209446.6	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Lvl Sig		Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5	1		Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5	1		CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
	9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

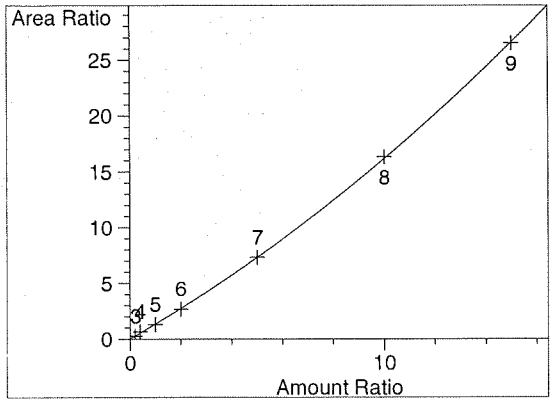
Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

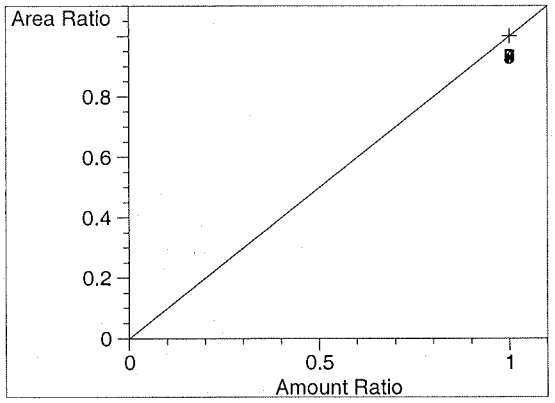
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

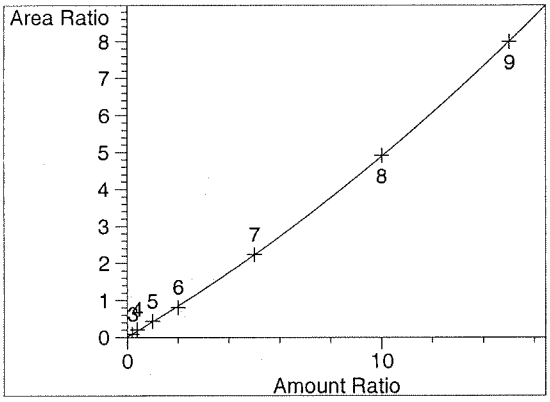
Calibration Curves



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

Batch Report: C:\HPCHEM\1\DATA\20SEP19I\20SEP19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\SEP\20SEP19I.S

Sequence Table:

Method and Injection Info Part:

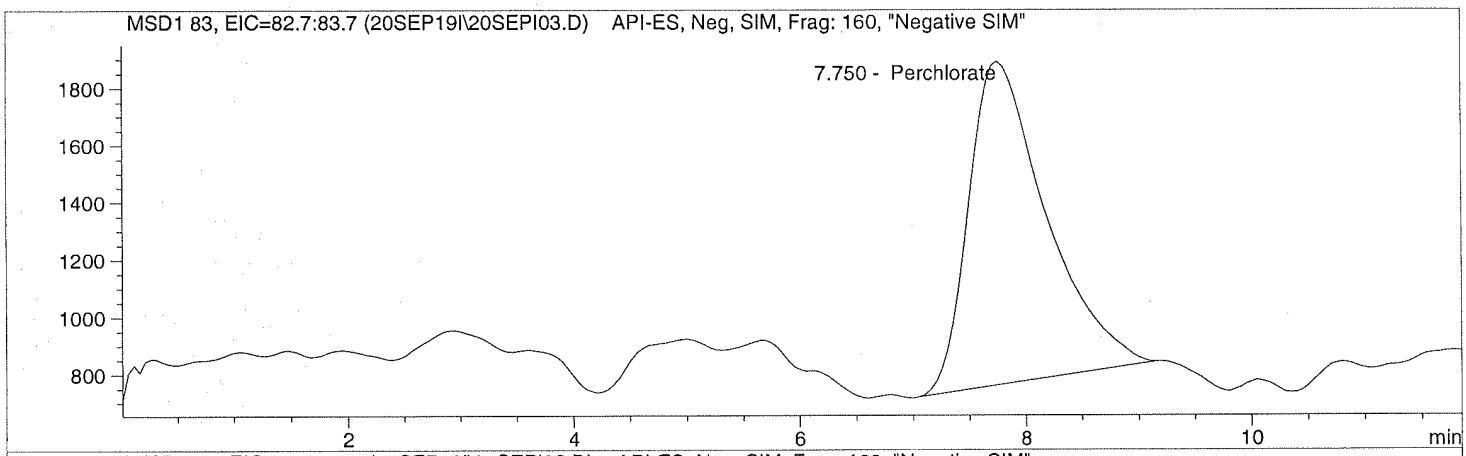
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

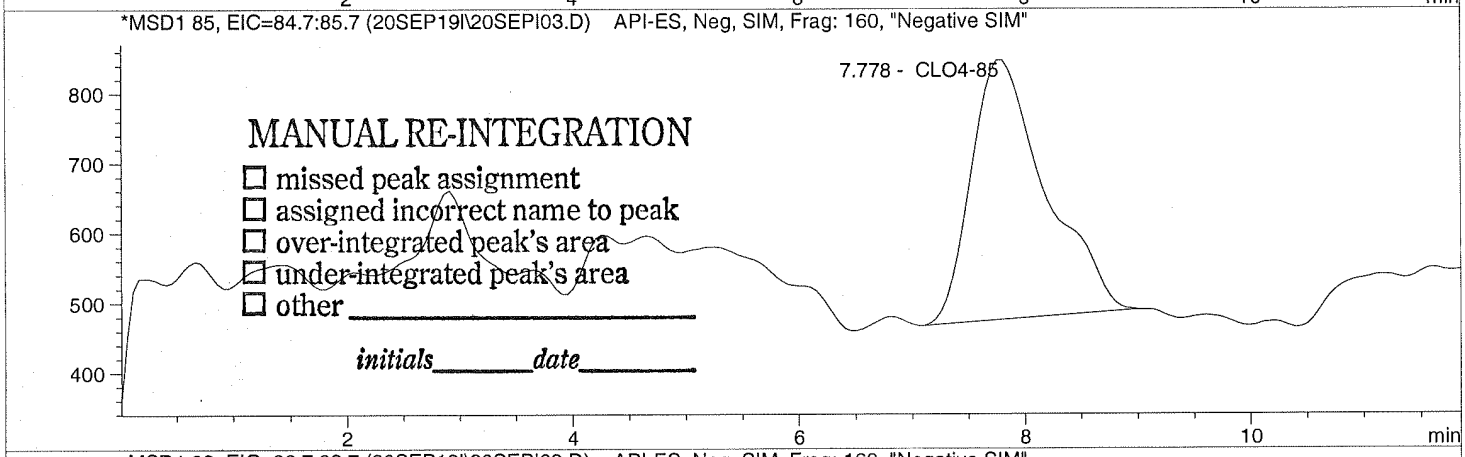
Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

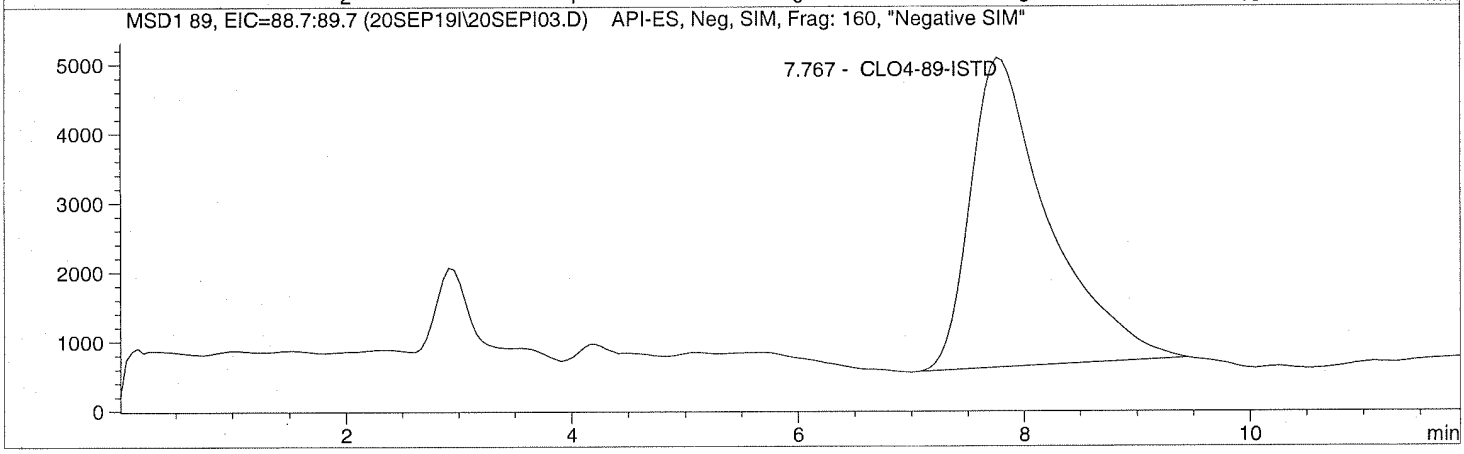
Perchlorate analysis





MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
☐ over-integrated peak's area
☐ under-integrated peak's area
☐ other _____

*initials*_____ *date*_____



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

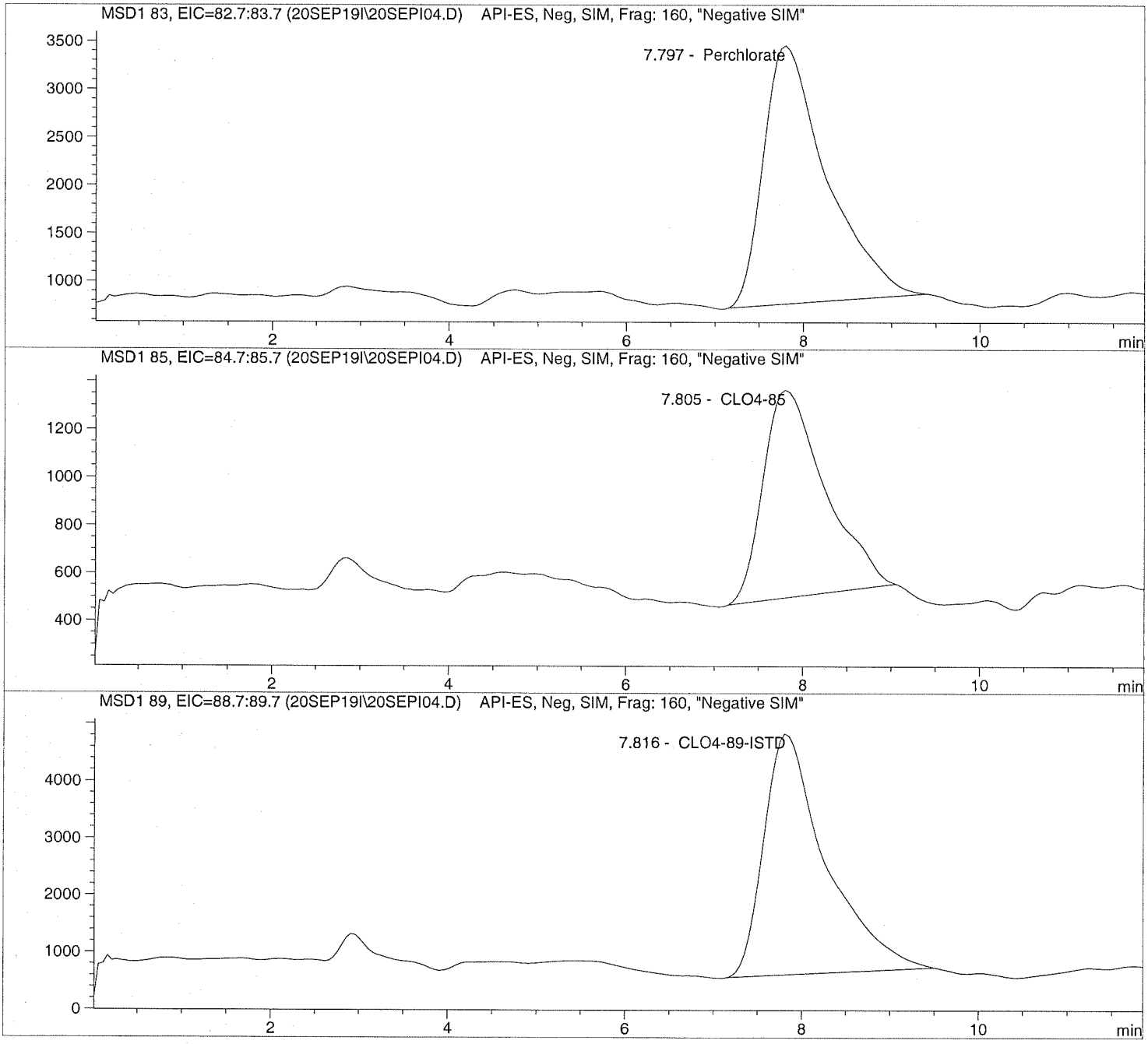
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

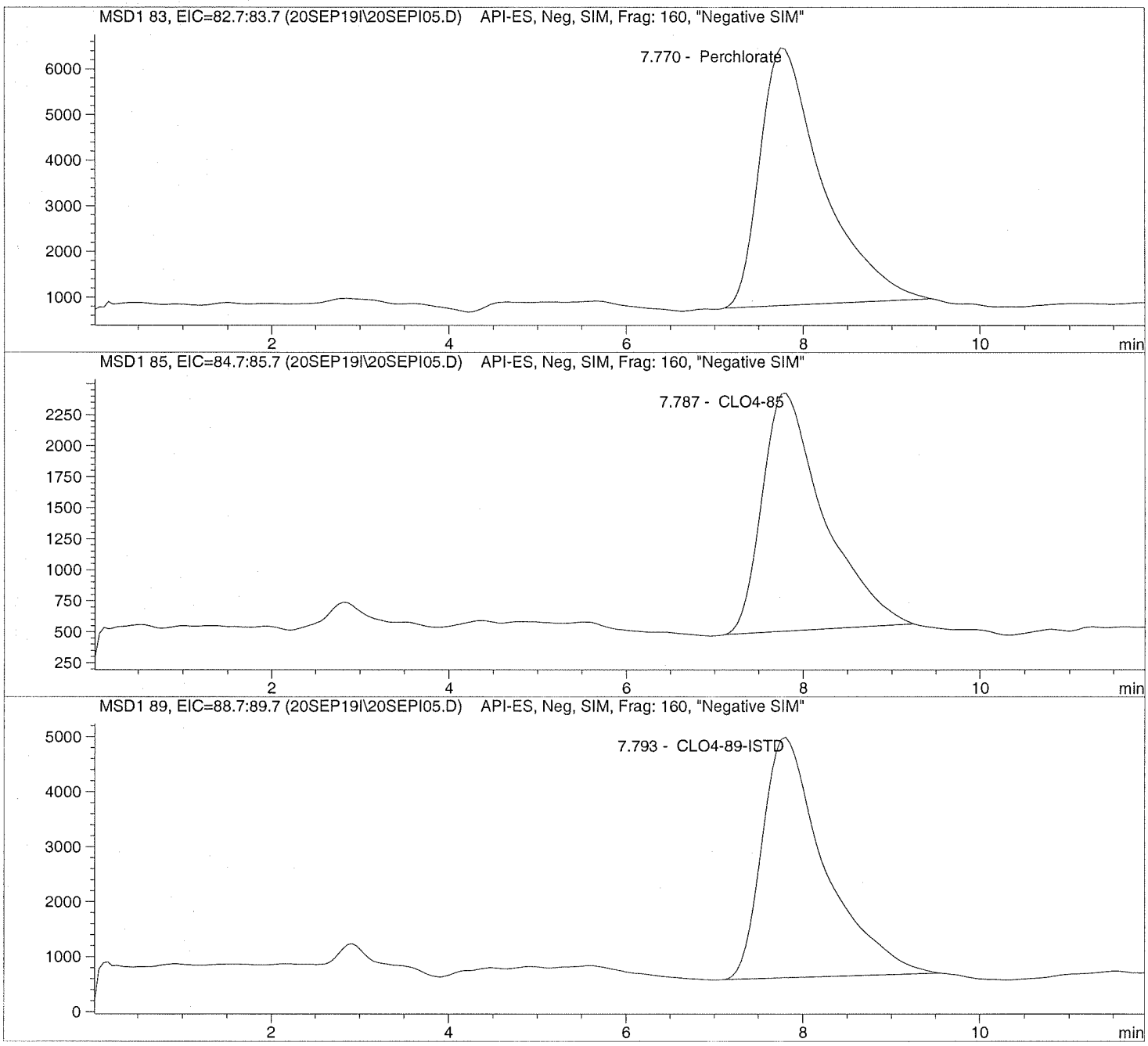
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

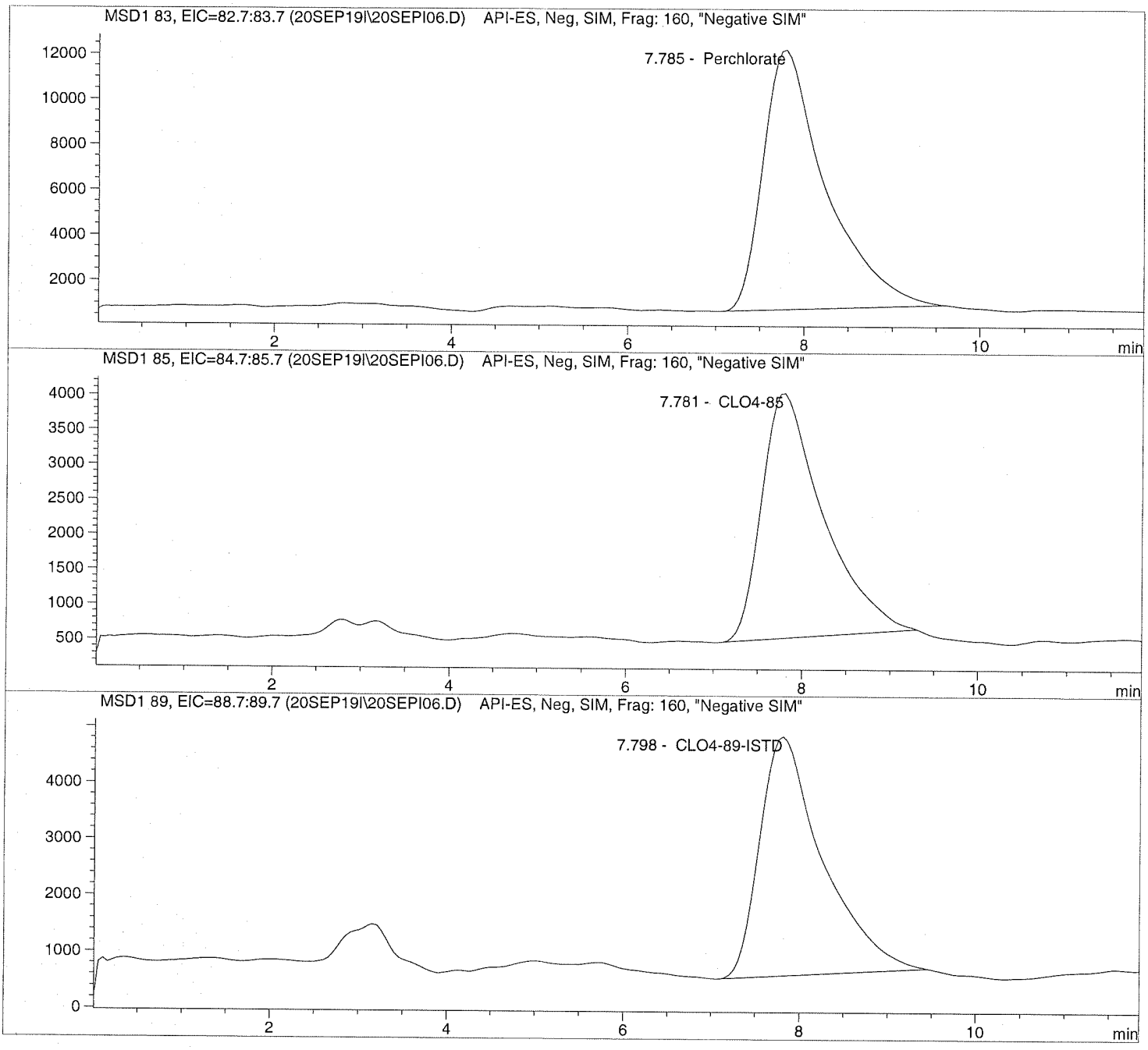
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

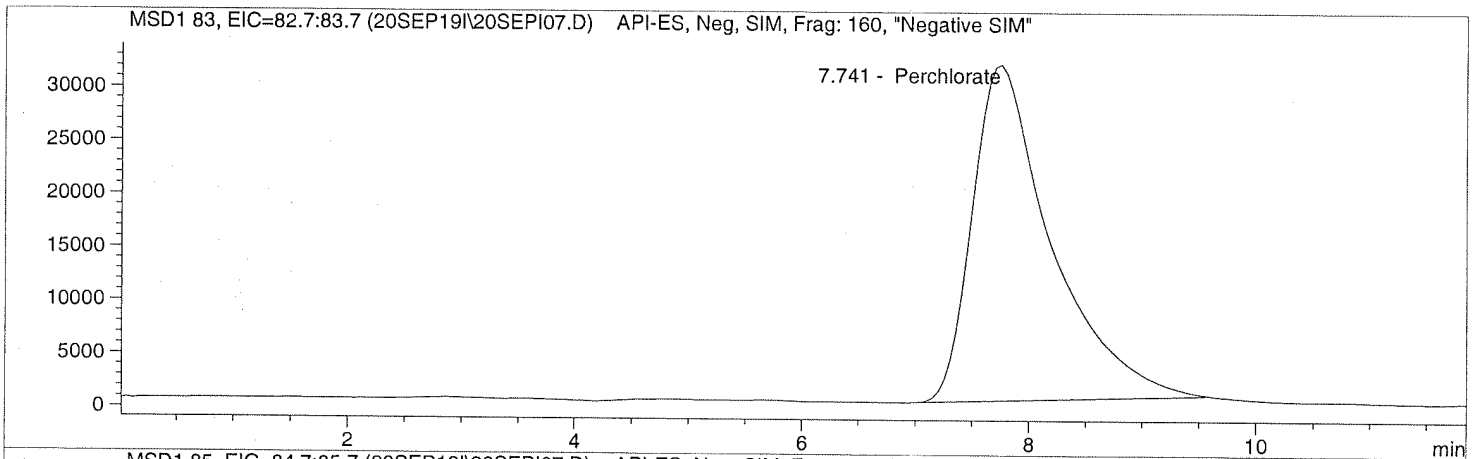
*** End of Report ***

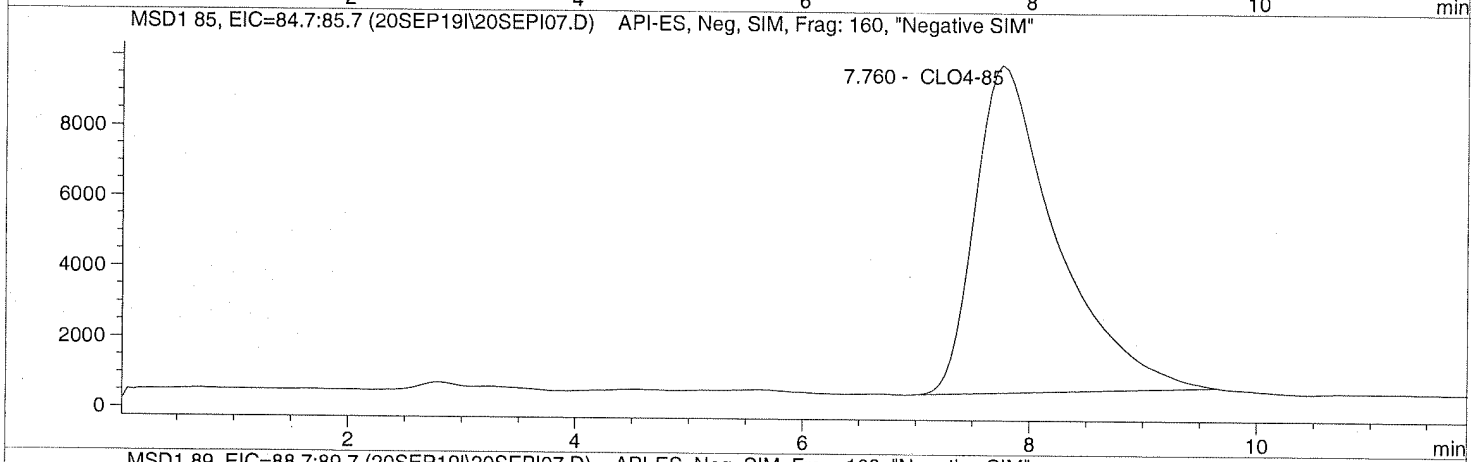
Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

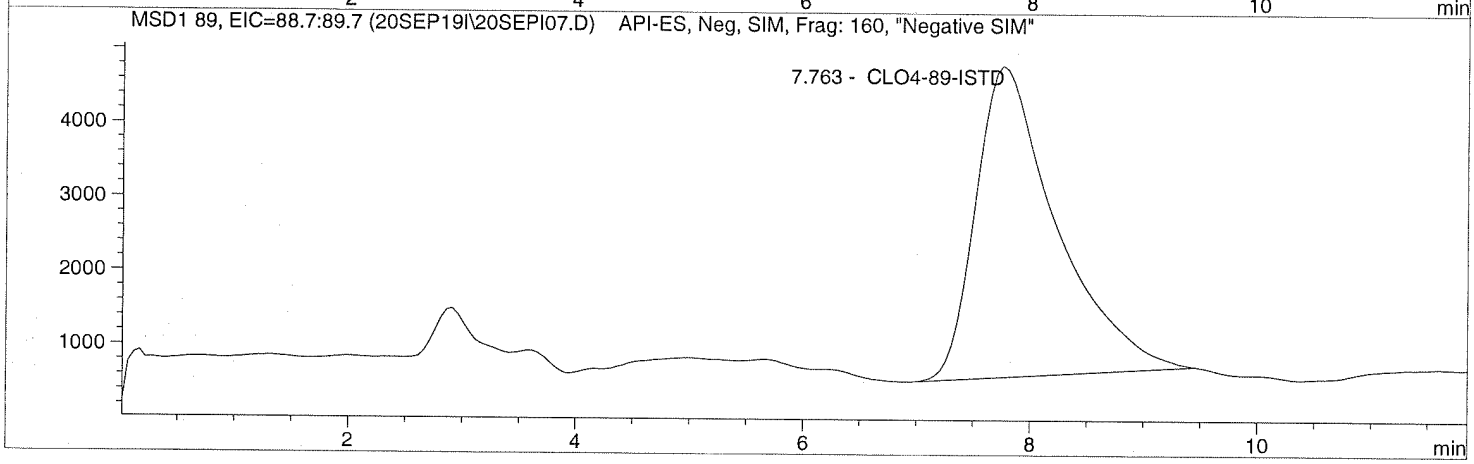
Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

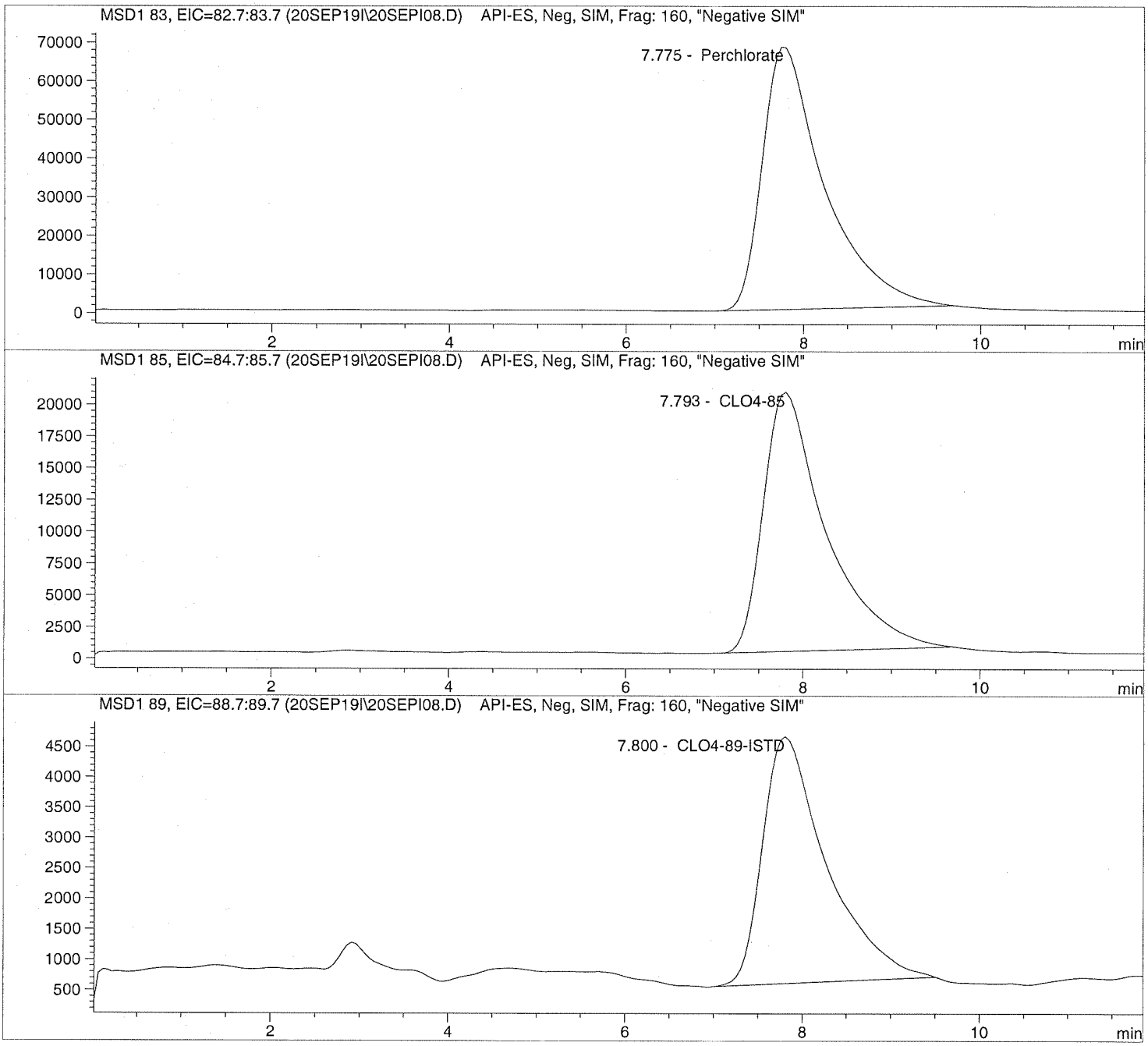
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

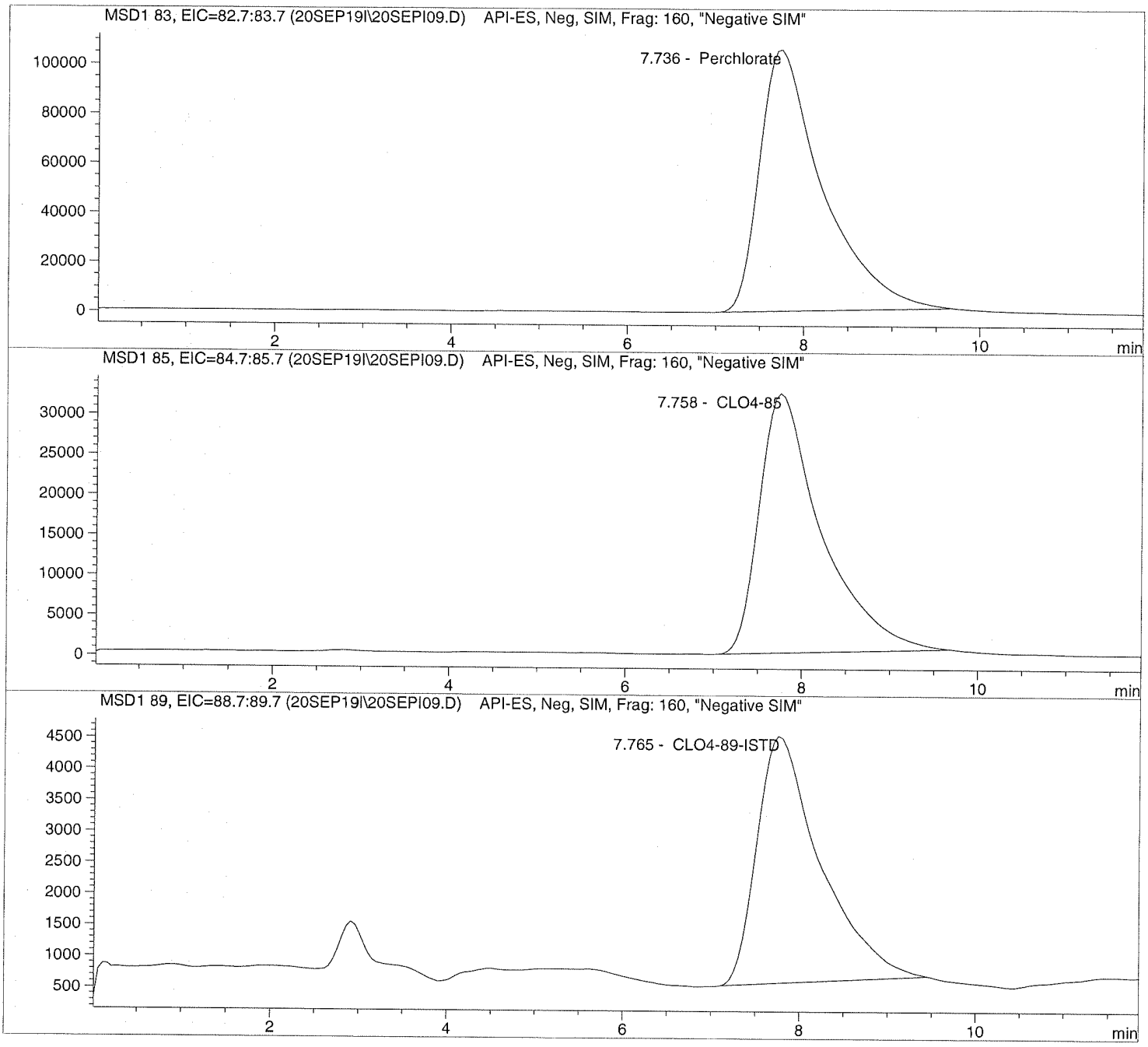
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

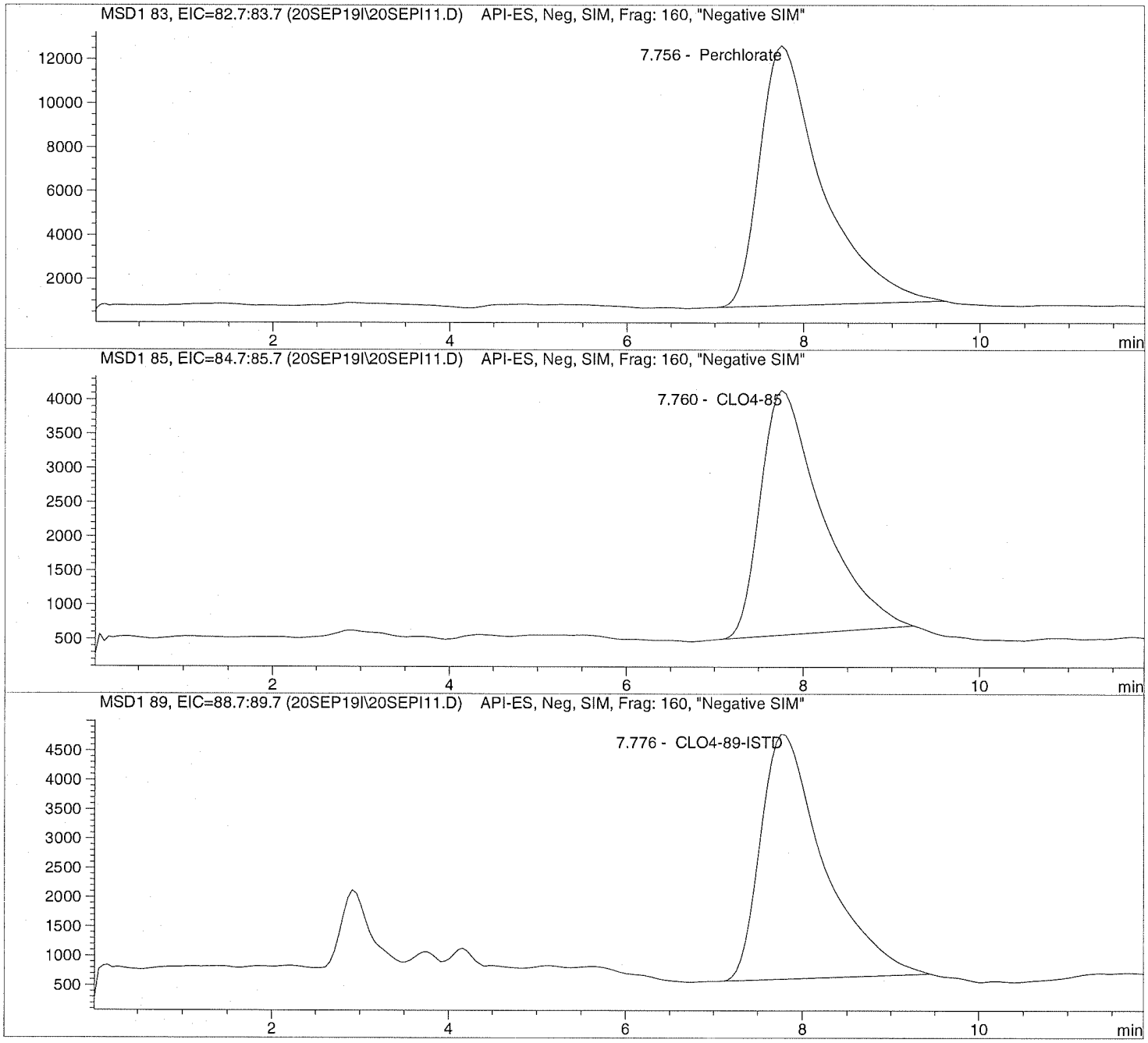
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

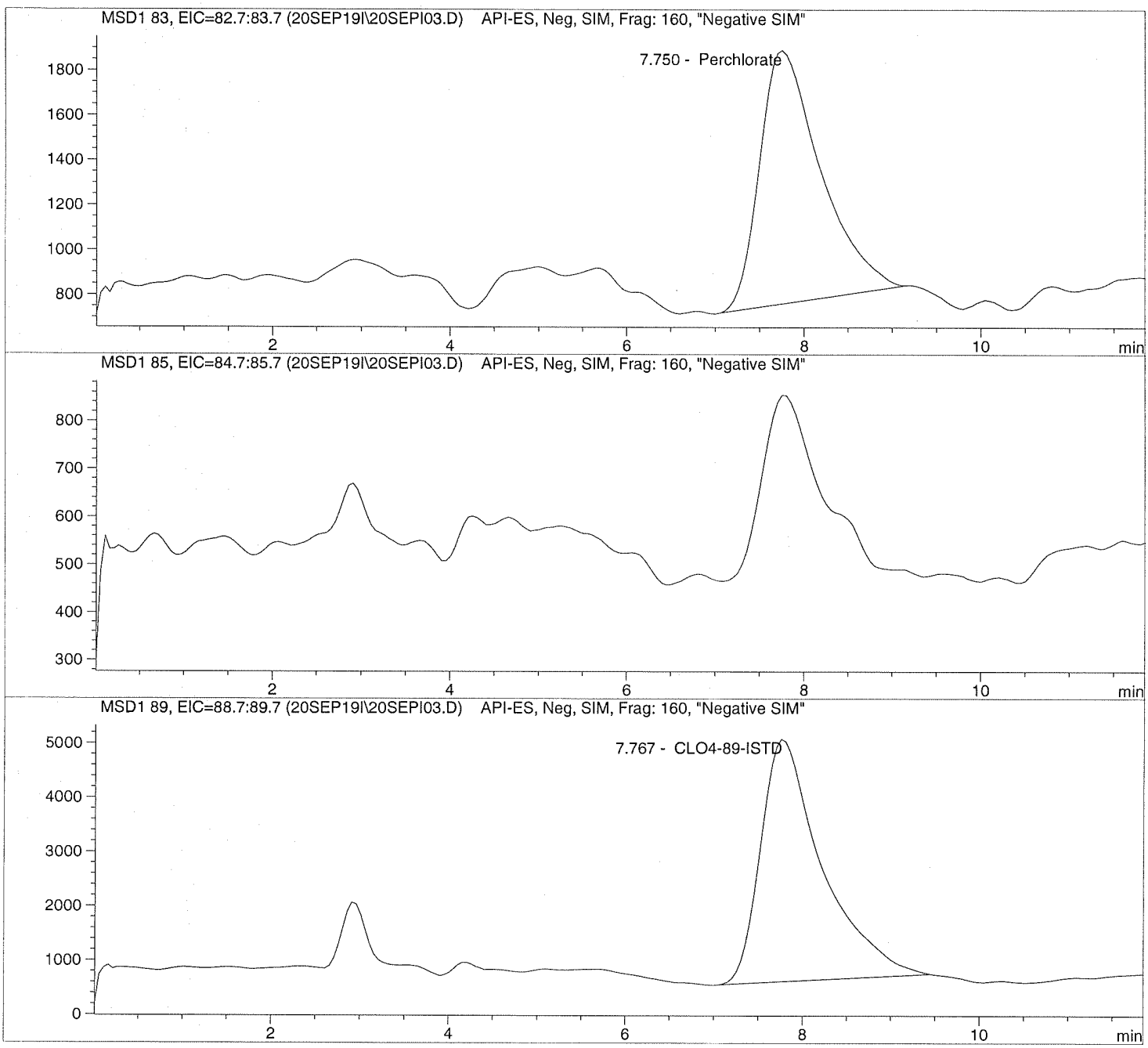
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

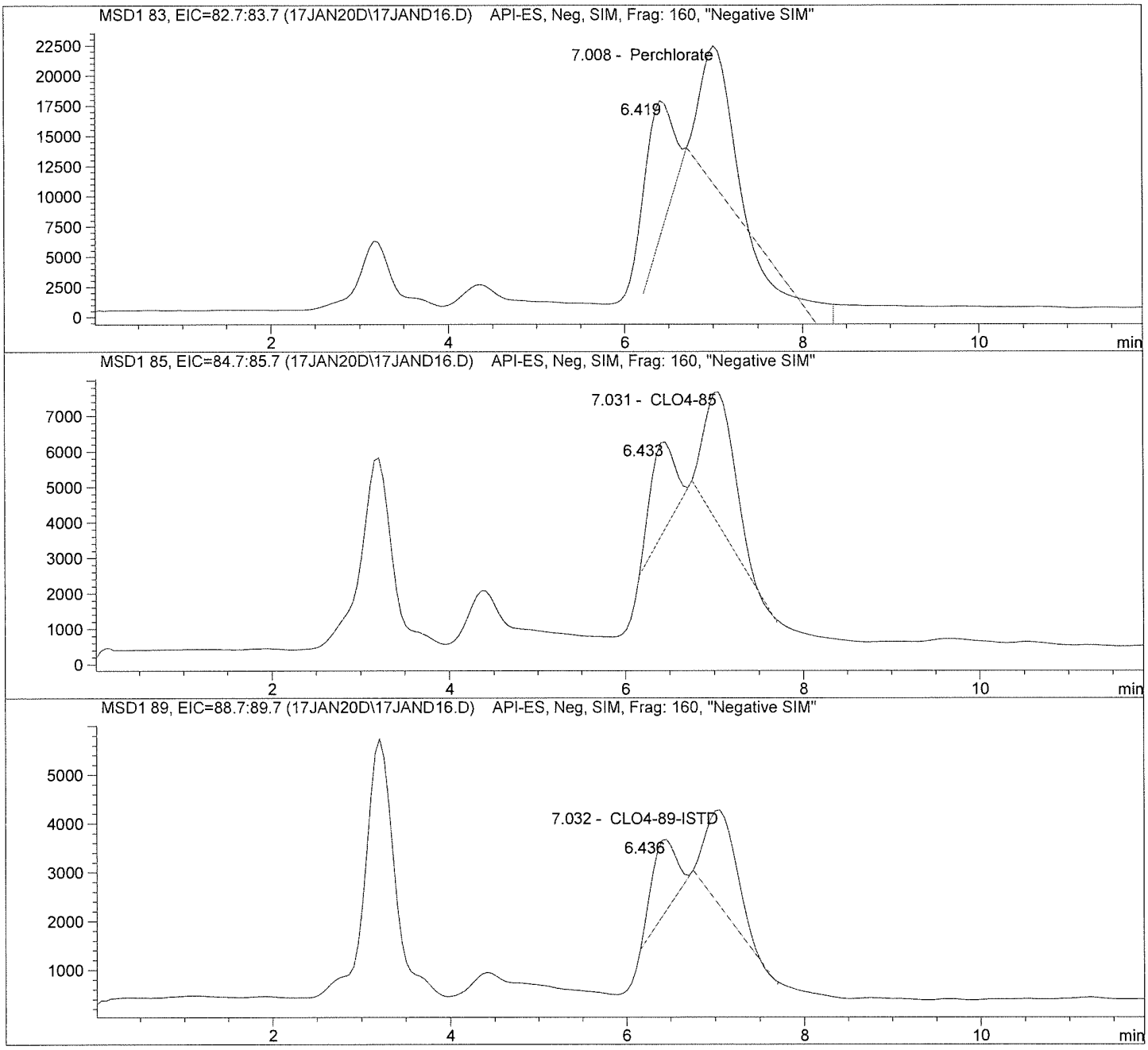
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND16.D Sample Name: 2004548008

Injection Date:	2/17/2020 12:16:47	Seq Line:	16
Sample Name:	2004548008	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND16.D Sample Name: 2004548008

Injection Date:	2/17/2020 12:16:47	Seq Line:	16
Sample Name:	2004548008	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.419	PB	209415.0	0.0000	
7.008	VBA	265970.0	19.8263	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.433	PB	48374.9	0.0000	
7.031	VBA	86453.2	20.9963	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.436	PB	28797.6	0.0000	
7.032	VBA	46829.2	5.0000	CLO4-89-ISTD

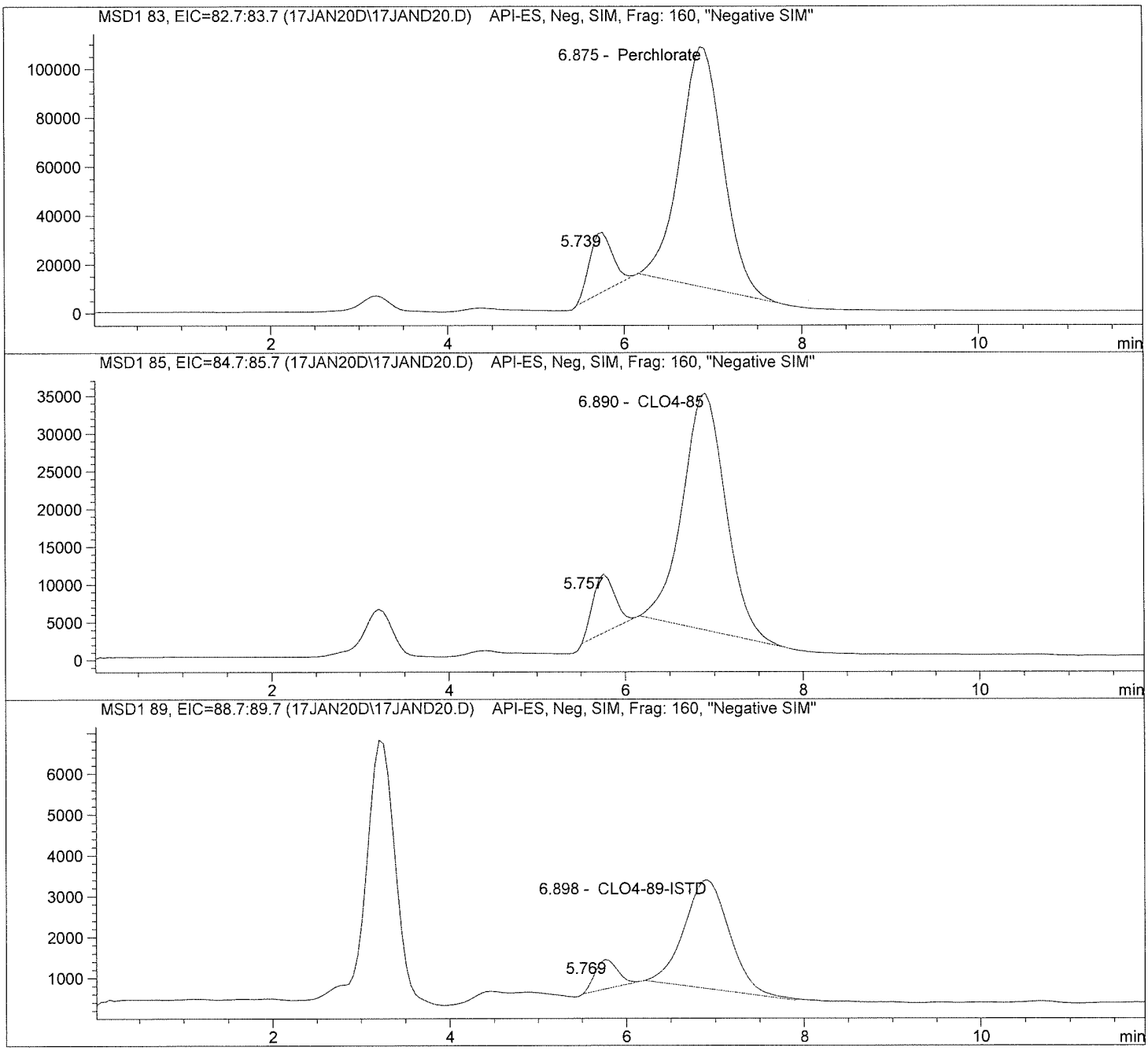
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND20.D Sample Name: 2004548012

Injection Date:	2/17/2020 13:12:19	Seq Line:	20
Sample Name:	2004548012	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND20.D Sample Name: 2004548012

Injection Date:	2/17/2020 13:12:19	Seq Line:	20
Sample Name:	2004548012	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.739	PB	449533.1	0.0000	
6.875	VBA	3313307.8	93.7006	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.757	PB	133767.0	0.0000	
6.890	VBA	1061136.6	98.5589	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.769	PB	12736.1	0.0000	
6.898	VBA	93711.6	5.0000	CLO4-89-ISTD

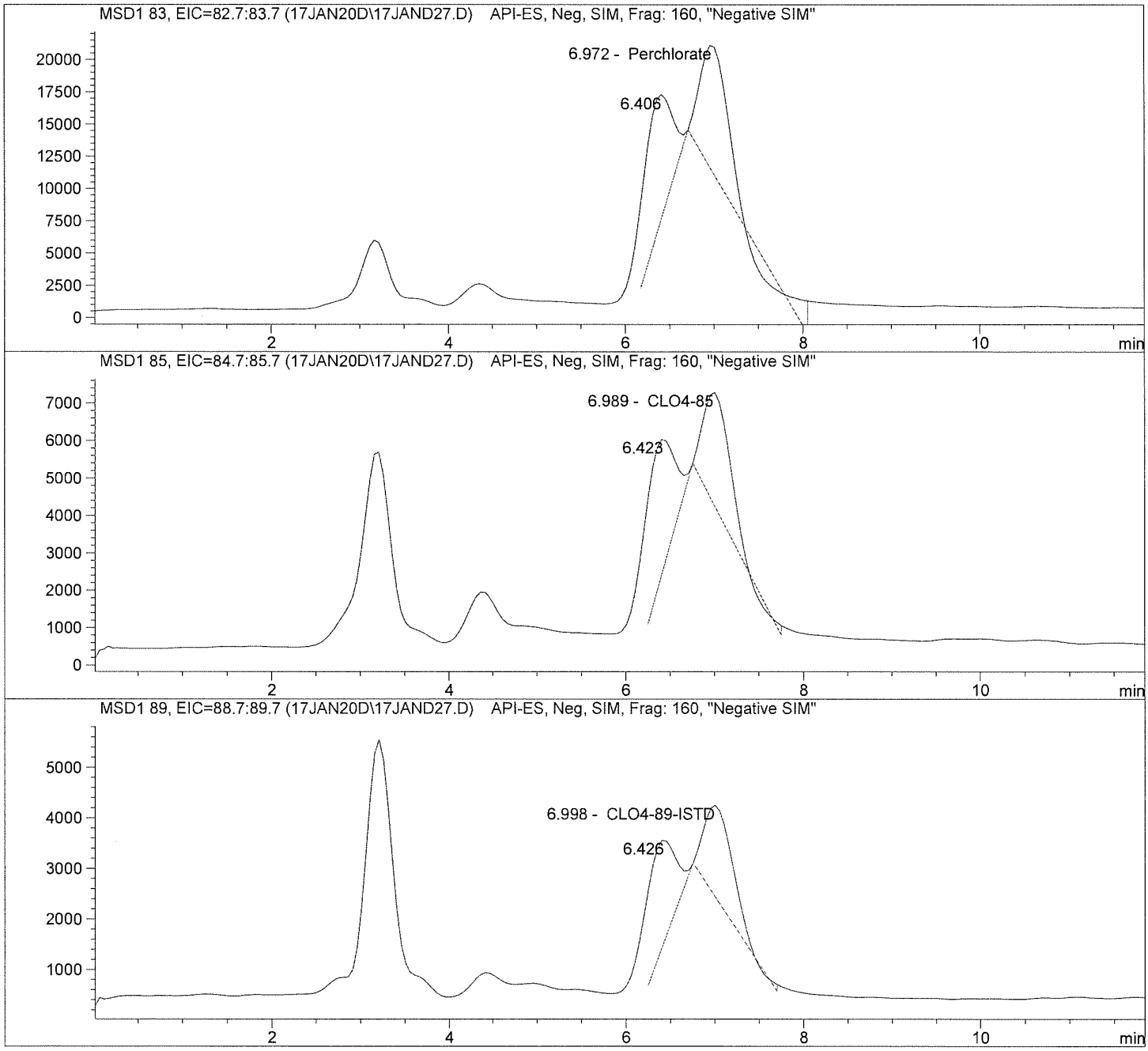
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND27.D Sample Name: 2004548008 RE

Injection Date:	2/17/2020 15:50:22	Seq Line:	27
Sample Name:	2004548008 RE	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17JAN20D\17JAND27.D Sample Name: 2004548008 RE

Injection Date:	2/17/2020 15:50:22	Seq Line:	27
Sample Name:	2004548008 RE	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.406	PB	201025.8	0.0000	
6.972	VBA	206483.3	17.6236	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.423	PB	66713.4	0.0000	
6.989	VBA	62789.6	17.5220	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.426	PB	39075.6	0.0000	
6.998	VBA	41273.5	5.0000	CLO4-89-ISTD

*** End of Report ***

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February 14, 2020

Analytical Report for Service Request No: K2001131

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

RE: HS20020160

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 06, 2020
For your reference, these analyses have been assigned our service request number **K2001131.**

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: HS20020160
Sample Matrix: Ground Water

Service Request: K2001131
Date Received: 02/06/2020

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:

Five ground water samples were received for analysis at ALS Environmental on 02/06/2020. 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 02/14/2020

Chain of Custody

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K2601131

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **13287**

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:	HS20020160
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20020160-10**	**04WW05-200204**	**Groundwater**	**04 Feb 2020 09:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			13 Feb 2020
2.	**HS20020160-11**	**04WW10-200204**	**Groundwater**	**04 Feb 2020 10:30**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			13 Feb 2020
3.	**HS20020160-12**	**04WW07-200204**	**Groundwater**	**04 Feb 2020 11:15**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			13 Feb 2020
4.	**HS20020160-13**	**04WW09-200204**	**Groundwater**	**04 Feb 2020 12:05**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			13 Feb 2020
5.	**HS20020160-14**	**04WW09-200204-FD**	**Groundwater**	**04 Feb 2020 12:05**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			13 Feb 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Received: 2/6/2020 1000

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **13287**

Relinquished By: J. Mattord Date/Time: 02/05/20 18:00

Received By: [signature] Date/Time: 2/6/2020 1000

Cooler ID(s): Temperature(s):

PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request *K20* 01131

Received: 2/6/20 Opened: 2/6/20 By: CG Unloaded: 2/6/20 By: CG

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	File
-0.8	-0.7	1.0	1.1	+0.1	384	13287	1251 0294 3547	

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: ***Frozen*** ***Partially Thawed*** ***Thawed***
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

RUSH

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2001131
Project:	HS20020160	**Date Collected:**	02/4/20
Sample Matrix:	Ground Water	**Date Received:**	02/6/20
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
04WW05-200204	K2001131-001	**3.97**	0.50	0.20	0.07	1	02/11/20 22:49	
04WW10-200204	K2001131-002	**4.82**	0.50	0.20	0.07	1	02/11/20 23:46	
04WW07-200204	K2001131-003	**75.5**	5.0	2.0	0.7	10	02/12/20 00:14	
04WW09-200204	K2001131-004	**880**	100	40	20	200	02/12/20 00:42	
04WW09-200204-FD	K2001131-005	**910**	100	40	20	200	02/12/20 01:10	
Method Blank	K2001131-MB	ND U	0.50	0.20	0.07	1	02/11/20 22:05	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2001131
Project	HS20020160	**Date Collected:**	02/04/20
Sample Matrix:	Ground Water	**Date Received:**	02/06/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
04WW05-200204	K2001131-001DUP	0.50	0.20	0.07	3.97	3.97	3.97	<1	10	02/11/20
04WW10-200204	K2001131-002DUP	0.50	0.20	0.07	4.82	5.14	4.98	6	10	02/11/20
04WW07-200204	K2001131-003DUP	5.0	2.0	0.7	75.5	73.2	74.3	3	10	02/12/20
04WW09-200204	K2001131-004DUP	100	40	20	880	880	878	<1	10	02/12/20
04WW09-200204-FD	K2001131-005DUP	100	40	20	910	910	907	<1	10	02/12/20

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:**	K2001131
Project:	HS20020160	**Date Collected:**	02/04/20
Sample Matrix:	Ground Water	**Date Received:**	02/06/20
		Date Analyzed:	02/11/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	04WW05-200204	**Units:**	mg/L
Lab Code:	K2001131-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2001131-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	3.97	33.0	25.0	116	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.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2001131
Project:	HS20020160	**Date Analyzed:**	02/11/20
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:	669413

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2001131-LCS	25.4	25.0	101	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2001131
Project: HS20020160

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	669413	KQ2001885-01	02/11/20 21:35	25.0	23.6	94	90-110
CCV2	669413	KQ2001885-02	02/12/20 01:38	25.0	23.8	95	90-110
CCV3	669413	KQ2001885-03	02/12/20 05:24	25.0	23.4	93	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2001131
Project: HS20020160

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	669413	KQ2001885-04	02/11/20 21:50	0.50	0.20	0.07	ND	U
CCB2	669413	KQ2001885-05	02/12/20 01:53	0.50	0.20	0.07	0.15	J
CCB3	669413	KQ2001885-06	02/12/20 05:39	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # Original ( ) K7001131, 1132, 1142, 1173, 1207
Tier: IV IV II IV II
Date Analyzed: 2/11/20
Analyst: BCP
Run # 669413
Analysis: TOC

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:

Final Approved by: _____ Date: 02/13/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 669413 **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
K2001131-001	Carbon, Total Organic	N/A		Ground Water	3.97 mg/L	10 ml	3.97 mg/L	1	0.07	0.50			2/11/20 22:49	N	IV
K2001131-002	Carbon, Total Organic	N/A		Ground Water	4.82 mg/L	10 ml	4.82 mg/L	1	0.07	0.50			2/11/20 23:46	N	IV
K2001131-003	Carbon, Total Organic	N/A		Ground Water	7.55 mg/L	10 ml	75.5 mg/L	10	0.7	5.0			2/12/20 00:14	N	IV
K2001131-004	Carbon, Total Organic	N/A		Ground Water	4.39 mg/L	10 ml	880 mg/L	200	20	100			2/12/20 00:42	N	IV
K2001131-005	Carbon, Total Organic	N/A		Ground Water	4.54 mg/L	10 ml	910 mg/L	200	20	100			2/12/20 01:10	N	IV
K2001132-001	Carbon, Total Organic	N/A		Water	2.44 mg/L	10 ml	2.44 mg/L	1	0.07	0.50			2/12/20 02:08	N	IV
K2001142-001	Carbon, Total Organic	N/A		Water	2.28 mg/L	10 ml	46 mg/L	20	2	10			2/12/20 03:04	N	II
K2001142-002	Carbon, Total Organic	N/A		Water	3.92 mg/L	10 ml	78 mg/L	20	2	10			2/12/20 03:32	N	II
K2001142-004	Carbon, Total Organic	N/A		Water	15.91 mg/L	10 ml	15.9 mg/L	1	0.07	0.50			2/12/20 04:00	N	II
K2001173-001	Carbon, Total Organic	N/A		Water	0.64 mg/L	10 ml	0.64 mg/L	1	0.07	0.50			2/12/20 04:28	N	IV
K2001173-002	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 ml	0.62 mg/L	1	0.07	0.50			2/12/20 04:56	N	IV
K2001207-001	Carbon, Total Organic	N/A		Water	0.16 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			2/12/20 02:36	N	II
KQ2001885-01	Carbon, Total Organic	CCV		Ground Water	23.59 mg/L	10 ml	23.6 mg/L	1					2/11/20 21:35	N	IV
KQ2001885-02	Carbon, Total Organic	CCV		Ground Water	23.81 mg/L	10 ml	23.8 mg/L	1					2/12/20 01:38	N	IV
KQ2001885-03	Carbon, Total Organic	CCV		Ground Water	23.37 mg/L	10 ml	23.4 mg/L	1					2/12/20 05:24	N	IV
KQ2001885-04	Carbon, Total Organic	CCB		Ground Water	0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			2/11/20 21:50	N	IV
KQ2001885-05	Carbon, Total Organic	CCB		Ground Water	0.15 mg/L	10 ml	0.15 mg/L J	1	0.07	0.50			2/12/20 01:53	N	IV
KQ2001885-06	Carbon, Total Organic	CCB		Ground Water	-0.12 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			2/12/20 05:39	N	IV
KQ2001885-07	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			2/11/20 22:05	N	IV
KQ2001885-08	Carbon, Total Organic	LCS		Ground Water	25.37 mg/L	10 ml	25.4 mg/L	1	0.07	0.50	101		2/11/20 22:19	N	IV
KQ2001885-09	Carbon, Total Organic	MS	K2001131-001	Ground Water	33.01 mg/L	10 ml	33.0 mg/L	1	0.07	0.50	116		2/11/20 23:17	N	IV
KQ2001885-10	Carbon, Total Organic	DUP	K2001131-002	Ground Water	5.14 mg/L	10 ml	5.14 mg/L	1	0.07	0.50		6	2/11/20 23:46	N	IV
KQ2001885-11	Carbon, Total Organic	DUP	K2001131-001	Ground Water	3.97 mg/L	10 ml	3.97 mg/L	1	0.07	0.50		<1	2/11/20 22:49	N	IV
KQ2001885-12	Carbon, Total Organic	DUP	K2001131-003	Ground Water	7.32 mg/L	10 ml	73.2 mg/L	10	0.7	5.0		3	2/12/20 00:14	N	IV
KQ2001885-13	Carbon, Total Organic	DUP	K2001131-004	Ground Water	4.39 mg/L	10 ml	880 mg/L	200	20	100		<1	2/12/20 00:42	N	IV
KQ2001885-14	Carbon, Total Organic	DUP	K2001131-005	Ground Water	4.53 mg/L	10 ml	910 mg/L	200	20	100		<1	2/12/20 01:10	N	IV

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

02/13/20

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 669413 **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
KQ2001885-15	Carbon, Total Organic	DUP	K2001132-001	Water	2.36 mg/L	10 ml	2.36 mg/L	1	0.07	0.50		3	2/12/20 02:08	N	IV
KQ2001885-16	Carbon, Total Organic	DUP	K2001142-001	Water	2.23 mg/L	10 ml	45 mg/L	20	2	10		2	2/12/20 03:04	N	II
KQ2001885-17	Carbon, Total Organic	DUP	K2001142-002	Water	3.96 mg/L	10 ml	79 mg/L	20	2	10		1	2/12/20 03:32	N	II
KQ2001885-18	Carbon, Total Organic	DUP	K2001142-004	Water	15.97 mg/L	10 ml	16.0 mg/L	1	0.07	0.50		<1	2/12/20 04:00	N	II
KQ2001885-19	Carbon, Total Organic	DUP	K2001173-001	Water	0.58 mg/L	10 ml	0.58 mg/L	1	0.07	0.50		10	2/12/20 04:28	N	IV
KQ2001885-20	Carbon, Total Organic	DUP	K2001173-002	Water	0.57 mg/L	10 ml	0.57 mg/L	1	0.07	0.50		9	2/12/20 04:56	N	IV
KQ2001885-21	Carbon, Total Organic	DUP	K2001207-001	Water	0.08 mg/L	10 ml	0.08 mg/L J	1	0.07	0.50		NC	2/12/20 02:36	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	23.816	0.2297	23.5863	23.58625	23.6	2/11/2020
3	ccb	1	0.240	0.2297	0.0102	0.01015	<0.5	2/11/2020
4	mb	1	0.220	0.2297	-0.0102	-0.01015	<0.5	2/11/2020
5	lcs	1	25.595	0.2297	25.3650	25.36495	25.4	2/11/2020
6	K2001131-001	1	4.200	0.2297	3.9708	3.97075	3.97	2/11/2020
7	K2001131-001	1	4.196	0.2297	3.9665	3.96645	4.0	2/11/2020
8	KQ2001885-09	1	33.243	0.2297	33.0136	33.01355	33	2/11/2020
9	K2001131-002	1	5.050	0.2297	4.8205	4.82045	4.82	2/11/2020
10	K2001131-002	1	5.370	0.2297	5.1407	5.14065	5.14	2/11/2020
11	K2001131-003	10	7.778	0.2297	7.5484	75.4835	75.5	2/12/2020
12	K2001131-003	10	7.548	0.2297	7.3188	73.1875	73.19	2/12/2020
13	K2001131-004	200	4.620	0.2297	4.3900	877.99	877.99	2/12/2020
14	K2001131-004	200	4.622	0.2297	4.3919	878.37	878.37	2/12/2020
15	K2001131-005	200	4.766	0.2297	4.5368	907.35	907.4	2/12/2020
16	K2001131-005	200	4.764	0.2297	4.5348	906.95	907.0	2/12/2020
17	ccv	1	24.035	0.2297	23.8051	23.80505	23.81	2/12/2020
18	ccb	1	0.376	0.2297	0.1463	0.14625	<0.5	2/12/2020
19	K2001132-001	1	2.672	0.2297	2.4422	2.44215	2.4	2/12/2020
20	K2001132-001	1	2.591	0.2297	2.3610	2.36095	2.36	2/12/2020
21	K2001207-001	1	0.392	0.2297	0.1625	0.16245	<0.5	2/12/2020
22	K2001207-001	1	0.313	0.2297	0.0837	0.08365	<0.5	2/12/2020
23	K2001142-001	20	2.514	0.2297	2.2839	45.677	45.7	2/12/2020
24	K2001142-001	20	2.463	0.2297	2.2336	44.671	44.67	2/12/2020
25	K2001142-002	20	4.146	0.2297	3.9168	78.335	78.34	2/12/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BW	Date Analyzed 2/12/2020
Reviewed By:	Date Reviewed 02/13/20

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	K2001142-002	20	4.190	0.2297	3.9605	79.209	79.21	2/12/2020
27	K2001142-004	1	16.143	0.2297	15.9138	15.91375	15.91	2/12/2020
28	K2001142-004	1	16.200	0.2297	15.9705	15.97045	16.0	2/12/2020
29	K2001173-001	1	0.870	0.2297	0.6406	0.64055	0.6	2/12/2020
30	K2001173-001	1	0.809	0.2297	0.5791	0.57905	0.6	2/12/2020
31	K2001173-002	1	0.854	0.2297	0.6245	0.62445	0.6	2/12/2020
32	K2001173-002	1	0.802	0.2297	0.5720	0.57195	0.6	2/12/2020
33	ccv	1	23.602	0.2297	23.3723	23.37225	23.4	2/12/2020
34	ccb	1	0.110	0.2297	-0.1199	-0.11985	<0.5	2/12/2020
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BKP	Date Analyzed 2/12/20
Reviewed By:	Date Reviewed 02/13/20

0.240	0.240	0.240	0.240	OBSERVATIONS	4	0.2398
0.220	0.220	0.220	0.220	STD Deviation	0.10922	0.2195
0.376				AVERAGE	0.23625	ABOVE
0.110				UCL	0.34547	BELOW
				LCL	0.12703	BELOW
						BELOW
						BELOW
				OBSERVATIONS	2	BELOW
				STD Deviation	0.06371	BELOW
				AVERAGE	0.22965	BELOW
				UCL	0.29336	BELOW
				LCL	0.16594	BELOW
						BELOW
						BELOW
				OBSERVATIONS	2	BELOW
				STD Deviation	0.06371	BELOW
				AVERAGE	0.22965	BELOW
				UCL	0.29336	BELOW
				LCL	0.16594	BELOW
						BELOW
						BELOW
				OBSERVATIONS	2	BELOW
				STD Deviation	0.02030	BELOW
				AVERAGE	0.22965	BELOW
						BELOW
						BELOW
						BELOW
						BELOW
						BELOW

BCP 2/13/20

02/13/20

TOC: 669413

Schedule: 02112020

Version: 3
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/02/11 17:21 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
17	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	10	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	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
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K2001131-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K2001131-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K2001131-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K2001131-003.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2001131-004.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2001131-005.01 200x	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
10	Sample	K2001132-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2001207-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2001142-001.07 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2001142-002.07 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2001142-004.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K2001173-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2001173-002.01	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
18	Sample	K2000749-006.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
20	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

02/13/20

Fusion Report - 02112020
Tuesday, February 11, 2020 05:21 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/02/12 09:37 - Wednesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	02112020	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) (v3)		
Comment:			

Report Results

02/13/20

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/02/11 17:21

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.23	18.14	4.91	49.58	05:22
2	TC Clean	7.03	10.83	3.80	50.07	04:02
3	TC Clean	3.93	7.68	3.75	50.12	03:47
4	TC Clean	2.84	6.65	3.81	50.08	03:46

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/02/11 17:42

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.37	5.18	3.81	49.48	05:12
2	TC Clean	7.58	11.44	3.86	49.99	03:58
3	TC Clean	3.31	7.28	3.97	50.11	03:48
4	TC Clean	2.85	6.73	3.88	50.09	03:53

Sample Type: Clean From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/02/11 18:04

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.24	5.04	3.80	49.66	05:21
2	TC Clean	6.48	10.42	3.94	50.13	03:59
3	TC Clean	3.09	7.04	3.95	50.16	03:44
4	TC Clean	2.53	6.67	4.14	50.12	03:54

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	17	TOC	RB	0.2539 ppm	0.0972 ppm	38.2900%	2020/02/11 18:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4826	4.8257	13.09	17.15	4.06	50.21	10:29
2	TOC	0.3037	3.0370	11.96	15.99	4.03	50.26	10:27
3	TOC	0.2657	2.6574	11.72	15.70	3.98	50.26	10:27
4	TOC	0.2893	2.8931	11.87	15.68	3.81	50.26	10:27
5	TOC	0.2686	2.6859	11.74	15.57	3.84	50.24	10:29
6	TOC	0.2488	2.4882	11.61	15.49	3.88	50.23	10:30
7	TOC	0.1772	1.7717	11.16	15.28	4.12	50.23	10:27
8	TOC	0.1765	1.7654	11.15	15.08	3.92	50.20	10:28
9	TOC	0.1751	1.7512	11.14	15.06	3.92	50.22	10:27
10	TOC	0.1511	1.5108	10.99	14.76	3.76	50.22	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 10.0378 (IC) (v1350)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

Sample Type: Blank (Creating v1351) From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2020/02/11 20:47

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.35	17.94	5.59	49.72	05:22
2	TC Clean	4.69	8.46	3.78	50.15	04:03
3	TC Clean	2.33	6.04	3.71	49.93	03:44

4	TC Clean	1.92	5.62	3.70	50.12	03:46
5	Reagent Blank	11.14	14.94	3.79	50.05	05:04
6	Acid Blank	2.46	6.16	3.70	49.61	05:28

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.4838 ppm	0.0000 ppm	0.0000%	2020/02/11 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4838	4.8383	12.98	16.92	3.94	50.18	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 3

	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)	23.8159 ppm (PASS)	0.0000 ppm	0%	2020/02/11 21:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8159	238.1592	160.78	164.66	3.87	50.19	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	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)	0.2398 ppm (PASS)	0.0000 ppm	0%	2020/02/11 21:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.2398	2.3976	11.72	15.61	3.90	50.19	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.2195 ppm	0.0000 ppm	0.0000%	2020/02/11 22:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2195	2.1955	11.31	15.12	3.81	50.14	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

Sample Type: Check Standard --> LCS From Schedule Version 3

	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)	25.5946 ppm (PASS)	0.0000 ppm	0%	2020/02/11 22:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.5946	255.9456	172.03	175.66	3.63	50.16	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	1.0184 ppm	0.0000 ppm	0.0000%	2020/02/11 22:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0184	10.1840	16.36	20.15	3.78	50.09	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K2001131-001.01	4.1982 ppm	0.0030 ppm	0.0700%	2020/02/11 22:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2004	42.0036	36.48	40.40	3.92	50.10	10:26
2	TOC	4.1961	41.9609	36.45	40.30	3.85	50.09	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC)	CAS_salt_010711	CAS_salt_010711

(v1351) (v4) (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K2001131-001.01 ms	33.2432 ppm	0.0000 ppm	0.0000%	2020/02/11 23:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	33.2432	332.4322	220.11	224.03	3.92	50.06	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	RB	0.4573 ppm	0.0000 ppm	0.0000%	2020/02/11 23:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4573	4.5726	12.81	16.63	3.81	50.07	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2001131-002.01	5.2102 ppm	0.2264 ppm	4.3400%	2020/02/11 23:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.0501	50.5014	41.85	45.90	4.05	50.05	10:27
2	TOC	5.3703	53.7025	43.88	47.74	3.86	50.05	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2001131-003.01 10x	7.6632 ppm	0.1624 ppm	2.1200%	2020/02/12 00:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.7780	77.7803	59.10	63.02	3.91	50.05	10:27
2	TOC	7.5484	75.4839	57.65	61.28	3.63	50.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2001131-004.01 200x	4.6206 ppm	0.0013 ppm	0.0300%	2020/02/12 00:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.6196	46.1964	39.13	42.80	3.67	50.04	10:28
2	TOC	4.6215	46.2153	39.14	42.91	3.77	50.03	10:26

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K2001131-005.01 200x	4.7654 ppm	0.0015 ppm	0.0300%	2020/02/12 01:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7664	47.6641	40.06	43.82	3.76	50.03	10:27
2	TOC	4.7644	47.6435	40.05	43.78	3.74	50.02	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 3

	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)	24.0347 ppm (PASS)	0.0000 ppm	0%	2020/02/12 01:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0347	240.3465	162.17	166.02	3.86	50.00	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	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)	0.3759 ppm (PASS)	0.0000 ppm	0%	2020/02/12 01:53

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.3759	3.7593	12.58	16.47	3.89	50.02	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	10	TOC	K2001132-001.01	2.6312 ppm	0.0574 ppm	2.1800%	2020/02/12 02:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6718	26.7177	26.82	30.52	3.71	50.00	10:29
2	TOC	2.5906	25.9064	26.30	30.00	3.70	49.98	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2001207-001.01	0.3527 ppm	0.0557 ppm	15.7900%	2020/02/12 02:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3921	3.9210	12.40	16.20	3.80	50.03	10:26
2	TOC	0.3133	3.1334	11.90	15.57	3.67	50.00	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2001142-001.07 20x	2.4883 ppm	0.0356 ppm	1.4300%	2020/02/12 03:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5135	25.1346	25.82	29.31	3.50	50.00	10:30
2	TOC	2.4632	24.6316	25.50	29.22	3.73	50.01	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2001142-002.07 20x	4.1683 ppm	0.0309 ppm	0.7400%	2020/02/12 03:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1464	41.4643	36.14	39.79	3.65	49.99	10:25
2	TOC	4.1901	41.9008	36.42	40.09	3.67	49.99	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2001142-004.07	16.1717 ppm	0.0400 ppm	0.2500%	2020/02/12 04:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.1434	161.4344	112.00	115.70	3.71	50.00	10:27
2	TOC	16.2001	162.0006	112.35	115.97	3.61	49.98	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K2001173-001.01	0.8394 ppm	0.0435 ppm	5.1800%	2020/02/12 04:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8702	8.7021	15.42	18.98	3.56	49.99	10:27
2	TOC	0.8087	8.0868	15.04	18.70	3.66	49.99	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K2001173-002.01	0.8278 ppm	0.0371 ppm	4.4900%	2020/02/12 04:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8541	8.5407	15.32	19.09	3.77	50.00	10:25
2	TOC	0.8016	8.0157	14.99	18.62	3.63	49.99	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 3

	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)	23.6019 ppm (PASS)	0.0000 ppm	0%	2020/02/12 05:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6019	236.0193	159.43	163.01	3.58	49.97	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	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)	0.1098 ppm (PASS)	0.0000 ppm	0%	2020/02/12 05:39

Pos	Base Analysis	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

	Type									
D	TOC	0 ppm	1	0.1098	1.0975	10.89	14.61	3.71	49.98	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	18	TOC	K2000749-006.01 100x	2.6677 ppm	0.0004 ppm	0.0200%	2020/02/12 05:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6673	26.6735	26.79	30.50	3.71	50.00	10:28
2	TOC	2.6680	26.6798	26.79	30.47	3.67	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	RB	0.0566 ppm	0.0224 ppm	39.4800%	2020/02/12 06:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0725	0.7246	10.38	13.96	3.58	50.02	10:26
2	TOC	0.0408	0.4083	10.18	13.87	3.69	50.00	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.9228 (IC) (v1351)	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	20	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/02/12 06:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
20	TOC	25 ppm	1	0.0000	0.0000	9.56	13.36	3.79	50.00	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos 20
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	50 ppmC

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

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	21	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/02/12 07:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
21	TOC	0 ppm	1	0.0000	0.0000	10.00	13.80	3.80	50.01	10:27

Completion State	Success Action	Method	Calibration	STD Conc - Pos 21
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v31)	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
v1350	4.2887	2.5180	0.0000	0.0000	0.0000	2020/02/11 16:58	Fusion1 (Fusion1)
v1351	3.7140	2.4650	0.0000	0.0000	0.0000	2020/02/11 21:20	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v31

Ver Creation: 2020/01/07 14:30

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type: TOC

Calibration curve formula: TOC: y = 6.323x + 10.200

r^2 value: TOC: r^2 = 0.99991

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	9.5850	0.0000		2020/01/07 13:02
0.500 ppm	12.6160	0.5000		2020/01/07 13:17
1.0 ppm	15.6440	1.0000		2020/01/07 13:31
5.0 ppm	43.7700	5.0000		2020/01/07 13:45
10 ppm	73.2770	10.0000		2020/01/07 14:00
25 ppm	169.4210	25.0000		2020/01/07 14:14
50 ppm	325.6260	50.0000		2020/01/07 14:28

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

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	2020/02/12 07:19

ALS Environmental

StarLIMS Run: 669413

Analysis: DOC/TOC

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

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 1/7/2020

ICAL ID: 11-GEN-05-83-K->O/84-A/11-GEN-05-84-C->H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-4-K

21 % H3PO4: 19-GEN-08-4-L

Equipment ID: K-TOC-03

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

FILTER ID: 16967789

Analyzed By: BW	Date Analyzed: 2/13/20
Reviewed By:	Date Reviewed: 02/13/20

11 BW 2/13/20

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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May 21, 2020

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

Work Order: **HS20050172**

Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 5 sample(s) on May 06, 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: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050172

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20050172-01	04WW05-200505	GW		05-May-2020 07:50	06-May-2020 09:00	☐
HS20050172-02	04WW09-200505	GW		05-May-2020 08:40	06-May-2020 09:00	☐
HS20050172-03	04WW010-200505	GW		05-May-2020 09:30	06-May-2020 09:00	☐
HS20050172-04	04WW010-200505-FD	GW		05-May-2020 09:30	06-May-2020 09:00	☐
HS20050172-05	04WW07-200505	GW		05-May-2020 10:20	06-May-2020 09:00	☐

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant
Work Order: HS20050172

Work Order Comments

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

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

WetChemistry by Method SM2320B

Batch ID: R361595

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

WetChemistry by Method SW9056

Batch ID: R361457

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW05-200505
Collection Date: 05-May-2020 07:50

ANALYTICAL REPORT
WorkOrder:HS20050172
Lab ID:HS20050172-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**448**		**5.00**	**5.00**	**5.00**	**mg/L**	1	14-May-2020 20:03
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 16:12
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 16:12
Sulfate	**61.5**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-May-2020 16:12
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW09-200505
Collection Date: 05-May-2020 08:40

ANALYTICAL REPORT
WorkOrder:HS20050172
Lab ID:HS20050172-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**328**		**5.00**	**5.00**	**5.00**	**mg/L**	1	14-May-2020 20:32
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Nitrogen, Nitrate (As N)	**0.0732**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-May-2020 16:30
Nitrogen, Nitrite (As N)	**1.77**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-May-2020 16:30
Sulfate	**2.00**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-May-2020 16:30
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW010-200505
Collection Date: 05-May-2020 09:30

ANALYTICAL REPORT
WorkOrder:HS20050172
Lab ID:HS20050172-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**690**		**5.00**	**5.00**	**5.00**	**mg/L**	1	14-May-2020 20:10
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 16:48
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 16:48
Sulfate	**924**		**2.00**	**5.00**	**5.00**	**mg/L**	10	06-May-2020 19:13
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW010-200505-FD
Collection Date: 05-May-2020 09:30

ANALYTICAL REPORT
WorkOrder:HS20050172
Lab ID:HS20050172-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**696**		**5.00**	**5.00**	**5.00**	**mg/L**	1	14-May-2020 20:44
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 17:06
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 17:06
Sulfate	**918**		**2.00**	**5.00**	**5.00**	**mg/L**	10	06-May-2020 19:31
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant WorkOrder:HS20050172
Sample ID: 04WW07-200505 Lab ID:HS20050172-05
Collection Date: 05-May-2020 10:20 Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**865**		**5.00**	**5.00**	**5.00**	**mg/L**	1	14-May-2020 20:52
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Nitrogen, Nitrate (As N)	**0.0318**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-May-2020 17:24
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-May-2020 17:24
Sulfate	**1.78**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-May-2020 17:24
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050172

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R361457 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** GW	
HS20050172-01	04WW05-200505	05 May 2020 07:50			06 May 2020 16:12	1
HS20050172-02	04WW09-200505	05 May 2020 08:40			06 May 2020 16:30	1
HS20050172-03	04WW010-200505	05 May 2020 09:30			06 May 2020 19:13	10
HS20050172-03	04WW010-200505	05 May 2020 09:30			06 May 2020 16:48	1
HS20050172-04	04WW010-200505-FD	05 May 2020 09:30			06 May 2020 19:31	10
HS20050172-04	04WW010-200505-FD	05 May 2020 09:30			06 May 2020 17:06	1
HS20050172-05	04WW07-200505	05 May 2020 10:20			06 May 2020 17:24	1
Batch ID: R361595 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** GW	
HS20050172-01	04WW05-200505	05 May 2020 07:50			14 May 2020 20:03	1
HS20050172-02	04WW09-200505	05 May 2020 08:40			14 May 2020 20:32	1
HS20050172-03	04WW010-200505	05 May 2020 09:30			14 May 2020 20:10	1
HS20050172-04	04WW010-200505-FD	05 May 2020 09:30			14 May 2020 20:44	1
HS20050172-05	04WW07-200505	05 May 2020 10:20			14 May 2020 20:52	1
Batch ID: R361636 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** GW	
HS20050172-01	04WW05-200505	05 May 2020 07:50			15 May 2020 15:30	1
HS20050172-02	04WW09-200505	05 May 2020 08:40			15 May 2020 15:30	1
HS20050172-03	04WW010-200505	05 May 2020 09:30			15 May 2020 15:30	1
HS20050172-04	04WW010-200505-FD	05 May 2020 09:30			15 May 2020 15:30	1
HS20050172-05	04WW07-200505	05 May 2020 10:20			15 May 2020 15:30	1
Batch ID: R361905 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** GW	
HS20050172-01	04WW05-200505	05 May 2020 07:50			21 May 2020 10:37	1
HS20050172-02	04WW09-200505	05 May 2020 08:40			21 May 2020 10:37	1
HS20050172-03	04WW010-200505	05 May 2020 09:30			21 May 2020 10:37	1
HS20050172-04	04WW010-200505-FD	05 May 2020 09:30			21 May 2020 10:37	1
HS20050172-05	04WW07-200505	05 May 2020 10:20			21 May 2020 10:37	1

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050172

QC BATCH REPORT

Batch ID: R361457 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-050620** Units: **mg/L** Analysis Date: **06-May-2020 19:49**
Client ID: Run ID: **ICS-Integrion_361457** SeqNo: **5582640** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-050620** Units: **mg/L** Analysis Date: **06-May-2020 20:07**
Client ID: Run ID: **ICS-Integrion_361457** SeqNo: **5582641** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.092	0.100	4	0	102	80 - 120				
Nitrogen, Nitrite (As N)	4.204	0.100	4	0	105	80 - 120				
Sulfate	19.76	0.500	20	0	98.8	80 - 120				

LCSD Sample ID: **WLCSDW1-050620** Units: **mg/L** Analysis Date: **06-May-2020 20:25**
Client ID: Run ID: **ICS-Integrion_361457** SeqNo: **5582642** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.066	0.100	4	0	102	80 - 120	4.092	0.657	20	
Nitrogen, Nitrite (As N)	4.182	0.100	4	0	105	80 - 120	4.204	0.529	20	
Sulfate	19.63	0.500	20	0	98.1	80 - 120	19.76	0.66	20	

MS Sample ID: **HS20050172-01MS** Units: **mg/L** Analysis Date: **06-May-2020 18:18**
Client ID: **04WW05-200505** Run ID: **ICS-Integrion_361457** SeqNo: **5582635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.08	0.100	2	0	104	80 - 120				
Nitrogen, Nitrite (As N)	2.153	0.100	2	0	108	80 - 120				
Sulfate	70.51	0.500	10	61.49	90.2	80 - 120				O

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050172

QC BATCH REPORT

Batch ID: R361457 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20050172-01MSD** Units: **mg/L** Analysis Date: **06-May-2020 18:37**
Client ID: **04WW05-200505** Run ID: **ICS-Integrion_361457** SeqNo: **5582636** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.072	0.100	2	0	104	80 - 120	2.08	0.414	20	
Nitrogen, Nitrite (As N)	2.142	0.100	2	0	107	80 - 120	2.153	0.517	20	
Sulfate	70.15	0.500	10	61.49	86.7	80 - 120	70.51	0.502	20	O

The following samples were analyzed in this batch: HS20050172-01 HS20050172-02 HS20050172-03 HS20050172-04 HS20050172-05

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050172

QC BATCH REPORT

Batch ID: R361595 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW1-200514** Units: **mg/L** Analysis Date: **14-May-2020 17:39**
Client ID: Run ID: **ManTech01_361595** SeqNo: **5585351** 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: **LCS1-200514** Units: **mg/L** Analysis Date: **14-May-2020 17:48**
Client ID: Run ID: **ManTech01_361595** SeqNo: **5585352** 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)	1018	5.00	1000	0	102	85 - 115				

LCSD Sample ID: **LCSD1-200514** Units: **mg/L** Analysis Date: **14-May-2020 17:57**
Client ID: Run ID: **ManTech01_361595** SeqNo: **5585353** 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)	1012	5.00	1000	0	101	85 - 115	1018	0.579	20	

DUP Sample ID: **HS20050499-02DUP** Units: **mg/L** Analysis Date: **14-May-2020 18:09**
Client ID: Run ID: **ManTech01_361595** SeqNo: **5585355** 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)	148.8	5.00					147.6	0.783	20	

The following samples were analyzed in this batch: HS20050172-01 HS20050172-02 HS20050172-03 HS20050172-04 HS20050172-05

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20050172**

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	20-030-0	26-Mar-2021
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 21-May-20

Sample Receipt Checklist

Work Order ID: HS20050172 **Date/Time Received:** **06-May-2020 09:00**

Client Name: CBI-Houston **Received by:** **Asad Chaudhry**

Completed By: */S/ Asad Chaudhry* (eSignature) 06-May-2020 11:07 (Date/Time) **Reviewed by:** */S/ RJ Modashia* (eSignature) 06-May-2020 14:36 (Date/Time)

Matrices: **GW** 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:N/A
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):	0.4C U/C	IR 25	
Cooler(s)/Kit(s):	45876		
Date/Time sample(s) sent to storage:	05/06/2020 11:15		
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:

CHAIN OF CUSTODY

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

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

Project No. 501032

Job: 04LHAAP_Performance Monitoring 05_20ALS

Prepared By: Scott Beesinger

P.O. Number

HS20050172
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Perchlorate by SW6850	TOC by SM5310	Alkalinity by SM2320B	Anions (nitrate, nitrite, sulfate) by SW9056						Remarks (Preservatives, etc.)	Lab I.D.#
04WW05-200505	WG	5/5/20/0750		4	X	X	X	X							
04WW09-200505	WG	5/5/20/0840		4	X	X	X	X							
04WW10-200505	WG	5/5/20/0930		4	X	X	X	X							
04WW10-200505-FD	WG	5/5/20/0930		4	X	X	X	X							
04WW07-200505	WG	5/5/20/1020		4	X	X	X	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	5/5/20	1430							AC	5/6/2020	09:00

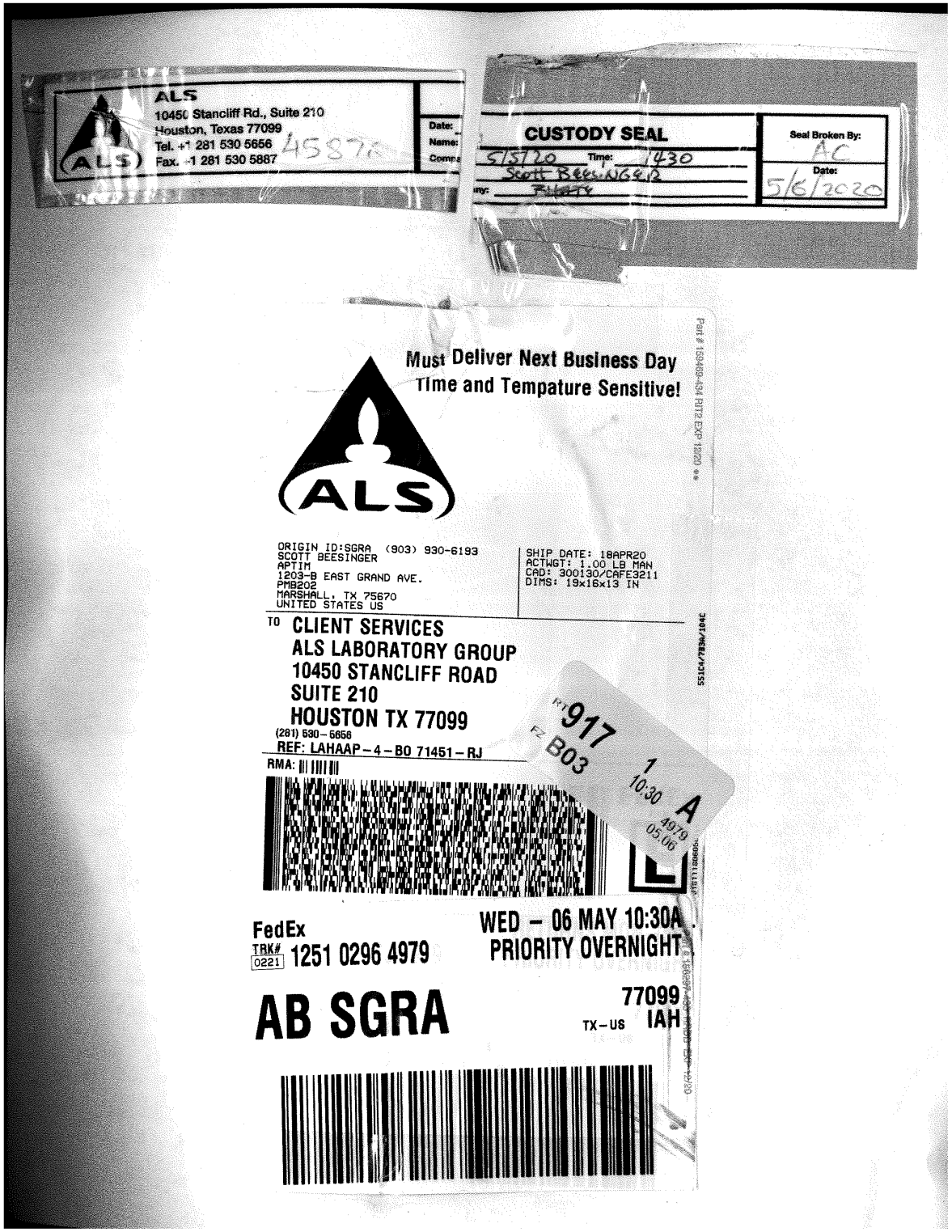
For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

u/c 0.4 IR#25 CF0.0
WR 45876

(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
45878
Date:
Name:
CUSTODY SEAL
Time: 1430
Seal Broken By:
AC
Date:
5/6/2020
Must Deliver Next Business Day
Time and Tempature Sensitive!
ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US
SHIP DATE: 18APR20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN
TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LAHAAP-4-B0 71451-RJ
RMA:
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05.06
FedEx
TRK# 0221 1251 0296 4979
WED - 06 MAY 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
IAH
TX-US

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May 15, 2020

Analytical Report for Service Request No: K2003791

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

RE: ALS Houston DOD TOC / HS20050172

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 08, 2020
For your reference, these analyses have been assigned our service request number **K2003791.**

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

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

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State Certifications, Accreditations, And Licenses
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    General Chemistry

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: K2003791
Date Received: 05/08/2020

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:

Five ground water samples were received for analysis at ALS Environmental on 05/08/2020. 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 Noe D. Garcia Date 05/15/2020

Chain of Custody

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K2003791

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:** **13855**

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:	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:	HS20050172
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050172-01**	**04WW05-200505**	**GW**	**05 May 2020 07:50**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			20 May 2020
2.	**HS20050172-02**	**04WW09-200505**	**GW**	**05 May 2020 08:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			20 May 2020
3.	**HS20050172-03**	**04WW010-200505**	**GW**	**05 May 2020 09:30**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			20 May 2020
4.	**HS20050172-04**	**04WW010-200505-FD**	**GW**	**05 May 2020 09:30**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			20 May 2020
5.	**HS20050172-05**	**04WW07-200505**	**GW**	**05 May 2020 10:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			20 May 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

K2003791

PCL XL error

Warning: IllegalMediaSize

Subcontract Chain of Custody

SAMPLING STATE: Texas **COC ID: 13855**

Relinquished By: J. Mynatt Date/Time: 5/7/20 18:00

Received By: Date/Time: 5/8/20 1000

Cooler ID(s): Temperature(s):

PC KL

Cooler Receipt and Preservation Form

Client ALS - Houston Service Request K20 03791

Received: 5/18/20 Opened: 5/18/20 By: BR Unloaded: 5/18/20 By: BR

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

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID (NA)	Tracking Number NA	Filed
-	3.2	3.4	3.10	3.3	4890048B		1Z51029Y6846O	

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2003791
Project:	ALS Houston DOD TOC/HS20050172	**Date Collected:**	05/5/20
Sample Matrix:	Ground Water	**Date Received:**	05/8/20
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
04WW05-200505	K2003791-001	**2.64**	0.50	0.20	0.07	1	05/13/20 03:59	
04WW09-200505	K2003791-002	**334**	10	4	2	20	05/13/20 04:27	
04WW010-200505	K2003791-003	**4.37**	0.50	0.20	0.07	1	05/13/20 04:55	
04WW010-200505-FD	K2003791-004	**4.52**	0.50	0.20	0.07	1	05/13/20 05:23	
04WW07-200505	K2003791-005	**25.0**	0.50	0.20	0.07	1	05/13/20 05:51	
Method Blank	K2003791-MB	ND U	0.50	0.20	0.07	1	05/12/20 23:41	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2003791
Project	ALS Houston DOD TOC/HS20050172	**Date Collected:**	05/05/20
Sample Matrix:	Ground Water	**Date Received:**	05/08/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	MRL	LOQ	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
04WW05-200505	K2003791-001DUP	0.50	0.20	0.07	2.64	2.51	2.58	5	10	05/13/20
04WW09-200505	K2003791-002DUP	10	4	2	334	342	338	2	10	05/13/20
04WW010-200505	K2003791-003DUP	0.50	0.20	0.07	4.37	4.37	4.37	<1	10	05/13/20
04WW010-200505-FD	K2003791-004DUP	0.50	0.20	0.07	4.52	4.29	4.40	5	10	05/13/20
04WW07-200505	K2003791-005DUP	0.50	0.20	0.07	25.0	25.3	25.1	1	10	05/13/20

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:**	K2003791
Project:	ALS Houston DOD TOC/HS20050172	**Date Analyzed:**	05/12/20
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:	679905

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2003791-LCS	25.5	25.0	102	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2003791
Project: ALS Houston DOD TOC/HS20050172

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	679905	KQ2006459-01	05/12/20 23:11	25.0	26.0	104	90-110
CCV2	679905	KQ2006459-02	05/13/20 03:00	25.0	25.9	104	90-110
CCV3	679905	KQ2006459-03	05/13/20 08:11	25.0	25.8	103	90-110
CCV4	679905	KQ2006459-04	05/13/20 12:54	25.0	26.0	104	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2003791
Project: ALS Houston DOD TOC/HS20050172

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	679905	KQ2006459-05	05/12/20 23:26	0.50	0.20	0.07	0.09	J
CCB2	679905	KQ2006459-06	05/13/20 03:16	0.50	0.20	0.07	ND	U
CCB3	679905	KQ2006459-07	05/13/20 08:26	0.50	0.20	0.07	0.15	J
CCB4	679905	KQ2006459-08	05/13/20 13:09	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # Original ( ) K2003631, 3711, 3723, 3737, 3742, 3746, 3791, 3792, 3793, 3814, 3842

Tier: IV II I II II II IV IV IV IV II

Date Analyzed: 5/12/20

Analyst: BCP

Analysis: TOC/DOC

TOC: 629905, 629906

Run # DOC: 629907

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 BCP 5/14/20
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: K2003737-1Rd, 3792-1, 3792-5, 3814-1, 3814-2, 3814-3, 3842-10, 3842-4, 3842-5, 3842-6, 3842-7 and respective dups report a high %RSD. However, these samples are less than 5x the MRL.

Final Approved by: _____ Date: 5/14/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 679905 **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
K2003631-010	Carbon, Total Organic	N/A		Water	0.05 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 10:06:00	N	IV
K2003711-001	Carbon, Total Organic	N/A		Drinking Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50			5/13/20 00:39:00	N	II
K2003723-001	Carbon, Total Organic	N/A		Water	5.89 mg/L	10 mL	589 mg/L	100	7	50			5/13/20 02:04:00	N	I
K2003737-001	Carbon, Total Organic	N/A		Drinking Water	0.73 mg/L	10 mL	0.73 mg/L	1	0.07	0.50			5/13/20 02:32:00	N	II
K2003742-001	Carbon, Total Organic	N/A		Water	6.84 mg/L	10 mL	6.84 mg/L	1	0.07	0.50			5/13/20 01:36:00	N	II
K2003746-001	Carbon, Total Organic	N/A		Water	2.22 mg/L	10 mL	2.22 mg/L	1	0.07	0.50			5/13/20 03:30:00	N	II
K2003791-001	Carbon, Total Organic	N/A		Ground Water	2.64 mg/L	10 mL	2.64 mg/L	1	0.07	0.50			5/13/20 03:59:00	N	IV
K2003791-002	Carbon, Total Organic	N/A		Ground Water	16.72 mg/L	10 mL	334 mg/L	20	2	10			5/13/20 04:27:00	N	IV
K2003791-003	Carbon, Total Organic	N/A		Ground Water	4.37 mg/L	10 mL	4.37 mg/L	1	0.07	0.50			5/13/20 04:55:00	N	IV
K2003791-004	Carbon, Total Organic	N/A		Ground Water	4.52 mg/L	10 mL	4.52 mg/L	1	0.07	0.50			5/13/20 05:23:00	N	IV
K2003791-005	Carbon, Total Organic	N/A		Ground Water	24.99 mg/L	10 mL	25.0 mg/L	1	0.07	0.50			5/13/20 05:51:00	N	IV
K2003792-001	Carbon, Total Organic	N/A		Ground Water	2.14 mg/L	10 mL	2.14 mg/L	1	0.07	0.50			5/13/20 06:19:00	N	IV
K2003792-002	Carbon, Total Organic	N/A		Ground Water	1.96 mg/L	10 mL	1.96 mg/L	1	0.07	0.50			5/13/20 06:47:00	N	IV
K2003792-003	Carbon, Total Organic	N/A		Ground Water	1.40 mg/L	10 mL	1.40 mg/L	1	0.07	0.50			5/13/20 07:15:00	N	IV
K2003792-004	Carbon, Total Organic	N/A		Ground Water	1.25 mg/L	10 mL	1.25 mg/L	1	0.07	0.50			5/13/20 07:43:00	N	IV
K2003792-005	Carbon, Total Organic	N/A		Ground Water	1.14 mg/L	10 mL	1.14 mg/L	1	0.07	0.50			5/13/20 09:10:00	N	IV
K2003793-001	Carbon, Total Organic	N/A		Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50			5/13/20 09:38:00	N	IV
K2003814-001	Carbon, Total Organic	N/A		Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50			5/13/20 10:34:00	N	IV
K2003814-002	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50			5/13/20 11:02:00	N	IV
K2003814-003	Carbon, Total Organic	N/A		Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			5/13/20 11:30:00	N	IV
KQ2006459-01	Carbon, Total Organic	CCV		Drinking Water	26.03 mg/L	10 mL	26.0 mg/L	1					5/12/20 23:11:00	N	II
KQ2006459-02	Carbon, Total Organic	CCV		Drinking Water	25.90 mg/L	10 mL	25.9 mg/L	1					5/13/20 03:00:00	N	II
KQ2006459-03	Carbon, Total Organic	CCV		Drinking Water	25.77 mg/L	10 mL	25.8 mg/L	1					5/13/20 08:11:00	N	II
KQ2006459-04	Carbon, Total Organic	CCV		Drinking Water	26.05 mg/L	10 mL	26.0 mg/L	1					5/13/20 12:54:00	N	II
KQ2006459-05	Carbon, Total Organic	CCB		Drinking Water	0.09 mg/L	10 mL	0.09 mg/L J	1	0.07	0.50			5/12/20 23:26:00	N	II
KQ2006459-06	Carbon, Total Organic	CCB		Drinking Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 03:16:00	N	II
KQ2006459-07	Carbon, Total Organic	CCB		Drinking Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50			5/13/20 08:26:00	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-03 **Analyst:** BDITZLER **Analysis Lot:** 679905 **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
KQ2006459-08	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 13:09:00	N	II
KQ2006459-09	Carbon, Total Organic	MB		Drinking Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/12/20 23:41:00	N	II
KQ2006459-10	Carbon, Total Organic	LCS		Drinking Water	25.46 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		5/12/20 23:55:00	N	II
KQ2006459-11	Carbon, Total Organic	MS	K2003711-001	Drinking Water	26.26 mg/L	10 mL	26.3 mg/L	1	0.07	0.50	103		5/13/20 01:07:00	N	II
KQ2006459-12	Carbon, Total Organic	DUP	K2003631-010	Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/13/20 10:06:00	N	IV
KQ2006459-13	Carbon, Total Organic	DUP	K2003711-001	Drinking Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50		<1	5/13/20 00:39:00	N	II
KQ2006459-14	Carbon, Total Organic	DUP	K2003723-001	Water	6.19 mg/L	10 mL	619 mg/L	100	7	50		5	5/13/20 02:04:00	N	I
KQ2006459-15	Carbon, Total Organic	DUP	K2003737-001	Drinking Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		23*	5/13/20 02:32:00	N	II
KQ2006459-16	Carbon, Total Organic	DUP	K2003742-001	Water	6.87 mg/L	10 mL	6.87 mg/L	1	0.07	0.50		<1	5/13/20 01:36:00	N	II
KQ2006459-17	Carbon, Total Organic	DUP	K2003746-001	Water	2.10 mg/L	10 mL	2.10 mg/L	1	0.07	0.50		5	5/13/20 03:30:00	N	II
KQ2006459-18	Carbon, Total Organic	DUP	K2003791-002	Ground Water	17.08 mg/L	10 mL	342 mg/L	20	2	10		2	5/13/20 04:27:00	N	IV
KQ2006459-19	Carbon, Total Organic	DUP	K2003791-001	Ground Water	2.51 mg/L	10 mL	2.51 mg/L	1	0.07	0.50		5	5/13/20 03:59:00	N	IV
KQ2006459-20	Carbon, Total Organic	DUP	K2003791-003	Ground Water	4.37 mg/L	10 mL	4.37 mg/L	1	0.07	0.50		<1	5/13/20 04:55:00	N	IV
KQ2006459-21	Carbon, Total Organic	DUP	K2003791-004	Ground Water	4.29 mg/L	10 mL	4.29 mg/L	1	0.07	0.50		5	5/13/20 05:23:00	N	IV
KQ2006459-22	Carbon, Total Organic	DUP	K2003791-005	Ground Water	25.28 mg/L	10 mL	25.3 mg/L	1	0.07	0.50		1	5/13/20 05:51:00	N	IV
KQ2006459-23	Carbon, Total Organic	DUP	K2003792-002	Ground Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50		5	5/13/20 06:47:00	N	IV
KQ2006459-24	Carbon, Total Organic	DUP	K2003792-001	Ground Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50		37*	5/13/20 06:19:00	N	IV
KQ2006459-25	Carbon, Total Organic	DUP	K2003792-003	Ground Water	1.27 mg/L	10 mL	1.27 mg/L	1	0.07	0.50		10	5/13/20 07:15:00	N	IV
KQ2006459-26	Carbon, Total Organic	DUP	K2003792-004	Ground Water	1.18 mg/L	10 mL	1.18 mg/L	1	0.07	0.50		6	5/13/20 07:43:00	N	IV
KQ2006459-27	Carbon, Total Organic	DUP	K2003792-005	Ground Water	1.01 mg/L	10 mL	1.01 mg/L	1	0.07	0.50		12*	5/13/20 09:10:00	N	IV
KQ2006459-28	Carbon, Total Organic	DUP	K2003793-001	Water	2.37 mg/L	10 mL	2.37 mg/L	1	0.07	0.50		1	5/13/20 09:38:00	N	IV
KQ2006459-29	Carbon, Total Organic	DUP	K2003814-001	Water	0.38 mg/L	10 mL	0.38 mg/L J	1	0.07	0.50		11*	5/13/20 10:34:00	N	IV
KQ2006459-30	Carbon, Total Organic	DUP	K2003814-002	Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		15*	5/13/20 11:02:00	N	IV
KQ2006459-31	Carbon, Total Organic	DUP	K2003814-003	Water	0.35 mg/L	10 mL	0.35 mg/L J	1	0.07	0.50		15*	5/13/20 11:30:00	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-03 **Analyst:** BDITZLER **Analysis Lot:** 679906 **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
K2003842-001	Carbon, Total Organic	N/A		Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50			5/13/20 11:58:00	N	II
K2003842-002	Carbon, Total Organic	N/A		Water	1.08 mg/L	10 mL	1.08 mg/L	1	0.07	0.50			5/13/20 12:26:00	N	II
K2003842-003	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			5/13/20 13:24:00	N	II
K2003842-004	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			5/13/20 13:52:00	N	II
K2003842-005	Carbon, Total Organic	N/A		Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50			5/13/20 14:20:00	N	II
K2003842-006	Carbon, Total Organic	N/A		Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			5/13/20 14:48:00	N	II
K2003842-007	Carbon, Total Organic	N/A		Water	0.43 mg/L	10 mL	0.43 mg/L J	1	0.07	0.50			5/13/20 15:16:00	N	II
K2003842-008	Carbon, Total Organic	N/A		Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			5/13/20 15:44:00	N	II
K2003842-009	Carbon, Total Organic	N/A		Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50			5/13/20 16:12:00	N	II
K2003842-010	Carbon, Total Organic	N/A		Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50			5/13/20 16:40:00	N	II
K2003842-011	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			5/13/20 17:08:00	N	II
K2003842-012	Carbon, Total Organic	N/A		Water	0.81 mg/L	10 mL	0.81 mg/L	1	0.07	0.50			5/13/20 18:50:00	N	II
K2003842-013	Carbon, Total Organic	N/A		Water	0.96 mg/L	10 mL	0.96 mg/L	1	0.07	0.50			5/13/20 19:18:00	N	II
K2003842-014	Carbon, Total Organic	N/A		Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50			5/13/20 19:46:00	N	II
K2003842-015	Carbon, Total Organic	N/A		Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			5/13/20 20:15:00	N	II
KQ2006460-01	Carbon, Total Organic	CCV		Water	25.77 mg/L	10 mL	25.8 mg/L	1					5/13/20 08:11:00	N	II
KQ2006460-02	Carbon, Total Organic	CCV		Water	26.05 mg/L	10 mL	26.0 mg/L	1					5/13/20 12:54:00	N	II
KQ2006460-03	Carbon, Total Organic	CCV		Water	25.97 mg/L	10 mL	26.0 mg/L	1					5/13/20 18:06:00	N	II
KQ2006460-04	Carbon, Total Organic	CCV		Water	25.18 mg/L	10 mL	25.2 mg/L	1					5/13/20 22:08:00	N	II
KQ2006460-05	Carbon, Total Organic	CCB		Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50			5/13/20 08:26:00	N	II
KQ2006460-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 13:09:00	N	II
KQ2006460-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 18:21:00	N	II
KQ2006460-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 22:23:00	N	II
KQ2006460-09	Carbon, Total Organic	MB		Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 08:41:00	N	II
KQ2006460-10	Carbon, Total Organic	LCS		Water	25.27 mg/L	10 mL	25.3 mg/L	1	0.07	0.50	101		5/13/20 08:55:00	N	II
KQ2006460-11	Carbon, Total Organic	MS	K2003842-011	Water	26.42 mg/L	10 mL	26.4 mg/L	1	0.07	0.50	103		5/13/20 17:37:00	N	II
KQ2006460-12	Carbon, Total Organic	DUP	K2003842-015	Water	0.39 mg/L	10 mL	0.39 mg/L J	1	0.07	0.50		7	5/13/20 20:15:00	N	II
KQ2006460-13	Carbon, Total Organic	DUP	K2003842-001	Water	1.81 mg/L	10 mL	1.81 mg/L	1	0.07	0.50		<1	5/13/20 11:58:00	N	II
KQ2006460-14	Carbon, Total Organic	DUP	K2003842-002	Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50		<1	5/13/20 12:26:00	N	II
KQ2006460-15	Carbon, Total Organic	DUP	K2003842-003	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		7	5/13/20 13:24:00	N	II
KQ2006460-16	Carbon, Total Organic	DUP	K2003842-004	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		7	5/13/20 13:52:00	N	II
KQ2006460-17	Carbon, Total Organic	DUP	K2003842-005	Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		5	5/13/20 14:20:00	N	II
KQ2006460-18	Carbon, Total Organic	DUP	K2003842-006	Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50		<1	5/13/20 14:48:00	N	II
KQ2006460-19	Carbon, Total Organic	DUP	K2003842-007	Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50		5	5/13/20 15:16:00	N	II
KQ2006460-20	Carbon, Total Organic	DUP	K2003842-008	Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50		5	5/13/20 15:44:00	N	II
KQ2006460-21	Carbon, Total Organic	DUP	K2003842-009	Water	0.69 mg/L	10 mL	0.69 mg/L	1	0.07	0.50		3	5/13/20 16:12:00	N	II

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 679906 **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
KQ2006460-22	Carbon, Total Organic	DUP	K2003842-010	Water	0.13 mg/L	10 mL	0.13 mg/L J	1	0.07	0.50		34*	5/13/20 16:40:00	N	II
KQ2006460-23	Carbon, Total Organic	DUP	K2003842-011	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		7	5/13/20 17:08:00	N	II
KQ2006460-24	Carbon, Total Organic	DUP	K2003842-012	Water	0.75 mg/L	10 mL	0.75 mg/L	1	0.07	0.50		8	5/13/20 18:50:00	N	II
KQ2006460-25	Carbon, Total Organic	DUP	K2003842-013	Water	0.91 mg/L	10 mL	0.91 mg/L	1	0.07	0.50		5	5/13/20 19:18:00	N	II
KQ2006460-26	Carbon, Total Organic	DUP	K2003842-014	Water	0.44 mg/L	10 mL	0.44 mg/L J	1	0.07	0.50		4	5/13/20 19:46:00	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-03 **Analyst:** BDITZLER **Analysis Lot:** 679907 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2003842-001	Carbon, Dissolved Organic (DOC)	N/A		Water	1.24 mg/L	10 mL	1.24 mg/L	1	0.07	0.50			5/13/20 21:11:00	N	II
K2003842-002	Carbon, Dissolved Organic (DOC)	N/A		Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50			5/13/20 22:37:00	N	II
K2003842-003	Carbon, Dissolved Organic (DOC)	N/A		Water	0.33 mg/L	10 mL	0.33 mg/L J	1	0.07	0.50			5/13/20 23:06:00	N	II
K2003842-004	Carbon, Dissolved Organic (DOC)	N/A		Water	0.31 mg/L	10 mL	0.31 mg/L J	1	0.07	0.50			5/13/20 23:34:00	N	II
K2003842-005	Carbon, Dissolved Organic (DOC)	N/A		Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50			5/14/20 00:02:00	N	II
K2003842-006	Carbon, Dissolved Organic (DOC)	N/A		Water	0.28 mg/L	10 mL	0.28 mg/L J	1	0.07	0.50			5/14/20 00:30:00	N	II
K2003842-007	Carbon, Dissolved Organic (DOC)	N/A		Water	0.14 mg/L	10 mL	0.14 mg/L J	1	0.07	0.50			5/14/20 00:58:00	N	II
K2003842-008	Carbon, Dissolved Organic (DOC)	N/A		Water	0.37 mg/L	10 mL	0.37 mg/L J	1	0.07	0.50			5/14/20 01:26:00	N	II
K2003842-009	Carbon, Dissolved Organic (DOC)	N/A		Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50			5/14/20 01:54:00	N	II
K2003842-010	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 02:22:00	N	II
K2003842-011	Carbon, Dissolved Organic (DOC)	N/A		Water	0.45 mg/L	10 mL	0.45 mg/L J	1	0.07	0.50			5/14/20 02:50:00	N	II
K2003842-012	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 03:48:00	N	II
K2003842-013	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 04:16:00	N	II
K2003842-014	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 04:44:00	N	II
K2003842-015	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 05:12:00	N	II
KQ2006461-01	Carbon, Dissolved Organic (DOC)	CCV		Water	25.97 mg/L	10 mL	26.0 mg/L	1					5/13/20 17:52:00	N	II
KQ2006461-02	Carbon, Dissolved Organic (DOC)	CCV		Water	25.18 mg/L	10 mL	25.2 mg/L	1					5/13/20 22:08:00	N	II
KQ2006461-03	Carbon, Dissolved Organic (DOC)	CCV		Water	24.88 mg/L	10 mL	24.9 mg/L	1					5/14/20 03:33:00	N	II
KQ2006461-04	Carbon, Dissolved Organic (DOC)	CCV		Water	24.56 mg/L	10 mL	24.6 mg/L	1					5/14/20 05:40:00	N	II
KQ2006461-05	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 18:06:00	N	II
KQ2006461-06	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 22:23:00	N	II
KQ2006461-07	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 03:48:00	N	II
KQ2006461-08	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 05:55:00	N	II

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 679907 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2006461-09	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 18:21:00	N	II
KQ2006461-10	Carbon, Dissolved Organic (DOC)	LCS		Water	25.22 mg/L	10 mL	25.2 mg/L	1	0.07	0.50	101		5/14/20 18:36:00	N	II
KQ2006461-11	Carbon, Dissolved Organic (DOC)	MS	K2003842-001	Water	26.67 mg/L	10 mL	26.7 mg/L	1	0.07	0.50	102		5/13/20 21:39:00	N	II
KQ2006461-12	Carbon, Dissolved Organic (DOC)	DUP	K2003842-015	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 05:12:00	N	II
KQ2006461-13	Carbon, Dissolved Organic (DOC)	DUP	K2003842-001	Water	1.20 mg/L	10 mL	1.20 mg/L	1	0.07	0.50		3	5/13/20 21:11:00	N	II
KQ2006461-14	Carbon, Dissolved Organic (DOC)	DUP	K2003842-002	Water	0.68 mg/L	10 mL	0.68 mg/L	1	0.07	0.50		4	5/13/20 22:37:00	N	II
KQ2006461-15	Carbon, Dissolved Organic (DOC)	DUP	K2003842-003	Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		9	5/13/20 23:06:00	N	II
KQ2006461-16	Carbon, Dissolved Organic (DOC)	DUP	K2003842-004	Water	0.27 mg/L	10 mL	0.27 mg/L J	1	0.07	0.50		14*	5/13/20 23:34:00	N	II
KQ2006461-17	Carbon, Dissolved Organic (DOC)	DUP	K2003842-005	Water	0.27 mg/L	10 mL	0.27 mg/L J	1	0.07	0.50		23*	5/14/20 00:02:00	N	II
KQ2006461-18	Carbon, Dissolved Organic (DOC)	DUP	K2003842-006	Water	0.25 mg/L	10 mL	0.25 mg/L J	1	0.07	0.50		12*	5/14/20 00:30:00	N	II
KQ2006461-19	Carbon, Dissolved Organic (DOC)	DUP	K2003842-007	Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		12*	5/14/20 00:58:00	N	II
KQ2006461-20	Carbon, Dissolved Organic (DOC)	DUP	K2003842-008	Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50		3	5/14/20 01:26:00	N	II
KQ2006461-21	Carbon, Dissolved Organic (DOC)	DUP	K2003842-009	Water	0.39 mg/L	10 mL	0.39 mg/L J	1	0.07	0.50		4	5/14/20 01:54:00	N	II
KQ2006461-22	Carbon, Dissolved Organic (DOC)	DUP	K2003842-010	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 02:22:00	N	II
KQ2006461-23	Carbon, Dissolved Organic (DOC)	DUP	K2003842-011	Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50		5	5/14/20 02:50:00	N	II
KQ2006461-24	Carbon, Dissolved Organic (DOC)	DUP	K2003842-012	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 03:48:00	N	II
KQ2006461-25	Carbon, Dissolved Organic (DOC)	DUP	K2003842-013	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 04:16:00	N	II
KQ2006461-26	Carbon, Dissolved Organic (DOC)	DUP	K2003842-014	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 04:44:00	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	26.246	0.2169	26.0292	26.02924	26.0	5/12/2020
3	ccb	1	0.306	0.2169	0.0893	0.08934	<0.5	5/12/2020
4	mb	1	0.251	0.2169	0.0337	0.03374	<0.5	5/12/2020
5	lcs	1	25.675	0.2169	25.4577	25.45774	25.5	5/12/2020
6	K2003711-001	1	0.791	0.2169	0.5742	0.57424	0.57	5/13/2020
7	K2003711-001	1	0.788	0.2169	0.5707	0.57074	0.6	5/13/2020
8	K2003711-001ms	1	26.474	0.2169	26.2573	26.25734	26	5/13/2020
9	K2003742-001	1	7.054	0.2169	6.8371	6.83714	6.84	5/13/2020
10	K2003742-001	1	7.087	0.2169	6.8697	6.86974	6.87	5/13/2020
11	K2003723-001	100	6.107	0.2169	5.8905	589.054	589.1	5/13/2020
12	K2003723-001	100	6.404	0.2169	6.1867	618.674	618.67	5/13/2020
13	K2003737-001	1	0.947	0.2169	0.7300	0.73004	0.73	5/13/2020
14	K2003737-001	1	0.796	0.2169	0.5787	0.57874	0.58	5/13/2020
15	ccv	1	26.117	0.2169	25.8997	25.89974	25.9	5/13/2020
16	ccb	1	0.242	0.2169	0.0250	0.02504	<0.5	5/13/2020
17	K2003746-001	1	2.433	0.2169	2.2165	2.21654	2.22	5/13/2020
18	K2003746-001	1	2.316	0.2169	2.0995	2.09954	2.1	5/13/2020
19	K2003791-001	1	2.857	0.2169	2.6398	2.63984	2.6	5/13/2020
20	K2003791-001	1	2.728	0.2169	2.5109	2.51094	2.51	5/13/2020
21	K2003791-002	20	16.934	0.2169	16.7174	334.3488	334.35	5/13/2020
22	K2003791-002	20	17.298	0.2169	17.0808	341.6168	341.6	5/13/2020
23	K2003791-003	1	4.588	0.2169	4.3706	4.37064	4.4	5/13/2020
24	K2003791-003	1	4.588	0.2169	4.3712	4.37124	4.37	5/13/2020
25	K2003791-004	1	4.735	0.2169	4.5185	4.51854	4.52	5/13/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: KP	Date Analyzed	5/12/20
Reviewed By:	Date Reviewed	5/14/20

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	K2003791-004	1	4.506	0.2169	4.2891	4.28914	4.29	5/13/2020
27	K2003791-005	1	25.209	0.2169	24.9917	24.99174	24.99	5/13/2020
28	K2003791-005	1	25.496	0.2169	25.2794	25.27944	25.3	5/13/2020
29	K2003792-001	1	2.361	0.2169	2.1438	2.14384	2.1	5/13/2020
30	K2003792-001	1	1.697	0.2169	1.4797	1.47974	1.5	5/13/2020
31	K2003792-002	1	2.180	0.2169	1.9627	1.96274	2.0	5/13/2020
32	K2003792-002	1	2.087	0.2169	1.8704	1.87044	1.9	5/13/2020
33	K2003792-003	1	1.614	0.2169	1.3968	1.39684	1.4	5/13/2020
34	K2003792-003	1	1.486	0.2169	1.2690	1.26904	1.3	5/13/2020
35	K2003792-004	1	1.465	0.2169	1.2482	1.24824	1.2	5/13/2020
36	K2003792-004	1	1.397	0.2169	1.1798	1.17984	1.2	5/13/2020
37	ccv	1	25.990	0.2169	25.7728	25.77284	25.8	5/13/2020
38	ccb	1	0.372	0.2169	0.1549	0.15494	<0.5	5/13/2020
39	K2003792-005	1	1.353	0.2169	1.1357	1.13574	1.1	5/13/2020
40	K2003792-005	1	1.228	0.2169	1.0106	1.01064	1.0	5/13/2020
41	K2003793-001	1	2.559	0.2169	2.3419	2.34194	2.3	5/13/2020
42	K2003793-001	1	2.591	0.2169	2.3744	2.37444	2.4	5/13/2020
43	K2003631-010	1	0.267	0.2169	0.0505	0.05054	<0.5	5/13/2020
44	K2003631-010	1	0.229	0.2169	0.0124	0.01244	<0.5	5/13/2020
45	K2003814-001	1	0.636	0.2169	0.4191	0.41914	<0.5	5/13/2020
46	K2003814-001	1	0.592	0.2169	0.3750	0.37504	<0.5	5/13/2020
47	K2003814-002	1	0.618	0.2169	0.4015	0.40154	<0.5	5/13/2020
48	K2003814-002	1	0.561	0.2169	0.3439	0.34394	<0.5	5/13/2020
49	K2003814-003	1	0.624	0.2169	0.4070	0.40704	<0.5	5/13/2020
50	K2003814-003	1	0.569	0.2169	0.3518	0.35184	<0.5	5/13/2020

Analyzed By:	BCH	Date Analyzed	5/12/20
Reviewed By:	JC	Date Reviewed	5/14/20

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	ccv	1	26.263	0.2169	26.0461	26.04614	26.05	5/13/2020
52	ccb	1	0.181	0.2169	-0.0363	-0.03626	<0.5	5/13/2020
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	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:	BKP	Date Analyzed	5/12/20
Reviewed By:		Date Reviewed	5/13/20 5/14/20

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	25.990	0.2169	25.7728	25.77284	25.8	5/13/2020
3	ccb	1	0.372	0.2169	0.1549	0.15494	<0.5	5/13/2020
4	mb	1	0.251	0.2169	0.0344	0.03444	<0.5	5/13/2020
5	lcs	1	25.492	0.2169	25.2747	25.27474	25.3	5/13/2020
6	K2003842-001	1	2.041	0.2169	1.8245	1.82454	1.82	5/13/2020
7	K2003842-001	1	2.027	0.2169	1.8102	1.81024	1.8	5/13/2020
8	K2003842-002	1	1.295	0.2169	1.0776	1.07764	1	5/13/2020
9	K2003842-002	1	1.284	0.2169	1.0672	1.06724	1.07	5/13/2020
10	ccv	1	26.263	0.2169	26.0461	26.04614	26.05	5/13/2020
11	ccb	1	0.181	0.2169	-0.0363	-0.03626	<0.5	5/13/2020
12	K2003842-003	1	0.840	0.2169	0.6233	0.62334	0.62	5/13/2020
13	K2003842-003	1	0.801	0.2169	0.5840	0.58404	0.58	5/13/2020
14	K2003842-004	1	0.780	0.2169	0.5629	0.56294	0.56	5/13/2020
15	K2003842-004	1	0.742	0.2169	0.5253	0.52534	0.5	5/13/2020
16	K2003842-005	1	0.794	0.2169	0.5773	0.57734	0.6	5/13/2020
17	K2003842-005	1	0.766	0.2169	0.5487	0.54874	0.55	5/13/2020
18	K2003842-006	1	0.755	0.2169	0.5382	0.53824	0.5	5/13/2020
19	K2003842-006	1	0.759	0.2169	0.5418	0.54184	0.5	5/13/2020
20	K2003842-007	1	0.642	0.2169	0.4254	0.42544	<0.5	5/13/2020
21	K2003842-007	1	0.623	0.2169	0.4056	0.40564	<0.5	5/13/2020
22	K2003842-008	1	0.804	0.2169	0.5870	0.58704	0.6	5/13/2020
23	K2003842-008	1	0.778	0.2169	0.5608	0.56084	0.6	5/13/2020
24	K2003842-009	1	0.924	0.2169	0.7072	0.70724	0.71	5/13/2020
25	K2003842-009	1	0.903	0.2169	0.6865	0.68654	0.69	5/13/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:	BCP	Date Analyzed	5/12/20
Reviewed By:	JC	Date Reviewed	5/14/20

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	K2003842-010	1	0.398	0.2169	0.1812	0.18124	<0.5	5/13/2020
27	K2003842-010	1	0.345	0.2169	0.1282	0.12824	<0.5	5/13/2020
28	K2003842-011	1	0.781	0.2169	0.5641	0.56414	0.6	5/13/2020
29	K2003842-011	1	0.745	0.2169	0.5282	0.52824	0.5	5/13/2020
30	K2003842-011ms	1	26.641	0.2169	26.4239	26.42394	26.4	5/13/2020
31	ccv	1	26.186	0.2169	25.9687	25.96874	26.0	5/13/2020
32	ccb	1	0.089	0.2169	-0.1280	-0.12796	<0.5	5/13/2020
33	K2003842-012	1	1.025	0.2169	0.8082	0.80824	0.8	5/13/2020
34	K2003842-012	1	0.966	0.2169	0.7487	0.74874	0.7	5/13/2020
35	K2003842-013	1	1.175	0.2169	0.9580	0.95804	1.0	5/13/2020
36	K2003842-013	1	1.124	0.2169	0.9072	0.90724	0.9	5/13/2020
37	K2003842-014	1	0.681	0.2169	0.4641	0.46414	<0.5	5/13/2020
38	K2003842-014	1	0.661	0.2169	0.4443	0.44434	<0.5	5/13/2020
39	K2003842-015	1	0.629	0.2169	0.4125	0.41254	<0.5	5/13/2020
40	K2003842-015	1	0.603	0.2169	0.3857	0.38574	<0.5	5/13/2020
41	ccv	1	25.401	0.2169	25.1845	25.18454	25.2	5/13/2020
42	ccb	1	0.013	0.2169	-0.2036	-0.20356	<0.5	5/13/2020
43	K2003631-010	1	0.267	0.2169	0.0505	0.05054	<0.5	5/13/2020
44	K2003631-010	1	0.229	0.2169	0.0124	0.01244	<0.5	5/13/2020
45	K2003814-001	1	0.636	0.2169	0.4191	0.41914	<0.5	5/13/2020
46	K2003814-001	1	0.592	0.2169	0.3750	0.37504	<0.5	5/13/2020
47	K2003814-002	1	0.618	0.2169	0.4015	0.40154	<0.5	5/13/2020
48	K2003814-002	1	0.561	0.2169	0.3439	0.34394	<0.5	5/13/2020
49	K2003814-003	1	0.624	0.2169	0.4070	0.40704	<0.5	5/13/2020
50	K2003814-003	1	0.569	0.2169	0.3518	0.35184	<0.5	5/13/2020

Analyzed By:	BLP	Date Analyzed	5/12/20
Reviewed By:		Date Reviewed	5/14/20

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	26.186	0.2169	25.9687	25.96874	26.0	5/13/2020
3	ccb	1	0.089	0.2169	-0.1280	-0.12796	<0.5	5/13/2020
4	mb	1	0.160	0.2169	-0.0570	-0.05696	<0.5	5/13/2020
5	lcs	1	25.441	0.2169	25.2239	25.22394	25.2	5/13/2020
6	K2003842-001.06 doc	1	1.456	0.2169	1.2386	1.23864	1.24	5/13/2020
7	K2003842-001.06 doc	1	1.417	0.2169	1.2003	1.20034	1.2	5/13/2020
8	2003842-001.06 ms d	1	26.884	0.2169	26.6668	26.66684	27	5/13/2020
9	ccv	1	25.401	0.2169	25.1845	25.18454	25.18	5/13/2020
10	ccb	1	0.013	0.2169	-0.2036	-0.20356	<0.5	5/13/2020
11	K2003842-002.06 doc	1	0.930	0.2169	0.7128	0.71284	0.7	5/13/2020
12	K2003842-002.06 doc	1	0.902	0.2169	0.6847	0.68474	0.68	5/13/2020
13	K2003842-003.06 doc	1	0.550	0.2169	0.3330	0.33304	<0.5	5/13/2020
14	K2003842-003.06 doc	1	0.522	0.2169	0.3047	0.30474	<0.5	5/13/2020
15	K2003842-004.06 doc	1	0.531	0.2169	0.3145	0.31454	<0.5	5/13/2020
16	K2003842-004.06 doc	1	0.491	0.2169	0.2744	0.27444	<0.5	5/13/2020
17	K2003842-005.06 doc	1	0.558	0.2169	0.3415	0.34154	<0.5	5/14/2020
18	K2003842-005.06 doc	1	0.488	0.2169	0.2706	0.27064	<0.5	5/14/2020
19	K2003842-006.06 doc	1	0.494	0.2169	0.2768	0.27684	<0.5	5/14/2020
20	K2003842-006.06 doc	1	0.463	0.2169	0.2461	0.24614	<0.5	5/14/2020
21	K2003842-007.06 doc	1	0.359	0.2169	0.1416	0.14164	<0.5	5/14/2020
22	K2003842-007.06 doc	1	0.377	0.2169	0.1601	0.16014	<0.5	5/14/2020
23	K2003842-008.06 doc	1	0.583	0.2169	0.3663	0.36634	<0.5	5/14/2020
24	K2003842-008.06 doc	1	0.572	0.2169	0.3552	0.35524	<0.5	5/14/2020
25	K2003842-009.06 doc	1	0.621	0.2169	0.4042	0.40424	<0.5	5/14/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

	date	time
Analyzed By: BCD	Date Analyzed 5/12/20	
Reviewed By: JC	Date Reviewed 5/14/20	

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	K2003842-009.06 doc	1	0.607	0.2169	0.3900	0.39004	<0.5	5/14/2020
27	K2003842-010.06 doc	1	0.193	0.2169	-0.0235	-0.02346	<0.5	5/14/2020
28	K2003842-010.06 doc	1	0.137	0.2169	-0.0801	-0.08006	<0.5	5/14/2020
29	K2003842-011.06 doc	1	0.662	0.2169	0.4451	0.44514	<0.5	5/14/2020
30	K2003842-011.06 doc	1	0.640	0.2169	0.4229	0.42294	<0.5	5/14/2020
31	ccv	1	25.097	0.2169	24.8796	24.87964	24.9	5/14/2020
32	ccb	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
33	K2003842-012.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
34	K2003842-012.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
35	K2003842-013.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
36	K2003842-013.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
37	K2003842-014.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
38	K2003842-014.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
39	K2003842-015.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
40	K2003842-015.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
41	ccv	1	24.776	0.2169	24.5592	24.55924	24.6	5/14/2020
42	ccb	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
43		1			0.0000	0	<0.5	
44		1			0.0000	0	<0.5	
45		1			0.0000	0	<0.5	
46		1			0.0000	0	<0.5	
47		1			0.0000	0	<0.5	
48		1			0.0000	0	<0.5	
49		1			0.0000	0	<0.5	
50		1			0.0000	0	<0.5	

Analyzed By: BKD	Date Analyzed 5/12/20
Reviewed By:	Date Reviewed 5/14/20

TOC: 679905, 679906
DOC: 679907

Schedule: 05122020

Version: 2
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/05/12 20:13 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	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
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	LOT 041320-3DQL	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
4	Sample	K2003711-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K2003711-001.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
7	Sample	K2003742-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2003723-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2003737-001.01	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
10	Sample	K2003746-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2003791-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2003791-002.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2003791-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2003791-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K2003791-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2003792-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K2003792-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2003792-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2003792-004.01	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
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K2003792-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K2003793-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2003631-010.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2003814-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K2003814-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K2003814-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K2003842-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K2003842-002.02	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
29	Sample	K2003842-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K2003842-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K2003842-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K2003842-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K2003842-007.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K2003842-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K2003842-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K2003842-010.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K2003842-011.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K2003842-011.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 05122020

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	Ready
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
40	Sample	K2003842-012.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K2003842-013.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K2003842-014.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K2003842-015.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	FB 5/12/2020 1819	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K2003842-001.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K2003842-001.06 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
47	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	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
48	Sample	K2003842-002.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K2003842-003.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K2003842-004.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K2003842-005.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K2003842-006.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K2003842-007.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K2003842-008.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K2003842-009.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K2003842-010.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K2003842-011.06 doc	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
58	Sample	K2003842-012.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
59	Sample	K2003842-013.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K2003842-014.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K2003842-015.06 doc	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
					False	

Fusion Report - 05122020
Tuesday, May 12, 2020 08:22 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/05/14 09:15 - Thursday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	05122020	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) (v2)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/12 20:22

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.91	18.44	7.53	49.78	07:58
2	TC Clean	19.05	23.51	4.47	49.55	07:17
3	TC Clean	2.85	7.17	4.32	49.56	07:02
4	TC Clean	2.04	6.17	4.13	49.57	07:02

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/12 20:56

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.19	5.33	4.14	49.83	07:59
2	TC Clean	5.70	9.81	4.11	49.59	07:18
3	TC Clean	2.16	6.30	4.14	49.61	07:02
4	TC Clean	1.68	5.83	4.14	49.62	07:01

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/12 21:31

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.03	5.25	4.22	49.87	08:01
2	TC Clean	5.31	9.47	4.15	49.63	07:17
3	TC Clean	2.60	6.72	4.13	49.64	07:05
4	TC Clean	1.90	6.02	4.12	49.65	07:04

Sample Type: Blank (Creating v1382) — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2020/05/12 22:05

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.00	5.17	4.17	49.89	08:02
2	TC Clean	5.31	9.57	4.27	49.66	07:16
3	TC Clean	2.42	6.66	4.24	49.68	07:01
4	TC Clean	2.21	6.28	4.07	49.67	07:03
5	Reagent Blank	8.08	12.04	3.97	49.70	08:11
6	Acid Blank	1.48	5.63	4.15	49.92	08:01

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.5610 ppm	0.0000 ppm	0.0000%	2020/05/12 22:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5610	5.6098	10.80	15.06	4.26	49.64	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	26.2461 ppm (PASS)	0.0000 ppm	0%	2020/05/12 23:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.2461	262.4610	193.46	197.82	4.36	49.68	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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)	0.3062 ppm (PASS)	0.0000 ppm	0%	2020/05/12 23:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.3062	3.0618	9.14	13.48	4.34	49.72	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.2506 ppm	0.0000 ppm	0.0000%	2020/05/12 23:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2506	2.5065	8.59	12.72	4.12	49.74	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	25.6746 ppm (PASS)	0.0000 ppm	0%	2020/05/12 23:55

Pos	Base Analysis	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

	Type									
C	TOC	25.0 ppm	1	25.6746	256.7456	189.40	193.45	4.06	49.74	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.8501 ppm	0.0000 ppm	0.0000%	2020/05/13 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8501	8.5005	12.85	17.07	4.22	49.77	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	LOT 041320-3DQL	0.2298 ppm	0.0000 ppm	0.0000%	2020/05/13 00:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2298	2.2982	8.44	12.54	4.10	49.79	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2003711-001.02	0.7893 ppm	0.0025 ppm	0.3200%	2020/05/13 00:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7911	7.9108	12.43	16.56	4.13	49.80	10:26
2	TOC	0.7876	7.8757	12.41	16.51	4.10	49.79	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	K2003711-001.02 ms	26.4742 ppm	0.0000 ppm	0.0000%	2020/05/13 01:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.4742	264.7415	194.92	199.03	4.11	49.81	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	RB	0.2847 ppm	0.0000 ppm	0.0000%	2020/05/13 01:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2847	2.8470	8.83	12.98	4.15	49.78	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2003742-001.01	7.0703 ppm	0.0231 ppm	0.3300%	2020/05/13 01:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.0540	70.5398	56.93	61.07	4.14	49.83	10:28
2	TOC	7.0866	70.8663	57.16	61.22	4.05	49.83	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2003723-001.01 100x	6.2555 ppm	0.2095 ppm	3.3500%	2020/05/13 02:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1074	61.0737	50.20	54.35	4.15	49.84	10:28
2	TOC	6.4036	64.0362	52.31	56.53	4.22	49.83	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2003737-001.01	0.8712 ppm	0.1070 ppm	12.2800%	2020/05/13 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9469	9.4688	13.54	17.65	4.11	49.81	10:28
2	TOC	0.7956	7.9559	12.46	16.80	4.33	49.84	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	26.1166 ppm (PASS)	0.0000 ppm	0%	2020/05/13 03:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.1166	261.1662	192.54	196.67	4.13	49.86	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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)	0.2419 ppm (PASS)	0.0000 ppm	0%	2020/05/13 03:16

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.2419	2.4187	8.69	12.92	4.23	49.86	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K2003746-001.01	2.3749 ppm	0.0827 ppm	3.4800%	2020/05/13 03:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4334	24.3337	24.10	28.15	4.05	49.88	10:28
2	TOC	2.3164	23.1641	23.27	27.58	4.31	49.88	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2003791-001.01	2.7923 ppm	0.0912 ppm	3.2600%	2020/05/13 03:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8567	28.5671	27.11	31.38	4.27	49.88	10:27
2	TOC	2.7278	27.2780	26.19	30.32	4.13	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2003791-002.01 20x	17.1160 ppm	0.2570 ppm	1.5000%	2020/05/13 04:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.9343	169.3429	127.13	131.34	4.20	49.91	10:28
2	TOC	17.2977	172.9768	129.72	133.98	4.26	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K2003791-003.01	4.5878 ppm	0.0004 ppm	0.0100%	2020/05/13 04:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5875	45.8752	39.41	43.63	4.22	49.90	10:28
2	TOC	4.5881	45.8809	39.41	43.48	4.07	49.91	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K2003791-004.01	4.6207 ppm	0.1622 ppm	3.5100%	2020/05/13 05:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7354	47.3544	40.46	44.52	4.07	49.92	10:27
2	TOC	4.5060	45.0604	38.83	43.02	4.19	49.94	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K2003791-005.01	25.3525 ppm	0.2034 ppm	0.8000%	2020/05/13 05:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.2086	252.0863	185.93	190.25	4.32	49.94	10:25
2	TOC	25.4963	254.9630	187.97	192.29	4.32	49.94	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K2003792-001.01	2.0287 ppm	0.4696 ppm	23.1500%	2020/05/13 06:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3607	23.6075	23.58	27.81	4.23	49.94	10:27
2	TOC	1.6966	16.9660	18.87	23.07	4.21	49.97	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC)	CAS_salt_010711	CAS_salt_010711

(v1382) (v4) (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	17	TOC	K2003792-002.01	2.1335 ppm	0.0653 ppm	3.0600%	2020/05/13 06:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1796	21.7962	22.30	26.53	4.23	49.99	10:28
2	TOC	2.0873	20.8729	21.64	25.67	4.03	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	18	TOC	K2003792-003.01	1.5498 ppm	0.0904 ppm	5.8300%	2020/05/13 07:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6137	16.1370	18.28	22.32	4.04	49.96	10:30
2	TOC	1.4859	14.8591	17.37	21.48	4.11	49.97	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	K2003792-004.01	1.4309 ppm	0.0484 ppm	3.3800%	2020/05/13 07:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4651	14.6508	17.22	21.36	4.14	49.96	10:28
2	TOC	1.3967	13.9668	16.73	20.89	4.16	49.97	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	25.9897 ppm (PASS)	0.0000 ppm	0%	2020/05/13 08:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.9897	259.8968	191.63	195.74	4.11	49.96	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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)	0.3718 ppm (PASS)	0.0000 ppm	0%	2020/05/13 08:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.3718	3.7177	9.61	13.81	4.20	49.92	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.2513 ppm	0.0000 ppm	0.0000%	2020/05/13 08:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2513	2.5135	8.60	12.85	4.26	49.91	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	25.4916 ppm (PASS)	0.0000 ppm	0%	2020/05/13 08:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4916	254.9160	188.10	192.35	4.26	49.91	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	21	TOC	K2003792-005.01	1.2901 ppm	0.0885 ppm	6.8600%	2020/05/13 09:10

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	1.3526	13.5263	16.42	20.76	4.34	49.91	10:30
2	TOC	1.2275	12.2752	15.53	19.53	4.00	49.91	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K2003793-001.01	2.5750 ppm	0.0230 ppm	0.8900%	2020/05/13 09:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5588	25.5877	24.99	29.15	4.15	49.88	10:26
2	TOC	2.5913	25.9128	25.22	29.33	4.11	49.92	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K2003631-010.01	0.2483 ppm	0.0270 ppm	10.8600%	2020/05/13 10:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2674	2.6739	8.71	12.70	3.99	49.88	10:28
2	TOC	0.2293	2.2925	8.44	12.56	4.12	49.85	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K2003814-001.01	0.6140 ppm	0.0311 ppm	5.0700%	2020/05/13 10:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6360	6.3599	11.33	15.40	4.07	49.86	10:30
2	TOC	0.5919	5.9194	11.02	15.10	4.09	49.86	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K2003814-002.01	0.5896 ppm	0.0407 ppm	6.9000%	2020/05/13 11:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6184	6.1840	11.20	15.33	4.12	49.84	10:31
2	TOC	0.5608	5.6083	10.80	14.90	4.10	49.83	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6239	6.2389	11.24	15.28	4.04	49.83	10:29
2	TOC	0.5687	5.6872	10.85	15.00	4.14	49.84	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K2003842-001.02	2.0342 ppm	0.0102 ppm	0.5000%	2020/05/13 11:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0414	20.4141	21.32	25.53	4.22	49.81	10:26
2	TOC	2.0271	20.2706	21.21	25.37	4.16	49.81	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K2003842-002.02	1.2893 ppm	0.0074 ppm	0.5700%	2020/05/13 12:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2945	12.9451	16.01	20.17	4.16	49.78	10:26
2	TOC	1.2841	12.8409	15.93	19.92	3.98	49.79	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	26.2630 ppm (PASS)	0.0000 ppm	0%	2020/05/13 12:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.2630	262.6299	193.58	197.63	4.06	49.79	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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)	0.1806 ppm (PASS)	0.0000 ppm	0%	2020/05/13 13:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.1806	1.8064	8.25	12.40	4.15	49.68	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K2003842-003.02	0.8206 ppm	0.0278 ppm	3.3800%	2020/05/13 13:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8402	8.4020	12.78	16.79	4.01	49.73	10:26
2	TOC	0.8009	8.0094	12.50	16.64	4.14	49.76	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K2003842-004.02	0.7610 ppm	0.0266 ppm	3.4900%	2020/05/13 13:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7798	7.7982	12.35	16.48	4.12	49.71	10:31
2	TOC	0.7422	7.4225	12.08	16.16	4.08	49.74	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K2003842-005.02	0.7799 ppm	0.0202 ppm	2.5900%	2020/05/13 14:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7942	7.9418	12.45	16.41	3.96	49.75	10:29
2	TOC	0.7656	7.6561	12.25	16.21	3.96	49.74	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	32	TOC	K2003842-006.02	0.7569 ppm	0.0026 ppm	0.3400%	2020/05/13 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7551	7.5505	12.18	16.24	4.07	49.69	10:28
2	TOC	0.7587	7.5871	12.20	16.30	4.10	49.72	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K2003842-007.02	0.6324 ppm	0.0140 ppm	2.2200%	2020/05/13 15:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6423	6.4232	11.37	15.36	3.98	49.74	10:28
2	TOC	0.6225	6.2248	11.23	15.10	3.87	49.72	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K2003842-008.02	0.7908 ppm	0.0185 ppm	2.3400%	2020/05/13 15:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8039	8.0389	12.52	16.65	4.13	49.69	10:27
2	TOC	0.7777	7.7771	12.34	16.41	4.07	49.70	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	35	TOC	K2003842-009.02	0.9137 ppm	0.0146 ppm	1.6000%	2020/05/13 16:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9241	9.2408	13.38	17.26	3.88	49.66	10:25
2	TOC	0.9034	9.0339	13.23	17.22	3.99	49.66	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	36	TOC	K2003842-010.02	0.3716 ppm	0.0375 ppm	10.1000%	2020/05/13 16:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3981	3.9814	9.64	13.65	4.01	49.64	10:31
2	TOC	0.3451	3.4508	9.26	13.32	4.06	49.64	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K2003842-011.02	0.7630 ppm	0.0254 ppm	3.3300%	2020/05/13 17:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7810	7.8095	12.36	16.39	4.03	49.64	10:26
2	TOC	0.7451	7.4506	12.10	16.19	4.09	49.62	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	K2003842-011.02 ms	26.6408 ppm	0.0000 ppm	0.0000%	2020/05/13 17:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.6408	266.4079	196.10	200.12	4.01	49.61	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	26.1856 ppm (PASS)	0.0000 ppm	0%	2020/05/13 17:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.1856	261.8559	193.03	197.08	4.06	49.58	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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)	0.0869 ppm (PASS)	0.0000 ppm	0%	2020/05/13 18:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

D	TOC	0 ppm	1	0.0889	0.8888	7.60	11.54	3.94	49.57	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.1599 ppm	0.0000 ppm	0.0000%	2020/05/13 18:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1599	1.5987	7.95	11.94	4.00	49.54	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	25.4408 ppm (PASS)	0.0000 ppm	0%	2020/05/13 18:36

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4408	254.4079	187.73	191.70	3.97	49.56	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K2003842-012.02	0.9954 ppm	0.0421 ppm	4.2300%	2020/05/13 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0251	10.2513	14.09	18.39	4.30	49.58	10:28
2	TOC	0.9656	9.6560	13.67	17.71	4.03	49.59	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K2003842-013.02	1.1495 ppm	0.0359 ppm	3.1300%	2020/05/13 19:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1749	11.7488	15.16	19.14	3.98	49.61	10:27
2	TOC	1.1241	11.2407	14.80	18.78	3.99	49.64	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K2003842-014.02	0.6711 ppm	0.0140 ppm	2.0900%	2020/05/13 19:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6810	6.8103	11.65	15.60	3.95	49.62	10:29
2	TOC	0.6612	6.6118	11.51	15.47	3.96	49.67	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K2003842-015.02	0.6160 ppm	0.0189 ppm	3.0700%	2020/05/13 20:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6294	6.2937	11.28	15.43	4.15	49.67	10:31
2	TOC	0.6026	6.0263	11.09	15.30	4.21	49.70	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	FB 5/12/2020 1819	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/13 20:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.32	10.50	4.17	49.70	10:25
2	TOC	0.0000	0.0000	6.23	10.23	4.00	49.71	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	45	TOC	K2003842-001.06 doc	1.4364 ppm	0.0271 ppm	1.8800%	2020/05/13 21:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4555	14.5551	17.15	21.18	4.03	49.75	10:30
2	TOC	1.4172	14.1723	16.88	20.86	3.98	49.77	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC)	CAS_salt_010711	CAS_salt_010711

(v1382) (v4) (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	46	TOC	K2003842-001.06 ms doc	26.8837 ppm	0.0000 ppm	0.0000%	2020/05/13 21:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8837	268.8371	197.83	201.92	4.10	49.77	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	47	TOC	RB	0.0577 ppm	0.0000 ppm	0.0000%	2020/05/13 21:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0577	0.5769	7.22	11.30	4.08	49.80	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	25.4014 ppm (PASS)	0.0000 ppm	0%	2020/05/13 22:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4014	254.0139	187.45	191.64	4.19	49.80	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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)	0.0133 ppm (PASS)	0.0000 ppm	0%	2020/05/13 22:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0133	0.1331	7.06	10.91	3.85	49.80	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D

Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K2003842-002.06 doc	0.9156 ppm	0.0199 ppm	2.1700%	2020/05/13 22:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9297	9.2971	13.42	17.48	4.06	49.82	10:30
2	TOC	0.9016	9.0156	13.22	17.31	4.09	49.85	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K2003842-003.06 doc	0.5357 ppm	0.0200 ppm	3.7300%	2020/05/13 23:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5499	5.4986	10.72	14.74	4.02	49.84	10:31
2	TOC	0.5216	5.2157	10.52	14.68	4.17	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K2003842-004.06 doc	0.5114 ppm	0.0284 ppm	5.5500%	2020/05/13 23:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5314	5.3142	10.59	14.80	4.22	49.86	10:27
2	TOC	0.4913	4.9131	10.30	14.46	4.16	49.86	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K2003842-005.06 doc	0.5230 ppm	0.0502 ppm	9.5900%	2020/05/14 00:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5584	5.5844	10.78	14.94	4.16	49.87	10:30
2	TOC	0.4875	4.8751	10.27	14.37	4.10	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◆	52	TOC	K2003842-006.06 doc	0.4784 ppm	0.0217 ppm	4.5400%	2020/05/14 00:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4937	4.9370	10.32	14.55	4.23	49.87	10:27
2	TOC	0.4630	4.6302	10.10	14.19	4.09	49.88	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	53	TOC	K2003842-007.06 doc	0.3677 ppm	0.0131 ppm	3.5700%	2020/05/14 00:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3585	3.5845	9.36	13.52	4.16	49.91	10:28
2	TOC	0.3770	3.7703	9.49	13.59	4.10	49.89	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	54	TOC	K2003842-008.06 doc	0.5777 ppm	0.0079 ppm	1.3600%	2020/05/14 01:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5832	5.8321	10.95	15.09	4.14	49.89	10:27
2	TOC	0.5721	5.7209	10.88	14.94	4.06	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	55	TOC	K2003842-009.06 doc	0.6140 ppm	0.0101 ppm	1.6400%	2020/05/14 01:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6211	6.2107	11.22	15.39	4.17	49.93	10:29
2	TOC	0.6069	6.0686	11.12	15.29	4.16	49.92	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	56	TOC	K2003842-010.06 doc	0.1651 ppm	0.0400 ppm	24.2300%	2020/05/14 02:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1934	1.9336	8.18	12.25	4.07	49.92	10:25
2	TOC	0.1368	1.3679	7.78	11.99	4.20	49.94	10:25

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K2003842-011.06 doc	0.6509 ppm	0.0157 ppm	2.4200%	2020/05/14 02:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6620	6.6203	11.51	15.65	4.14	49.95	10:26
2	TOC	0.6398	6.3979	11.36	15.34	3.99	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	25.0965 ppm (PASS)	0.0000 ppm	0%	2020/05/14 03:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0965	250.9655	185.29	189.37	4.08	49.92	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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%	2020/05/14 03:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.62	10.70	4.08	49.96	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	K2003842-012.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 03:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.27	10.10	3.83	49.97	10:27
2	TOC	0.0000	0.0000	5.89	9.90	4.00	49.98	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	59	TOC	K2003842-013.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 04:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.25	10.24	4.00	49.98	10:28
2	TOC	0.0000	0.0000	5.76	9.81	4.05	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	60	TOC	K2003842-014.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 04:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.64	9.81	4.17	50.00	10:28
2	TOC	0.0000	0.0000	5.67	9.69	4.02	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	61	TOC	K2003842-015.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 05:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.84	10.05	4.21	50.05	10:28
2	TOC	0.0000	0.0000	5.77	9.69	3.92	50.05	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

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)	24.7761 ppm (PASS)	0.0000 ppm	0%	2020/05/14 05:40

Pos	Base Analysis	ID	Rep	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run

	Type		#							Time
B	TOC	25 ppm	1	24.7761	247.7608	183.01	187.21	4.20	50.04	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	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%	2020/05/14 05:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.44	10.65	4.21	50.06	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	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
v1381	1.1450	0.7350	0.0000	0.0000	0.0000	2020/05/09 14:55	Fusion1 (Fusion1)
v1382	2.6923	1.4840	0.0000	0.0000	0.0000	2020/05/12 22:56	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v35	Calibration curve formula:	TOC: y = 7.105x + 6.969
Ver Creation:	2020/05/09 16:50	r^2 value:	TOC: r^2 = 0.99936
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	6.6220	0.0000		2020/05/09 15:23

0.500 ppm	9.3820	0.5000		2020/05/09 15:38
1.0 ppm	12.1910	1.0000		2020/05/09 15:52
5.0 ppm	39.9300	5.0000		2020/05/09 16:06
10 ppm	81.4900	10.0000		2020/05/09 16:20
25 ppm	190.3090	25.0000		2020/05/09 16:35
50 ppm	358.9940	50.0000		2020/05/09 16:49

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

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	2020/05/14 06:10

ALS Environmental

StarLIMS Run: 679905, 679906, 679907

Analysis: DOC/TOC

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

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 5/9/20

ICAL ID: 19-GEN-17-E->J

ICS ID: 19-GEN-8-4-G

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-08-17-K

21 % H3PO4: 19-GEN-08-17-L

Equipment ID: K-TOC-03

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

FILTER ID: 16967789

Analyzed By: [illegible]	Date Analyzed: 5/12/20
Reviewed By: [illegible]	Date Reviewed: 5/14/20

May 20, 2020 Service Request No:E2000405

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

Laboratory Results for: HS20050172

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 06, 2020
For your reference, these analyses have been assigned our service request number **E2000405.**

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.:**	E2000405
Project:	HS20050172	**Date Received:**	05/06/20
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

Five samples were received for analysis at ALS Environmental in Houston on 05/06/20.

The samples were received in good condition and is 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:

EQ2000173: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. MS/MSD 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
Project: HS20050172 **Service Request:**E2000405

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000405-001	04WW05-200505	5/5/2020	0750
E2000405-002	04WW09-200505	5/5/2020	0840
E2000405-003	04WW10-200505	5/5/2020	0930
E2000405-004	04WW10-200505-FD	5/5/2020	0930
E2000405-005	04WW07-200505	5/5/2020	1020

Service Request Summary

Folder #: **E2000405**
Client Name: ALS Environmental - US
Project Name: HS20050172
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: 05/06/20
Internal Due Date: 5/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20050172
EDD: No EDD Specified

5 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3B
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000405-001	04WW05-200505	Ground Water	05/05/20 0750	**IV**
E2000405-002	04WW09-200505	Ground Water	05/05/20 0840	**IV**
E2000405-003	04WW10-200505	Ground Water	05/05/20 0930	**IV**
E2000405-004	04WW10-200505-FD	Ground Water	05/05/20 0930	**IV**
E2000405-005	04WW07-200505	Ground Water	05/05/20 1020	**IV**

Service Request Summary

Folder #: **E2000405**
Client Name: ALS Environmental - US
Project Name: HS20050172
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: 05/06/20
Internal Due Date: 5/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20050172
EDD: No EDD Specified

5 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3B
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
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.
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.
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.

Data Qualifiers

Lab Standard

S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2020
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611	6/30/2020
Hawaii Department of Health	2020	4/30/2021
Kansas Department of Health and Environment	E-10352	7/31/2020
Louisiana Department of Environmental Quality	03087	6/30/2020
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Center for Disease Control and Prevention	201815	6/5/2020
Maryland Department of the Environment	343	6/30/2020
Minnesota Department of Health	1785988	12/31/2020
Nevada Department of Concervation and Natural Resources	TX026932019-1	7/31/2020
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	NLC190001	6/30/2020
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Pennsylvania Department of Environmental Protection	68-03441-013	6/30/2020
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
Utah Department of Health Environmental Laboratory Certification	TX026932019-9	7/31/2020
Washington Department of Health	C819	11/14/2020
West Virginia Department of Environmental Protection	347	6/30/2020

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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www.alsglobal.com

E2000405 5
ALS Laboratory Group
HS20050172

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:** **13857**

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:	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:	HS20050172
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050172-01**	**04WW05-200505**	**GW**	**05 May 2020 07:50**
	SUB_Perch-6850			20 May 2020
2.	**HS20050172-02**	**04WW09-200505**	**GW**	**05 May 2020 08:40**
	SUB_Perch-6850			20 May 2020
3.	**HS20050172-03**	**04WW010-200505**	**GW**	**05 May 2020 09:30**
	SUB_Perch-6850			20 May 2020
4.	**HS20050172-04**	**04WW010-200505-FD**	**GW**	**05 May 2020 09:30**
	SUB_Perch-6850			20 May 2020
5.	**HS20050172-05**	**04WW07-200505**	**GW**	**05 May 2020 10:20**
	SUB_Perch-6850			20 May 2020

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: **13857**

Relinquished By: J. MARQUEZ

Date/Time: 5/6/20 14:40

Received By: JOREY G

Date/Time: 5/6/20 14:40

Cooler ID(s):

Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist CH

Client/Project ALS-H

Thermometer ID SMOM / IR 11

Date/Time Received: 5/6/20 Initials: CH Date/Time Logged in: 5/6/20 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 If yes, how many and where?

Were they intact? ○ Yes ○ No ✓ N/A

Were they signed and dated? ○ Yes ○ No ✓ N/A

4. Packing Material: ○ Inserts ✓ Baggies ○ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		5/6/20	1440	CH	1.5	☒
						☐
						☐
						☐

Were custody papers properly filled out (ink, signed, dated, etc)?	✓ Yes	○ No
Did all bottles arrive in good condition (not broken, no signs of leakage)?	✓ Yes	○ No
Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)?	✓ Yes	○ No
Were appropriate bottles/containers and volumes received for the requested tests?	✓ Yes	○ No
9. Did sample labels and tags agree with custody documents?	✓ Yes	○ No

10. Notes, Discrepancies, & Resolutions:

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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#: 358306 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/KBROWN **Prep Method:** Method **Prep Date/Time:** 5/12/20 09:34

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000382-001	LH18/24-SP650_042820_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2000404-001	04WW02-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2000404-002	04WW06-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2000404-003	LHSMW02-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2000404-004	LHSMW02-200504-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2000404-005	04WW11-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2000404-006	04WW04-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2000405-001	04WW05-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2000405-002	04WW09-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2000405-003	04WW10-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2000405-004	04WW10-200505-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2000405-005	04WW07-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2000406-001	04WW08-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2000406-002	LHSMW01-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2000406-003	04WW01-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2000407-001	LH18/24-SP650_050520_BIX	.01	6850/ClO4 DOD			Water	10mL	
17	E2000408-001	LH18/24-SP140_050520	.01	6850/ClO4 DOD			Water	10mL	
18	E2000409-001	LH18/24-SP650_050520_BIX	.01	6850/ClO4 DOD			Water	10mL	
19	EQ2000173-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2000173-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2000173-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2000173-04	04WW06-200504 MS	.01	6850/ClO4 DOD			Liquid	10mL	
23	EQ2000173-05	04WW06-200504 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

E2000382-001	100.00µL	E2000404-001	100.00µL	E2000404-002	100.00µL	E2000404-003	100.00µL	E2000404-004	100.00µL	E2000404-005	100.00µL
E2000404-006	100.00µL	E2000405-001	100.00µL	E2000405-002	100.00µL	E2000405-003	100.00µL	E2000405-004	100.00µL	E2000405-005	100.00µL
E2000406-001	100.00µL	E2000406-002	100.00µL	E2000406-003	100.00µL	E2000407-001	100.00µL	E2000408-001	100.00µL	E2000409-001	100.00µL
EQ2000173-01	100.00µL	EQ2000173-02	100.00µL	EQ2000173-03	100.00µL	EQ2000173-04	100.00µL	EQ2000173-05	100.00µL		

Name: Perchlorate Intermediate Stock1 Inventory ID 204799 Logbook Ref: 200657 1.0ug/mL KN Expires On: 05/15/2020

EQ2000173-02	1.00µL	EQ2000173-03	1.00µL	EQ2000173-04	1.00µL	EQ2000173-05	1.00µL

Preparation Information Benchsheet

Prep Run#: 358306
Team: Semivoa GCMS/KBROWN

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/12/20 09:34

Preparation Steps

Step: Preparation
Started: 5/12/20 09:34
Finished: 5/12/20 12:00
By: KBROWN
Comments

Comments: _____

Reviewed By: GR Date: 5/12/2020

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:**	E2000405
Project:	HS20050172	**Date Collected:**	5/ 5/20 0750
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW05-200505	**Units:**	µg/L
Lab Code:	E2000405-001	**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	5/12/20	5/12/20 14:32	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	5/ 5/20 0840
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW09-200505	**Units:**	µg/L
Lab Code:	E2000405-002	**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	**11.1**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 14:40	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	5/ 5/20 0930
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW10-200505	**Units:**	µg/L
Lab Code:	E2000405-003	**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	5/12/20	5/12/20 14:48	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	5/ 5/20 0930
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW10-200505-FD	**Units:**	µg/L
Lab Code:	E2000405-004	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	5/12/20	5/12/20 14:56	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	5/ 5/20 1020
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW07-200505	**Units:**	µg/L
Lab Code:	E2000405-005	**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	**3.51**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 15:04	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000173-01	**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	5/12/20	5/12/20 12:50	358306	679868	

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: HS20050172
Sample Matrix: Ground Water

Service Request: E2000405
Date Analyzed: 5/12/20

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: 358306

	Lab Control Sample EQ2000173-02			Duplicate Lab Control Sample EQ2000173-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.105	0.100	105	0.107	0.100	107	84 - 119	2	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:**	E2000405
Project:	HS20050172	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000173-02	**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	**0.105**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 12:58	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000173-03	**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	5/12/20	5/12/20 13:06	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	5/12/20 - 5/13/20

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:	E2000404-002	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ2000173-04			Batch QCDMS **Duplicate Matrix Spike** EQ2000173-05						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**		**RPD Limit**
Perchlorate	ND	0.111	0.100	111	0.0929	0.100	93	84 - 119	18	*	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:**	E2000405
Project:	HS20050172	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000173-04	**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	**0.111**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 13:21	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000173-05	**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	**0.0929**	J	0.100	0.0500	0.0250	1	5/12/20	5/13/20 14:12	358306	680124	

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
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20200420

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

	Sample Name		File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200420_001	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:01
	null		20200420_002	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:06
	DIBLK		20200420_003	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:11
	IB		20200420_004	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:19
	PERCHLORATE7		20200420_005	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 13:27
	LODV		20200420_006	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:35
	PERCHLORATE1		20200420_007	Perchlorate6850b.lcm	1x	☒	3100804-05	4/20/2020 13:43
	PERCHLORATE2		20200420_008	Perchlorate6850b.lcm	1x	☒	3100804-06	4/20/2020 13:51
	PERCHLORATE3		20200420_009	Perchlorate6850b.lcm	1x	☒	3100804-07	4/20/2020 13:58
	PERCHLORATE4		20200420_010	Perchlorate6850b.lcm	1x	☒	3100804-08	4/20/2020 14:06
	PERCHLORATE5		20200420_011	Perchlorate6850b.lcm	1x	☒	3100804-09	4/20/2020 14:14
	PERCHLORATE6		20200420_012	Perchlorate6850b.lcm	1x	☒	3100805-01	4/20/2020 14:22
	PERCHLORATE8		20200420_013	Perchlorate6850b.lcm	1x	☒	3100805-03	4/20/2020 14:30
	PERCHLORATE9		20200420_014	Perchlorate6850b.lcm	1x	☒	3100805-04	4/20/2020 14:38
	PERCHLORATE10		20200420_015	Perchlorate6850b.lcm	1x	☒	3100805-05	4/20/2020 14:46
	ICV		20200420_016	Perchlorate6850b.lcm	1x	☒	3100805-06	4/20/2020 14:54
	LODV		20200420_017	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:02
	EQ2000143-01		20200420_018	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:10
	EQ2000143-02		20200420_019	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:18
	EQ2000143-03		20200420_020	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:26
	E2000275-001		20200420_021	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:33
	E2000275-002		20200420_022	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:41
	E2000275-003		20200420_023	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:49
	E2000287-001		20200420_024	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:57
	E2000303-001		20200420_025	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:05
	E2000304-001		20200420_026	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:13
	E2000305-001		20200420_027	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:21
	PERCHLORATE7		20200420_028	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 16:29
	E2000303-001		20200420_029	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:47
	E2000304-001		20200420_030	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:55
	PERCHLORATE7		20200420_031	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 17:02

Initial Calibration - Detailed Report

Calibration ID: EC2000003 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
08	EC2000003-08	PERCHLORATE7	20200420_005	04/20/2020 13:27
01	EC2000003-01	PERCHLORATE1	20200420_007	04/20/2020 13:43
02	EC2000003-02	PERCHLORATE2	20200420_008	04/20/2020 13:51
03	EC2000003-03	PERCHLORATE3	20200420_009	04/20/2020 13:58
04	EC2000003-04	PERCHLORATE4	20200420_010	04/20/2020 14:06
05	EC2000003-05	PERCHLORATE5	20200420_011	04/20/2020 14:14
06	EC2000003-06	PERCHLORATE6	20200420_012	04/20/2020 14:22
07	EC2000003-07	PERCHLORATE8	20200420_013	04/20/2020 14:30
09	EC2000003-09	PERCHLORATE9	20200420_014	04/20/2020 14:38
10	EC2000003-10	PERCHLORATE10	20200420_015	04/20/2020 14:46

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

Perchlorate **Average RF** **RSD = 8.066** **Average RF = 0.1368**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1558	02	0.5000	0.1297	03	0.7000	0.1277	04	1.0000	0.1397
05	2.0000	0.1298	06	5.0000	0.1245	07	20.0000	0.1341	08	10.0000	0.1562
09	30.0000	0.1365	10	50.0000	0.1345						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.114	13.9	02	0.5000	0.474	-5.2	03	0.7000	0.653	-6.7
04	1.0000	1.02	2.1	05	2.0000	1.90	-5.1	06	5.0000	4.55	-9.0
07	20.0000	19.6	-2.0	08	10.0000	11.4	14.2	09	30.0000	29.9	-0.2
10	50.0000	49.1	-1.7								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000003	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200420_016	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000003-11	T	Average RF	10	11.345	ng/mL	13.4	<= 15

ALS Group Houston

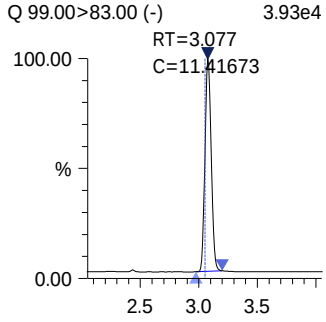
PERCHLORATE7

Date acquired: 4/20/2020 1:27:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_005.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	4/20/2020 1:27:21 PM	144494	11.41673	20200420_005	3.077	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	4/20/2020 1:27:21 PM	92497	1.00000	20200420_005	3.076	25.0000	1.0000	3

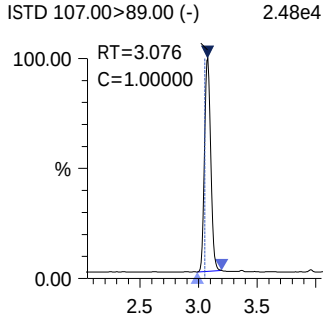
Perchlorate

Conc 11.41673
Area 144494



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 92497



ALS Group Houston

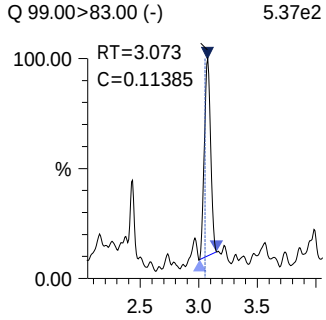
PERCHLORATE1

Date acquired: 4/20/2020 1:43:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_007.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	4/20/2020 1:43:09 PM	1840	0.11385	20200420_007	3.073	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	4/20/2020 1:43:09 PM	118078	1.00000	20200420_007	3.073	25.0000	1.0000	5

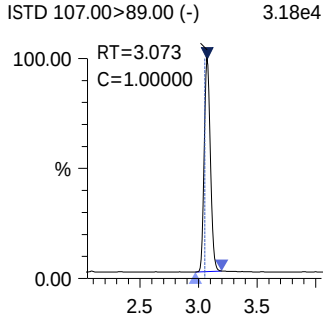
Perchlorate

Conc 0.11385
Area 1840



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 118078



ALS Group Houston

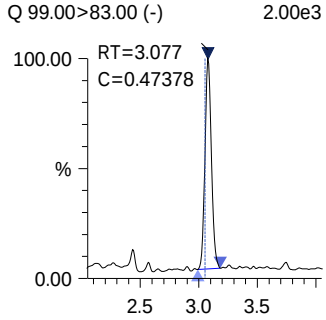
PERCHLORATE2

Date acquired: 4/20/2020 1:51:02 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_008.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	4/20/2020 1:51:02 PM	7551	0.47378	20200420_008	3.077	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	4/20/2020 1:51:02 PM	116479	1.00000	20200420_008	3.075	25.0000	1.0000	6

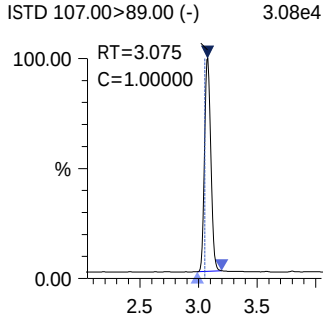
Perchlorate

Conc 0.47378
Area 7551



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 116479



ALS Group Houston

PERCHLORATE3

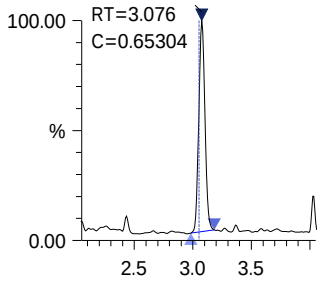
Date acquired: 4/20/2020 1:58:56 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_009.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	4/20/2020 1:58:56 PM	11235	0.65304	20200420_009	3.076	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	4/20/2020 1:58:56 PM	125731	1.00000	20200420_009	3.073	25.0000	1.0000	7

Perchlorate

Conc 0.65304
Area 11235

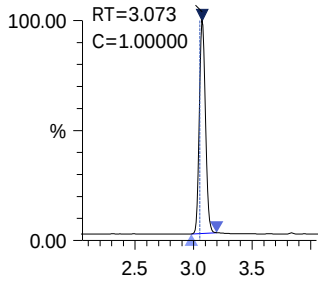
Q 99.00>83.00 (-) 3.12e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 125731

ISTD 107.00>89.00 (-) 3.41e4



ALS Group Houston

PERCHLORATE4

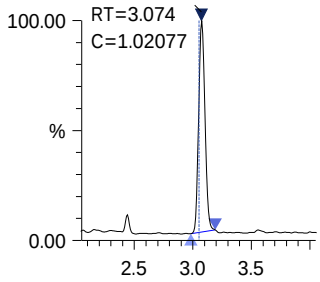
Date acquired: 4/20/2020 2:06:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_010.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	4/20/2020 2:06:51 PM	16670	1.02077	20200420_010	3.074	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	4/20/2020 2:06:51 PM	119354	1.00000	20200420_010	3.074	25.0000	1.0000	8

Perchlorate

Conc 1.02077
Area 16670

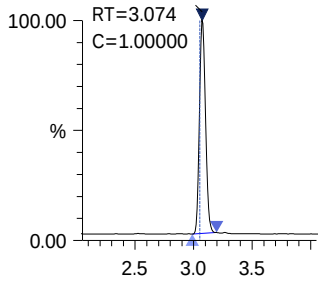
Q 99.00>83.00 (-) 4.51e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 119354

ISTD 107.00>89.00 (-) 3.26e4



ALS Group Houston

PERCHLORATE5

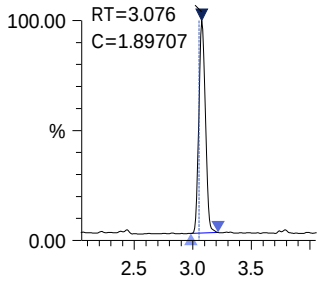
Date acquired: 4/20/2020 2:14:45 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_011.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	4/20/2020 2:14:45 PM	33786	1.89707	20200420_011	3.076	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	4/20/2020 2:14:45 PM	130159	1.00000	20200420_011	3.075	25.0000	1.0000	9

Perchlorate

Conc 1.89707
Area 33786

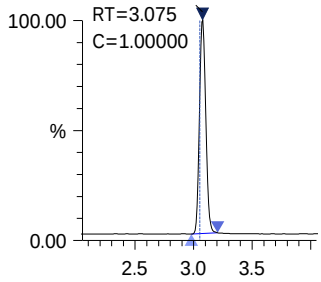
Q 99.00>83.00 (-) 8.73e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 130159

ISTD 107.00>89.00 (-) 3.41e4



ALS Group Houston

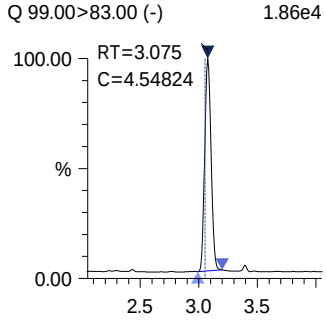
PERCHLORATE6

Date acquired: 4/20/2020 2:22:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_012.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	4/20/2020 2:22:39 PM	69848	4.54824	20200420_012	3.075	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	4/20/2020 2:22:39 PM	112235	1.00000	20200420_012	3.074	25.0000	1.0000	10

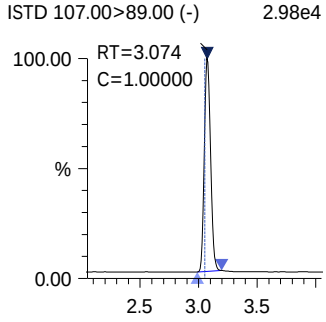
Perchlorate

Conc 4.54824
Area 69848



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 112235



ALS Group Houston

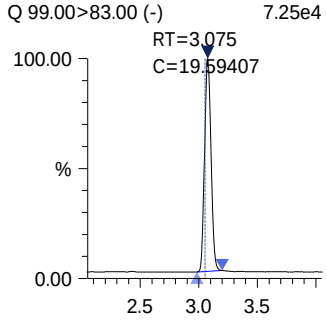
PERCHLORATE8

Date acquired: 4/20/2020 2:30:36 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_013.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	4/20/2020 2:30:36 PM	275854	19.59407	20200420_013	3.075	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	4/20/2020 2:30:36 PM	102890	1.00000	20200420_013	3.072	25.0000	1.0000	11

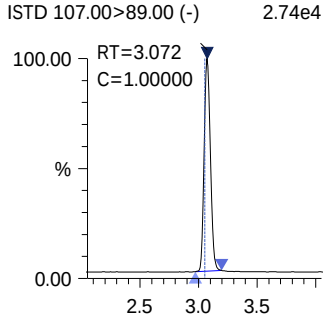
Perchlorate

Conc 19.59407
Area 275854



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 102890



ALS Group Houston

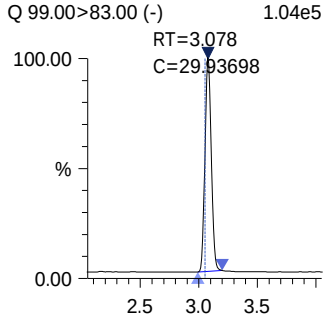
PERCHLORATE9

Date acquired: 4/20/2020 2:38:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_014.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	4/20/2020 2:38:33 PM	390068	29.93698	20200420_014	3.078	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	4/20/2020 2:38:33 PM	95225	1.00000	20200420_014	3.075	25.0000	1.0000	12

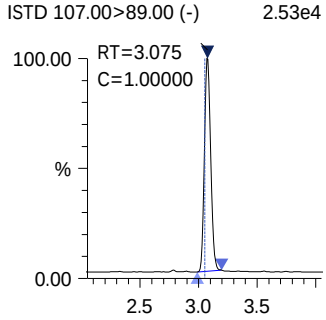
Perchlorate

Conc 29.93698
Area 390068



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 95225



ALS Group Houston

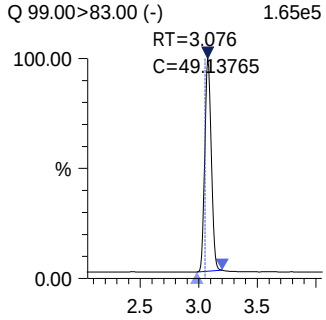
PERCHLORATE10

Date acquired: 4/20/2020 2:46:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_015.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	4/20/2020 2:46:25 PM	632804	49.13765	20200420_015	3.076	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	4/20/2020 2:46:25 PM	94118	1.00000	20200420_015	3.075	25.0000	1.0000	13

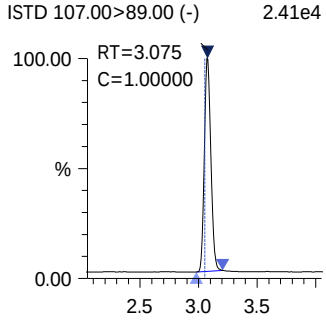
Perchlorate

Conc 49.13765
Area 632804



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 94118



ALS Group Houston

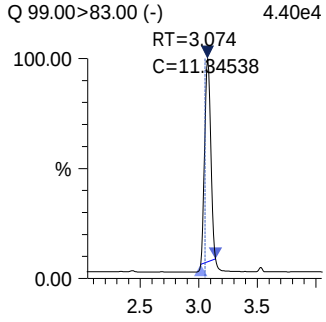
PERCHLORATEICV

Date acquired: 4/20/2020 2:54:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_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	4/20/2020 2:54:20 PM	149807	11.34538	20200420_016	3.074	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	4/20/2020 2:54:20 PM	96501	1.00000	20200420_016	3.072	25.0000	1.0000	14

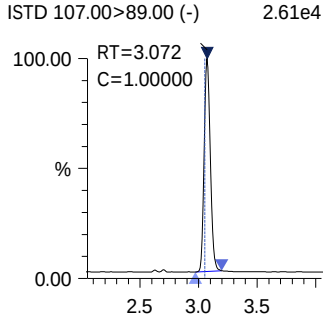
Perchlorate

Conc 11.34538
Area 149807



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 96501



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

20200512

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200512_001	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:09
	null		20200512_002	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:14
	IB		20200512_003	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:19
	PERCHLORATE7		20200512_004	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 12:27
	LODV		20200512_005	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:35
	EQ2000173-01		20200512_006	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:50
	EQ2000173-02		20200512_007	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:58
	EQ2000173-03		20200512_008	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:06
	E2000404-002		20200512_009	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:13
	EQ2000173-04		20200512_010	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:21
	EQ2000173-05		20200512_011	Perchlorate6850b.lcm	1x	☒	do not use	5/12/2020 13:29
	E2000382-001		20200512_012	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:37
	PERCHLORATE7		20200512_013	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 13:45
	E2000404-001		20200512_014	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:53
	E2000404-003		20200512_015	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:01
	E2000404-004		20200512_016	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:09
	E2000404-005		20200512_017	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:17
	E2000404-006		20200512_018	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:25
	E2000405-001		20200512_019	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:32
	E2000405-002		20200512_020	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:40
	E2000405-003		20200512_021	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:48
	E2000405-004		20200512_022	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:56
	E2000405-005		20200512_023	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:04
	PERCHLORATE7		20200512_024	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 15:12
	E2000406-001		20200512_025	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:20
	E2000406-002		20200512_26	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:28
	E2000406-003		20200512_027	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:36
	E2000407-001		20200512_028	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:44
	E2000408-001		20200512_029	Perchlorate6850b.lcm	1x	☒	dilution	5/12/2020 15:51
	E2000409-001		20200512_030	Perchlorate6850b.lcm	1x	☒	RR-poss carry-over	5/12/2020 15:59
	EQ2000173-05		20200512_031	Perchlorate6850b.lcm	1x	☒	do not use	5/12/2020 16:07
	PERCHLORATE7		20200512_032	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 16:15

20200513

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200513_001	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:40
	null		20200513_002	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:45
	IB		20200513_003	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:50
	PERCHLORATE7		20200513_004	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 11:58
	LODV		20200513_005	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:06
	EQ2000179-01		20200513_006	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:14
	EQ2000179-02		20200513_007	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:22
	EQ2000179-03		20200513_008	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:29
	EQ2000179-04		20200513_009	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:37
	EQ2000179-05		20200513_010	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:45
	E2000410-001		20200513_011	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:53
	E2000410-002		20200513_012	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:01
	E2000410-003		20200513_013	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:09
	E2000410-004		20200513_014	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:17
	E2000410-005		20200513_015	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:25
	PERCHLORATE7		20200513_016	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 13:33
	E2000410-006		20200513_017	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:41
	E2000410-007		20200513_018	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:49
	E2000408-001X200		20200513_019	Perchlorate6850b.lcm	200x	☒		5/13/2020 13:56
	PERCHLORATE7		20200513_020	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 14:04
	EQ2000173-05		20200513_021	Perchlorate6850b.lcm	1x	☒		5/13/2020 14:12
	E2000409-001		20200513_022	Perchlorate6850b.lcm	1x	☒		5/13/2020 14:20
	PERCHLORATE7		20200513_023	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 14:28

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_004	**Calibration ID:**	EC2000003
		Analysis Lot:	679868
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.9	0.1368	0.1485	8.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Calibration ID:**	EC2000003
		Analysis Lot:	679868
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1502	9.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050172

Service Request: E2000405
Date Analyzed: 5/12/20

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\20200512\20200512_013

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680007
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1502	9.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_024	**Calibration ID:**	EC2000003
		Analysis Lot:	680007
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1505	10.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_032	**Calibration ID:**	EC2000003
		Analysis Lot:	680007
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1511	10.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_004	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1368	0.1520	11.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_016	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.3	0.1368	0.1546	13.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_020	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.7	0.1368	0.1461	6.8	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050172

Service Request: E2000405
Date Analyzed: 5/13/20

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\20200513\20200513_023

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680124
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1368	0.1523	11.3	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20 12:27

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

File ID:	I:\LCMS01\DATA\20200512\20200512_004	**Lab Code:**	EQ2000176-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	679868
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000176-01	77,004	3.01
Method Blank	EQ2000173-01	95,026	2.94
Lab Control Sample	EQ2000173-02	108,592	3.00
Duplicate Lab Control Sample	EQ2000173-03	109,300	3.00
Batch QC	E2000404-002	104,595	2.99
Batch QCMS	EQ2000173-04	114,639	2.99

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20 13:45

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

File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Lab Code:**	EQ2000176-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	679868
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000176-02	99,187	2.99

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20 13:45

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

File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Lab Code:**	EQ2000180-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-01	99,187	2.99
04WW05-200505	E2000405-001	117,482	2.98
04WW09-200505	E2000405-002	79,906	2.97
04WW10-200505	E2000405-003	138,592	2.97
04WW10-200505-FD	E2000405-004	164,707	2.96
04WW07-200505	E2000405-005	91,134	2.98

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20 15:12

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

File ID:	I:\LCMS01\DATA\20200512\20200512_024	**Lab Code:**	EQ2000180-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-02	103,620	2.99

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/12/20 16:15

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

File ID:	I:\LCMS01\DATA\20200512\20200512_032	**Lab Code:**	EQ2000180-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-03	111,449	2.99

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20 11:58

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

File ID:	I:\LCMS01\DATA\20200513\20200513_004	**Lab Code:**	EQ2000186-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-01	106,329	3.00

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20 13:33

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

File ID:	I:\LCMS01\DATA\20200513\20200513_016	**Lab Code:**	EQ2000186-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-02	116,942	3.00

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20 14:04

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

File ID:	I:\LCMS01\DATA\20200513\20200513_020	**Lab Code:**	EQ2000186-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-03	120,816	3.00
Batch QCDMS	EQ2000173-05	141,444	2.98

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:**	E2000405
Project:	HS20050172	**Date Analyzed:**	5/13/20 14:28

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

File ID:	I:\LCMS01\DATA\20200513\20200513_023	**Lab Code:**	EQ2000186-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-04	117,011	2.99

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

ALS Group Houston

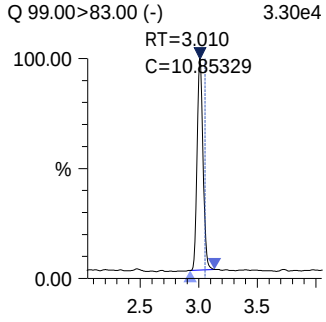
PERCHLORATE7

Date acquired: 5/12/2020 12:27:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_004.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 12:27:44 PM	114355	10.85329	20200512_004	3.010	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 12:27:44 PM	77004	1.00000	20200512_004	3.008	25.0000	1.0000	3

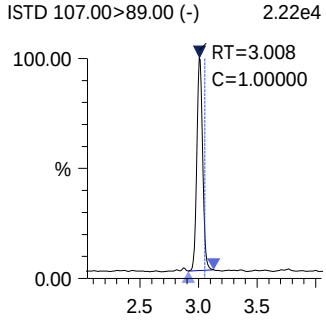
Perchlorate

Conc 10.85329
Area 114355



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 77004



ALS Group Houston

EQ2000173-01

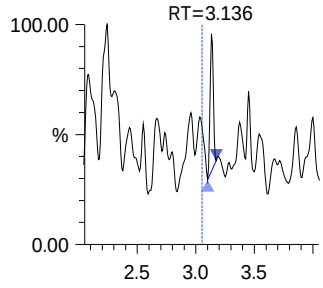
Date acquired: 5/12/2020 12:50:12 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_006.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-01	5/12/2020 12:50:12 PM	----	----	20200512_006	----	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	EQ2000173-01	5/12/2020 12:50:12 PM	95026	1.00000	20200512_006	2.942	25.0000	1.0000	5

Perchlorate

Conc ----
Area ----

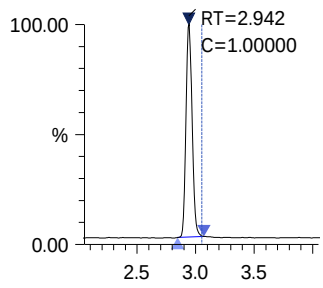
Q 99.00>83.00 (-) 3.00e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 95026

ISTD 107.00>89.00 (-) 2.66e4



ALS Group Houston

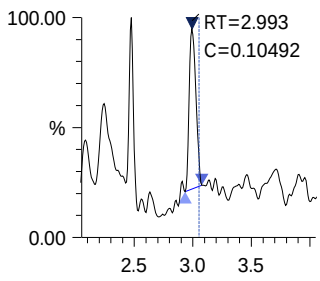
EQ2000173-02

Date acquired: 5/12/2020 12:58:07 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_007.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	EQ2000173-02	5/12/2020 12:58:07 PM	1559	0.10492	20200512_007	2.993	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	EQ2000173-02	5/12/2020 12:58:07 PM	108592	1.00000	20200512_007	3.004	25.0000	1.0000	6

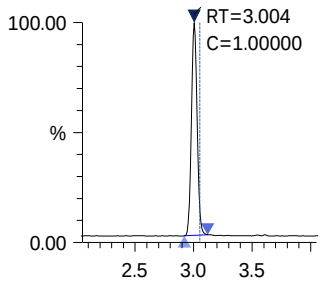
Perchlorate

Conc 0.10492
Area 1559
Q 99.00>83.00 (-) 5.16e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 108592
ISTD 107.00>89.00 (-) 3.19e4



ALS Group Houston

EQ2000173-03

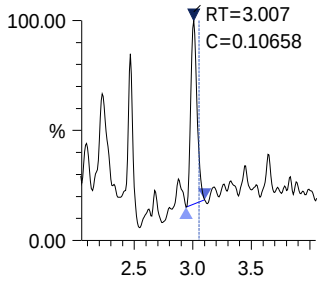
Date acquired: 5/12/2020 1:06:00 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_008.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-03	5/12/2020 1:06:00 PM	1594	0.10658	20200512_008	3.007	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	EQ2000173-03	5/12/2020 1:06:00 PM	109300	1.00000	20200512_008	3.004	25.0000	1.0000	7

Perchlorate

Conc 0.10658
Area 1594

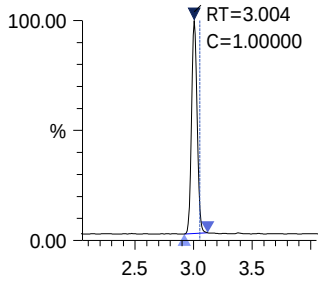
Q 99.00>83.00 (-) 4.99e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 109300

ISTD 107.00>89.00 (-) 3.26e4



ALS Group Houston

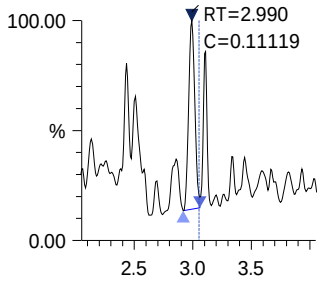
EQ2000173-04

Date acquired: 5/12/2020 1:21:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_010.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	EQ2000173-04	5/12/2020 1:21:48 PM	1744	0.11119	20200512_010	2.990	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	EQ2000173-04	5/12/2020 1:21:48 PM	114639	1.00000	20200512_010	2.990	25.0000	1.0000	9

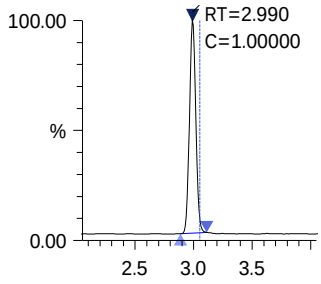
Perchlorate

Conc 0.11119
Area 1744
Q 99.00>83.00 (-) 5.32e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 114639
ISTD 107.00>89.00 (-) 3.06e4



ALS Group Houston

EQ2000173-05

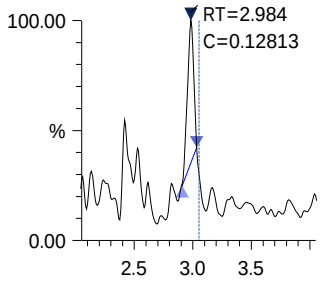
Date acquired: 5/12/2020 1:29:42 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_011.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-05	5/12/2020 1:29:42 PM	2180	0.12813	20200512_011	2.984	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	EQ2000173-05	5/12/2020 1:29:42 PM	124355	1.00000	20200512_011	2.986	25.0000	1.0000	10

Perchlorate

Conc 0.12813
Area 2180

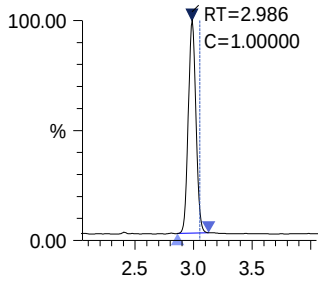
Q 99.00>83.00 (-) 8.72e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 124355

ISTD 107.00>89.00 (-) 2.76e4



ALS Group Houston

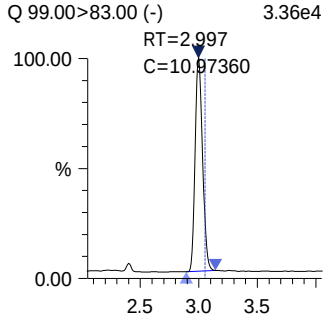
PERCHLORATE7

Date acquired: 5/12/2020 1:45:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_013.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 1:45:33 PM	148931	10.97360	20200512_013	2.997	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 1:45:33 PM	99187	1.00000	20200512_013	2.994	25.0000	1.0000	3

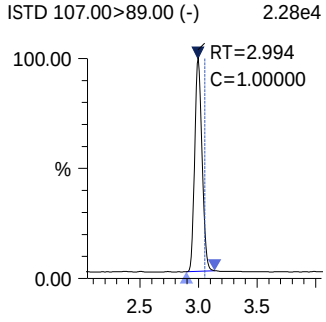
Perchlorate

Conc 10.97360
Area 148931



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 99187



ALS Group Houston

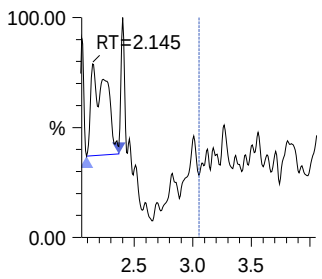
E2000405-001

Date acquired: 5/12/2020 2:32:56 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_019.lcd
Vial: 17 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000405-001	5/12/2020 2:32:56 PM	----	----	20200512_019	----	25.0000	1.0000	17
Sodium Perchlorate-18O4_IS	E2000405-001	5/12/2020 2:32:56 PM	117482	1.00000	20200512_019	2.979	25.0000	1.0000	17

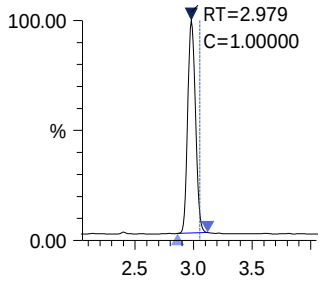
Perchlorate

Conc ----
Area ----
Q 99.00>83.00 (-) 3.08e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 117482
ISTD 107.00>89.00 (-) 2.58e4



ALS Group Houston

E2000405-002

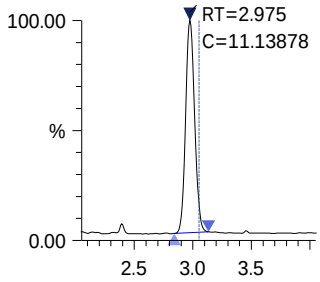
Date acquired: 5/12/2020 2:40:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_020.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000405-002	5/12/2020 2:40:48 PM	121786	11.13878	20200512_020	2.975	25.0000	1.0000	18
Sodium Perchlorate-18O4_IS	E2000405-002	5/12/2020 2:40:48 PM	79906	1.00000	20200512_020	2.973	25.0000	1.0000	18

Perchlorate

Conc 11.13878
Area 121786

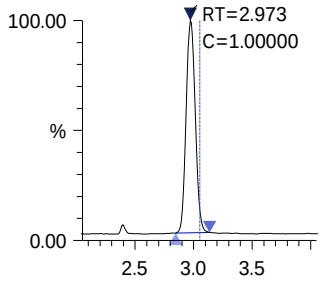
Q 99.00>83.00 (-) 2.27e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 79906

ISTD 107.00>89.00 (-) 1.49e4



ALS Group Houston

E2000405-003

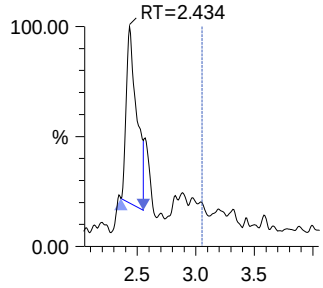
Date acquired: 5/12/2020 2:48:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_021.lcd
Vial: 19 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000405-003	5/12/2020 2:48:43 PM	----	----	20200512_021	----	25.0000	1.0000	19
Sodium Perchlorate-18O4_IS	E2000405-003	5/12/2020 2:48:43 PM	138592	1.00000	20200512_021	2.965	25.0000	1.0000	19

Perchlorate

Conc ----
Area ----

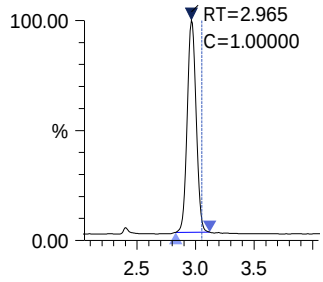
Q 99.00>83.00 (-) 2.50e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 138592

ISTD 107.00>89.00 (-) 2.67e4



ALS Group Houston

E2000405-004

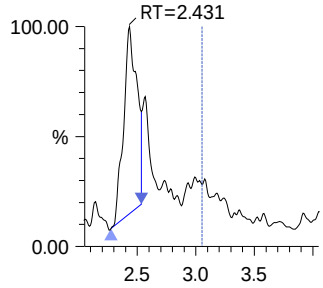
Date acquired: 5/12/2020 2:56:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_022.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000405-004	5/12/2020 2:56:38 PM	----	----	20200512_022	----	25.0000	1.0000	20
Sodium Perchlorate-18O4_IS	E2000405-004	5/12/2020 2:56:38 PM	164707	1.00000	20200512_022	2.962	25.0000	1.0000	20

Perchlorate

Conc ----
Area ----

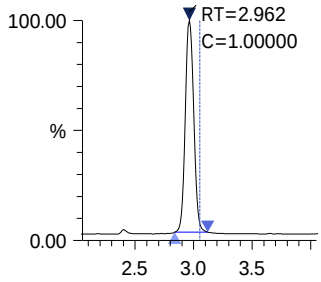
Q 99.00>83.00 (-) 1.36e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 164707

ISTD 107.00>89.00 (-) 3.35e4



ALS Group Houston

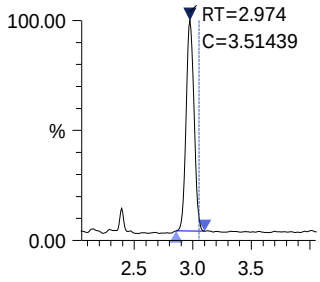
E2000405-005

Date acquired: 5/12/2020 3:04:32 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_023.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000405-005	5/12/2020 3:04:32 PM	43824	3.51439	20200512_023	2.974	25.0000	1.0000	21
Sodium Perchlorate-18O4_IS	E2000405-005	5/12/2020 3:04:32 PM	91134	1.00000	20200512_023	2.975	25.0000	1.0000	21

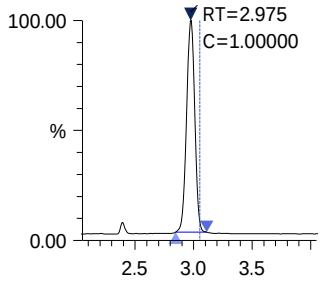
Perchlorate

Conc 3.51439
Area 43824
Q 99.00>83.00 (-) 9.32e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 91134
ISTD 107.00>89.00 (-) 1.91e4



ALS Group Houston

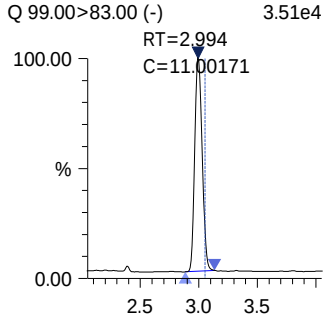
PERCHLORATE7

Date acquired: 5/12/2020 3:12:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_024.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 3:12:25 PM	155986	11.00171	20200512_024	2.994	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 3:12:25 PM	103620	1.00000	20200512_024	2.994	25.0000	1.0000	3

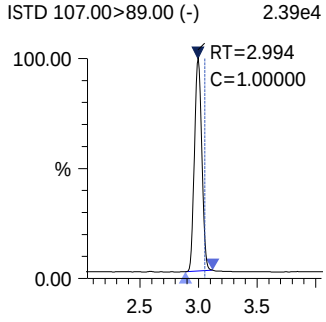
Perchlorate

Conc 11.00171
Area 155986



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 103620



ALS Group Houston

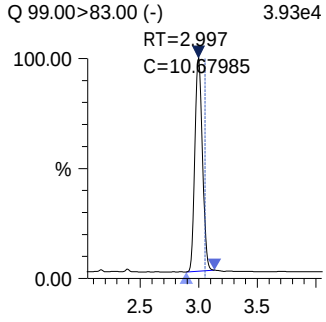
PERCHLORATE7

Date acquired: 5/13/2020 2:04:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_020.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/13/2020 2:04:49 PM	176552	10.67985	20200513_020	2.997	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/13/2020 2:04:49 PM	120816	1.00000	20200513_020	2.995	25.0000	1.0000	3

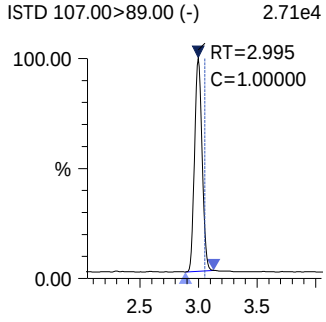
Perchlorate

Conc 10.67985
Area 176552



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 120816



ALS Group Houston

EQ2000173-05

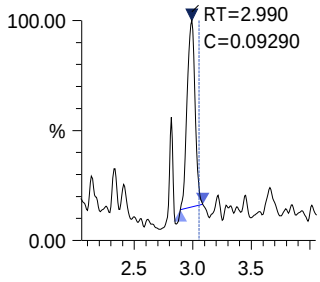
Date acquired: 5/13/2020 2:12:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_021.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-05	5/13/2020 2:12:40 PM	1798	0.09290	20200513_021	2.990	25.0000	1.0000	18
Sodium Perchlorate-18O4_IS	EQ2000173-05	5/13/2020 2:12:40 PM	141444	1.00000	20200513_021	2.980	25.0000	1.0000	18

Perchlorate

Conc 0.09290
Area 1798

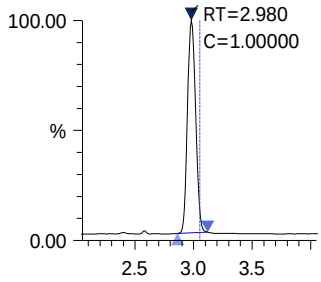
Q 99.00>83.00 (-) 4.31e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 141444

ISTD 107.00>89.00 (-) 2.95e4



ALS Group Houston

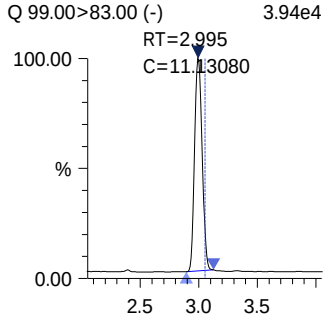
PERCHLORATE7

Date acquired: 5/13/2020 2:28:31 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_023.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/13/2020 2:28:31 PM	178211	11.13080	20200513_023	2.995	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/13/2020 2:28:31 PM	117011	1.00000	20200513_023	2.992	25.0000	1.0000	3

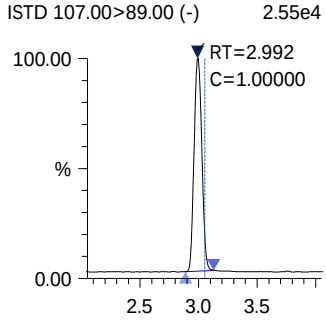
Perchlorate

Conc 11.13080
Area 178211



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 117011



10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

WorkOrder: HS20050182

Longhorn Army Ammunition Plant

Aptim Environmental & Infrastucture, Inc.

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

21-May-2020

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

May 21, 2020

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

Work Order: **HS20050182**

Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 6 sample(s) on May 06, 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: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050182

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20050182-01	04WW02-200504	Groundwater		04-May-2020 07:35	06-May-2020 09:00	☐
HS20050182-02	04WW06-200504	Groundwater		04-May-2020 08:25	06-May-2020 09:00	☐
HS20050182-03	LHSMW02-200504	Groundwater		04-May-2020 09:10	06-May-2020 09:00	☐
HS20050182-04	LHSMW02-200504-FD	Groundwater		04-May-2020 09:10	06-May-2020 09:00	☐
HS20050182-05	04WW11-200504	Groundwater		04-May-2020 10:00	06-May-2020 09:00	☐
HS20050182-06	04WW04-200504	Groundwater		04-May-2020 10:45	06-May-2020 09:00	☐

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050182

CASE NARRATIVE

Work Order Comments

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW02-200504
Collection Date: 04-May-2020 07:35

ANALYTICAL REPORT
WorkOrder:HS20050182
Lab ID:HS20050182-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW06-200504
Collection Date: 04-May-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20050182
Lab ID:HS20050182-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW02-200504
Collection Date: 04-May-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20050182
Lab ID:HS20050182-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: LHSMW02-200504-FD
Collection Date: 04-May-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20050182
Lab ID:HS20050182-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW11-200504
Collection Date: 04-May-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20050182
Lab ID:HS20050182-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 04WW04-200504
Collection Date: 04-May-2020 10:45

ANALYTICAL REPORT
WorkOrder:HS20050182
Lab ID:HS20050182-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050182

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R361905 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20050182-01	04WW02-200504	04 May 2020 07:35			21 May 2020 10:37	1
HS20050182-02	04WW06-200504	04 May 2020 08:25			21 May 2020 10:37	1
HS20050182-03	LHSMW02-200504	04 May 2020 09:10			21 May 2020 10:37	1
HS20050182-04	LHSMW02-200504-FD	04 May 2020 09:10			21 May 2020 10:37	1
HS20050182-05	04WW11-200504	04 May 2020 10:00			21 May 2020 10:37	1
HS20050182-06	04WW04-200504	04 May 2020 10:45			21 May 2020 10:37	1

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20050182**

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	20-030-0	26-Mar-2021
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 21-May-20

Sample Receipt Checklist

Work Order ID: HS20050182 **Date/Time Received:** **06-May-2020 09:00**

Client Name: CBI-Houston **Received by:** **Asad Chaudhry**

Completed By: */S/ Paresh M. Giga* (eSignature) 06-May-2020 13:57 (Date/Time) **Reviewed by:** */S/ RJ Modashia* (eSignature) 06-May-2020 14:54 (Date/Time)

Matrices: **Water** Carrier name: **FedEx**

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):	3.1C U/C	IR25	
Cooler(s)/Kit(s):	45836		
Date/Time sample(s) sent to storage:	5/6/2020 14:05		
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: RJ Modashia

Page 1 of 1

Project: APTIM / ARMY AMMN. PLANT (LHAAP) / GROUNDWATER TREATMENT PLANT (GWTP) / KARNACK, TEXAS	LONGHORN	Project No. 501032
Job: 04LHAAP_Performance Monitoring 05_20ALS		
Prepared By: Scott Beesinger		P.O. Number

HS20050182

Aptim Environmental & Infrastucture, Inc.

04LHAAP_Performance Monitoring 05_20ALS

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	TOC by SM5310	Alkalinity by SM2320B	Anions (nitrate, nitrite, sulfate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
04WW02-200504	WG	5/4/20/0735		1	X					
04WW06-200504	WG	5/4/20/0825		1	X					
04WW06-~~200504~~ 200504.MS	WG	5/4/20/0825		1	X					
04WW06-~~200504~~ 200504-MSD	WG	5/4/20/0825		1	X					
LHSMW02-200504	WG	5/4/20/0910		1	X					
LHSMW02-200504-FD	WG	5/4/20/0910		1	X					
04WW11-200504	WG	5/4/20/1000		1	X					
04WW04-200504	WG	5/4/20/1045		1	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	5/5/20	1430							AC	5/6/2020	0900

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

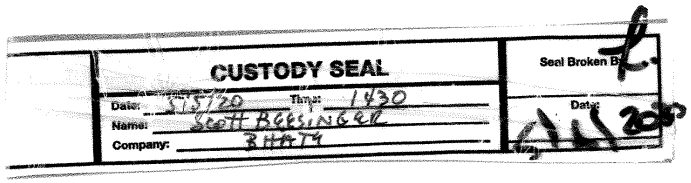
Remarks:

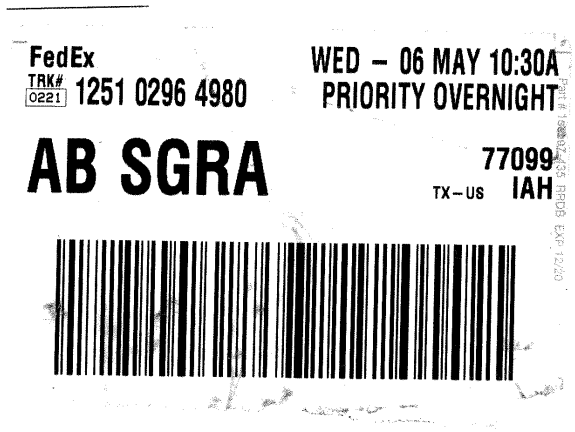
U/C 3.1 IR#25 0700

45836

(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 5


CUSTODY SEAL
Date: 5/5/20
Time: 1430
Name: Scott Beesinger
Company: BHATT
Seal Broken By
Date:


FedEx
TRK# 0221 1251 0296 4980
WED – 06 MAY 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US IAH

May 20, 2020 Service Request No:E2000404

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

Laboratory Results for: HS20050182

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 06, 2020
For your reference, these analyses have been assigned our service request number **E2000404.**

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.:**	E2000404
Project:	HS20050182	**Date Received:**	05/06/20
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

Six samples were received for analysis at ALS Environmental in Houston on 05/06/20.

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:

EQ2000173: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. MS/MSD RPD above control limits; individual recoveries are within control.

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
Project: HS20050182 **Service Request:**E2000404

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000404-001	04WW02-200504	5/4/2020	0735
E2000404-002	04WW06-200504	5/4/2020	0825
E2000404-003	LHSMW02-200504	5/4/2020	0910
E2000404-004	LHSMW02-200504-FD	5/4/2020	0910
E2000404-005	04WW11-200504	5/4/2020	1000
E2000404-006	04WW04-200504	5/4/2020	1045

Service Request Summary

Folder #: **E2000404**
Client Name: ALS Environmental - US
Project Name: HS20050182
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: 05/06/20
Internal Due Date: 5/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20050182
EDD: No EDD Specified

8 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3B
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000404-001	04WW02-200504	Ground Water	05/04/20 0735	**IV**
E2000404-002	04WW06-200504	Ground Water	05/04/20 0825	**IV**
E2000404-003	LHSMW02-200504	Ground Water	05/04/20 0910	**IV**
E2000404-004	LHSMW02-200504-FD	Ground Water	05/04/20 0910	**IV**
E2000404-005	04WW11-200504	Ground Water	05/04/20 1000	**IV**
E2000404-006	04WW04-200504	Ground Water	05/04/20 1045	**IV**

Service Request Summary

Folder #: **E2000404**
Client Name: ALS Environmental - US
Project Name: HS20050182
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
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Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 05/06/20
Internal Due Date: 5/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20050182
EDD: No EDD Specified

8 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3B
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
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.
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.
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.
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.

Data Qualifiers

Lab Standard

S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2020
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611	6/30/2020
Hawaii Department of Health	2020	4/30/2021
Kansas Department of Health and Environment	E-10352	7/31/2020
Louisiana Department of Environmental Quality	03087	6/30/2020
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Center for Disease Control and Prevention	201815	6/5/2020
Maryland Department of the Environment	343	6/30/2020
Minnesota Department of Health	1785988	12/31/2020
Nevada Department of Concervation and Natural Resources	TX026932019-1	7/31/2020
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	NLC190001	6/30/2020
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Pennsylvania Department of Environmental Protection	68-03441-013	6/30/2020
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
Utah Department of Health Environmental Laboratory Certification	TX026932019-9	7/31/2020
Washington Department of Health	C819	11/14/2020
West Virginia Department of Environmental Protection	347	6/30/2020

Chain of Custody

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E2000404 5
ALS Laboratory Group
HS20050182

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 13863**

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: HS20050182
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050182-01**	**04WW02-200504**	**Groundwater**	**04 May 2020 07:35**
	SUB_Perch-6850			14 May 2020
2.	**HS20050182-02**	**04WW06-200504**	**Groundwater**	**04 May 2020 08:25**
	SUB_Perch-6850			14 May 2020
3.	**HS20050182-03**	**LHSMW02-200504**	**Groundwater**	**04 May 2020 09:10**
	SUB_Perch-6850			14 May 2020
4.	**HS20050182-04**	**LHSMW02-200504-FD**	**Groundwater**	**04 May 2020 09:10**
	SUB_Perch-6850			14 May 2020
5.	**HS20050182-05**	**04WW11-200504**	**Groundwater**	**04 May 2020 10:00**
	SUB_Perch-6850			14 May 2020
6.	**HS20050182-06**	**04WW04-200504**	**Groundwater**	**04 May 2020 10:45**
	SUB_Perch-6850			14 May 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20050182-02 MS/MSD

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13863**

Relinquished By: J. Maginn Date/Time: 5/6/20 14:40

Received By: [illegible] Date/Time: 5/6/20 14:40

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist CH

Client/Project ALS-H

Thermometer ID SMOM / IR11

Date/Time Received: 5/6/20 Initials: CH

Date/Time Logged in: 5/6/20 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?
-		5/6/20	1440	CH	1.5	☒
						☐
						☐
						☐

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: E2000404 5

ALS Laboratory Group HS20050182

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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#: 358306 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/KBROWN **Prep Method:** Method **Prep Date/Time:** 5/12/20 09:34

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000382-001	LH18/24-SP650_042820_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2000404-001	04WW02-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2000404-002	04WW06-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2000404-003	LHSMW02-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2000404-004	LHSMW02-200504-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2000404-005	04WW11-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2000404-006	04WW04-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2000405-001	04WW05-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2000405-002	04WW09-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2000405-003	04WW10-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2000405-004	04WW10-200505-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2000405-005	04WW07-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2000406-001	04WW08-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2000406-002	LHSMW01-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2000406-003	04WW01-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2000407-001	LH18/24-SP650_050520_BIX	.01	6850/ClO4 DOD			Water	10mL	
17	E2000408-001	LH18/24-SP140_050520	.01	6850/ClO4 DOD			Water	10mL	
18	E2000409-001	LH18/24-SP650_050520_BIX	.01	6850/ClO4 DOD			Water	10mL	
19	EQ2000173-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2000173-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2000173-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2000173-04	04WW06-200504 MS	.01	6850/ClO4 DOD			Liquid	10mL	
23	EQ2000173-05	04WW06-200504 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

E2000382-001	100.00µL	E2000404-001	100.00µL	E2000404-002	100.00µL	E2000404-003	100.00µL	E2000404-004	100.00µL	E2000404-005	100.00µL
E2000404-006	100.00µL	E2000405-001	100.00µL	E2000405-002	100.00µL	E2000405-003	100.00µL	E2000405-004	100.00µL	E2000405-005	100.00µL
E2000406-001	100.00µL	E2000406-002	100.00µL	E2000406-003	100.00µL	E2000407-001	100.00µL	E2000408-001	100.00µL	E2000409-001	100.00µL
EQ2000173-01	100.00µL	EQ2000173-02	100.00µL	EQ2000173-03	100.00µL	EQ2000173-04	100.00µL	EQ2000173-05	100.00µL		

Name: Perchlorate Intermediate Stock1 Inventory ID 204799 Logbook Ref: 200657 1.0ug/mL KN Expires On: 05/15/2020

EQ2000173-02	1.00µL	EQ2000173-03	1.00µL	EQ2000173-04	1.00µL	EQ2000173-05	1.00µL

Preparation Information Benchsheet

Prep Run#: 358306
Team: Semivoa GCMS/KBROWN

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/12/20 09:34

Preparation Steps

Step: Preparation
Started: 5/12/20 09:34
Finished: 5/12/20 12:00
By: KBROWN
Comments

Comments: _____

Reviewed By: GR Date: 5/12/2020

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:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 0735
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW02-200504	**Units:**	µg/L
Lab Code:	E2000404-001	**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	5/12/20	5/12/20 13:53	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 0825
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW06-200504	**Units:**	µg/L
Lab Code:	E2000404-002	**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	ND	U	0.100	0.0500	0.0250	1	5/12/20	5/12/20 13:13	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 0910
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	LHSMW02-200504	**Units:**	µg/L
Lab Code:	E2000404-003	**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	5/12/20	5/12/20 14:01	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 0910
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	LHSMW02-200504-FD	**Units:**	µg/L
Lab Code:	E2000404-004	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	5/12/20	5/12/20 14:09	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 1000
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW11-200504	**Units:**	µg/L
Lab Code:	E2000404-005	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	5/12/20	5/12/20 14:17	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 1045
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW04-200504	**Units:**	µg/L
Lab Code:	E2000404-006	**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	5/12/20	5/12/20 14:25	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000173-01	**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	5/12/20	5/12/20 12:50	358306	679868	

Accuracy & Precision

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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: HS20050182
Sample Matrix: Ground Water

Service Request: E2000404
Date Analyzed: 5/12/20

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: 358306

	Lab Control Sample EQ2000173-02			Duplicate Lab Control Sample EQ2000173-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.105	0.100	105	0.107	0.100	107	84 - 119	2	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:**	E2000404
Project:	HS20050182	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000173-02	**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	**0.105**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 12:58	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000173-03	**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	5/12/20	5/12/20 13:06	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/4/20
Sample Matrix:	Ground Water	**Date Received:**	5/6/20
		Date Analyzed:	5/12/20 - 5/13/20

Matrix Spike Summary

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

Sample Name:	04WW06-200504	**Units:**	µg/L
Lab Code:	E2000404-002	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		04WW06-200504MS				04WW06-200504DMS						
		Matrix Spike				**Duplicate Matrix Spike**						
		EQ2000173-04				EQ2000173-05						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**		**RPD Limit**
Perchlorate	ND	0.111	0.100	111		0.0929	0.100	93	84 - 119	18	*	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:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 0825
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW06-200504	**Units:**	µg/L
Lab Code:	EQ2000173-04	**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	**0.111**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 13:21	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Collected:**	5/ 4/20 0825
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW06-200504	**Units:**	µg/L
Lab Code:	EQ2000173-05	**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	**0.0929**	J	0.100	0.0500	0.0250	1	5/12/20	5/13/20 14:12	358306	680124	

Initial Calibration

ALS Environmental - Houston HRMS
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20200420

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

	Sample Name		File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200420_001	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:01
	null		20200420_002	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:06
	DIBLK		20200420_003	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:11
	IB		20200420_004	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:19
	PERCHLORATE7		20200420_005	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 13:27
	LODV		20200420_006	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:35
	PERCHLORATE1		20200420_007	Perchlorate6850b.lcm	1x	☒	3100804-05	4/20/2020 13:43
	PERCHLORATE2		20200420_008	Perchlorate6850b.lcm	1x	☒	3100804-06	4/20/2020 13:51
	PERCHLORATE3		20200420_009	Perchlorate6850b.lcm	1x	☒	3100804-07	4/20/2020 13:58
	PERCHLORATE4		20200420_010	Perchlorate6850b.lcm	1x	☒	3100804-08	4/20/2020 14:06
	PERCHLORATE5		20200420_011	Perchlorate6850b.lcm	1x	☒	3100804-09	4/20/2020 14:14
	PERCHLORATE6		20200420_012	Perchlorate6850b.lcm	1x	☒	3100805-01	4/20/2020 14:22
	PERCHLORATE8		20200420_013	Perchlorate6850b.lcm	1x	☒	3100805-03	4/20/2020 14:30
	PERCHLORATE9		20200420_014	Perchlorate6850b.lcm	1x	☒	3100805-04	4/20/2020 14:38
	PERCHLORATE10		20200420_015	Perchlorate6850b.lcm	1x	☒	3100805-05	4/20/2020 14:46
	ICV		20200420_016	Perchlorate6850b.lcm	1x	☒	3100805-06	4/20/2020 14:54
	LODV		20200420_017	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:02
	EQ2000143-01		20200420_018	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:10
	EQ2000143-02		20200420_019	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:18
	EQ2000143-03		20200420_020	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:26
	E2000275-001		20200420_021	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:33
	E2000275-002		20200420_022	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:41
	E2000275-003		20200420_023	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:49
	E2000287-001		20200420_024	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:57
	E2000303-001		20200420_025	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:05
	E2000304-001		20200420_026	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:13
	E2000305-001		20200420_027	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:21
	PERCHLORATE7		20200420_028	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 16:29
	E2000303-001		20200420_029	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:47
	E2000304-001		20200420_030	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:55
	PERCHLORATE7		20200420_031	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 17:02

Initial Calibration - Detailed Report

Calibration ID: EC2000003 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
08	EC2000003-08	PERCHLORATE7	20200420_005	04/20/2020 13:27
01	EC2000003-01	PERCHLORATE1	20200420_007	04/20/2020 13:43
02	EC2000003-02	PERCHLORATE2	20200420_008	04/20/2020 13:51
03	EC2000003-03	PERCHLORATE3	20200420_009	04/20/2020 13:58
04	EC2000003-04	PERCHLORATE4	20200420_010	04/20/2020 14:06
05	EC2000003-05	PERCHLORATE5	20200420_011	04/20/2020 14:14
06	EC2000003-06	PERCHLORATE6	20200420_012	04/20/2020 14:22
07	EC2000003-07	PERCHLORATE8	20200420_013	04/20/2020 14:30
09	EC2000003-09	PERCHLORATE9	20200420_014	04/20/2020 14:38
10	EC2000003-10	PERCHLORATE10	20200420_015	04/20/2020 14:46

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

Perchlorate **Average RF** **RSD = 8.066** **Average RF = 0.1368**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1558	02	0.5000	0.1297	03	0.7000	0.1277	04	1.0000	0.1397
05	2.0000	0.1298	06	5.0000	0.1245	07	20.0000	0.1341	08	10.0000	0.1562
09	30.0000	0.1365	10	50.0000	0.1345						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.114	13.9	02	0.5000	0.474	-5.2	03	0.7000	0.653	-6.7
04	1.0000	1.02	2.1	05	2.0000	1.90	-5.1	06	5.0000	4.55	-9.0
07	20.0000	19.6	-2.0	08	10.0000	11.4	14.2	09	30.0000	29.9	-0.2
10	50.0000	49.1	-1.7								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000003	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200420_016	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000003-11	T	Average RF	10	11.345	ng/mL	13.4	<= 15

ALS Group Houston

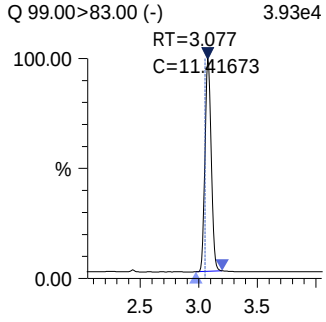
PERCHLORATE7

Date acquired: 4/20/2020 1:27:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_005.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	4/20/2020 1:27:21 PM	144494	11.41673	20200420_005	3.077	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	4/20/2020 1:27:21 PM	92497	1.00000	20200420_005	3.076	25.0000	1.0000	3

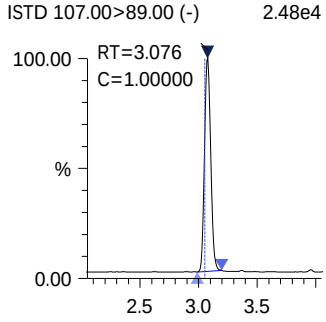
Perchlorate

Conc 11.41673
Area 144494



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 92497



ALS Group Houston

PERCHLORATE1

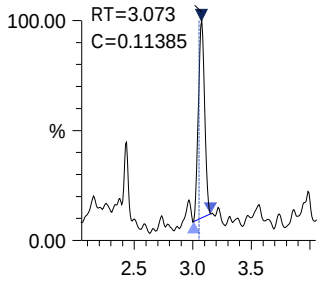
Date acquired: 4/20/2020 1:43:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_007.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	4/20/2020 1:43:09 PM	1840	0.11385	20200420_007	3.073	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	4/20/2020 1:43:09 PM	118078	1.00000	20200420_007	3.073	25.0000	1.0000	5

Perchlorate

Conc 0.11385
Area 1840

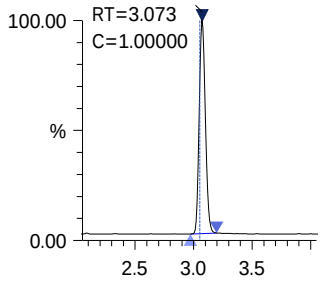
Q 99.00>83.00 (-) 5.37e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 118078

ISTD 107.00>89.00 (-) 3.18e4



ALS Group Houston

PERCHLORATE2

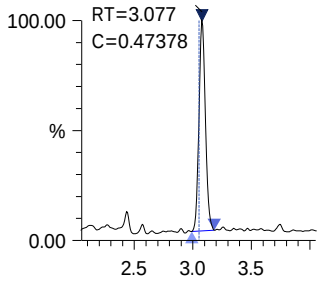
Date acquired: 4/20/2020 1:51:02 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_008.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	4/20/2020 1:51:02 PM	7551	0.47378	20200420_008	3.077	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	4/20/2020 1:51:02 PM	116479	1.00000	20200420_008	3.075	25.0000	1.0000	6

Perchlorate

Conc 0.47378
Area 7551

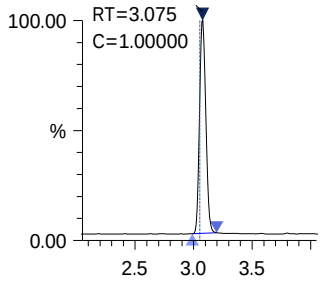
Q 99.00>83.00 (-) 2.00e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 116479

ISTD 107.00>89.00 (-) 3.08e4



ALS Group Houston

PERCHLORATE3

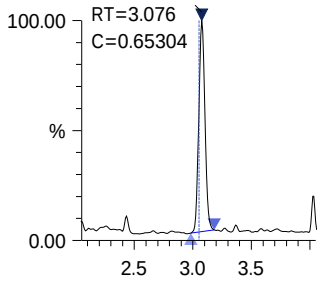
Date acquired: 4/20/2020 1:58:56 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_009.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	4/20/2020 1:58:56 PM	11235	0.65304	20200420_009	3.076	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	4/20/2020 1:58:56 PM	125731	1.00000	20200420_009	3.073	25.0000	1.0000	7

Perchlorate

Conc 0.65304
Area 11235

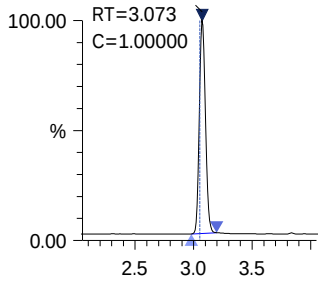
Q 99.00>83.00 (-) 3.12e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 125731

ISTD 107.00>89.00 (-) 3.41e4



ALS Group Houston

PERCHLORATE4

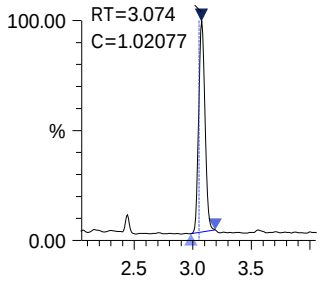
Date acquired: 4/20/2020 2:06:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_010.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	4/20/2020 2:06:51 PM	16670	1.02077	20200420_010	3.074	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	4/20/2020 2:06:51 PM	119354	1.00000	20200420_010	3.074	25.0000	1.0000	8

Perchlorate

Conc 1.02077
Area 16670

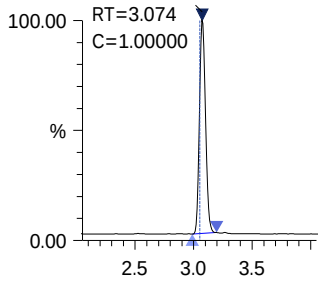
Q 99.00>83.00 (-) 4.51e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 119354

ISTD 107.00>89.00 (-) 3.26e4



ALS Group Houston

PERCHLORATE5

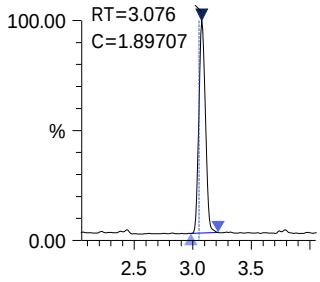
Date acquired: 4/20/2020 2:14:45 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_011.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	4/20/2020 2:14:45 PM	33786	1.89707	20200420_011	3.076	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	4/20/2020 2:14:45 PM	130159	1.00000	20200420_011	3.075	25.0000	1.0000	9

Perchlorate

Conc 1.89707
Area 33786

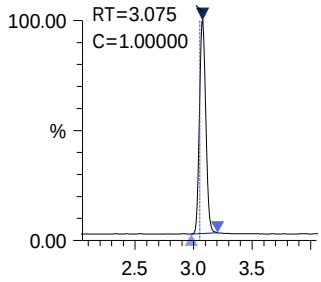
Q 99.00>83.00 (-) 8.73e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 130159

ISTD 107.00>89.00 (-) 3.41e4



ALS Group Houston

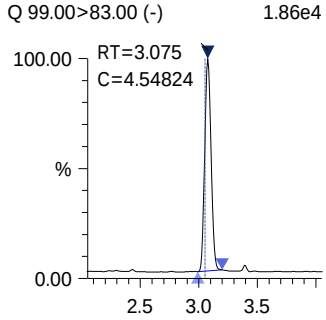
PERCHLORATE6

Date acquired: 4/20/2020 2:22:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_012.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	4/20/2020 2:22:39 PM	69848	4.54824	20200420_012	3.075	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	4/20/2020 2:22:39 PM	112235	1.00000	20200420_012	3.074	25.0000	1.0000	10

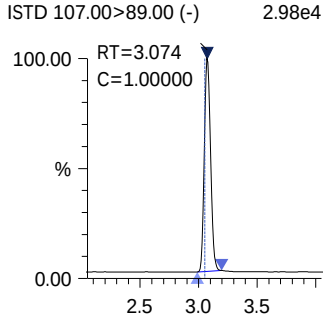
Perchlorate

Conc 4.54824
Area 69848



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 112235



ALS Group Houston

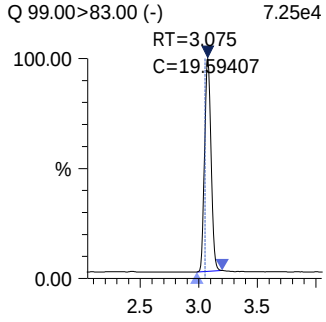
PERCHLORATE8

Date acquired: 4/20/2020 2:30:36 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_013.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	4/20/2020 2:30:36 PM	275854	19.59407	20200420_013	3.075	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	4/20/2020 2:30:36 PM	102890	1.00000	20200420_013	3.072	25.0000	1.0000	11

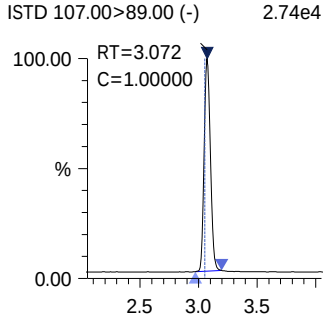
Perchlorate

Conc 19.59407
Area 275854



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 102890



ALS Group Houston

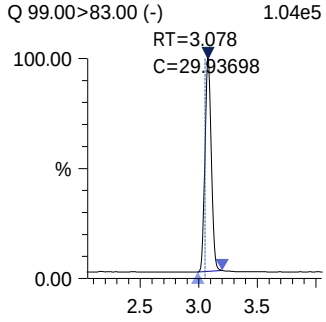
PERCHLORATE9

Date acquired: 4/20/2020 2:38:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_014.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	4/20/2020 2:38:33 PM	390068	29.93698	20200420_014	3.078	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	4/20/2020 2:38:33 PM	95225	1.00000	20200420_014	3.075	25.0000	1.0000	12

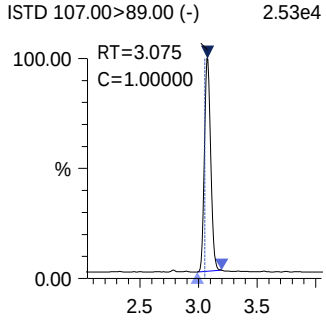
Perchlorate

Conc 29.93698
Area 390068



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 95225



ALS Group Houston

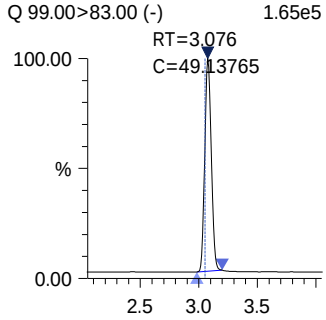
PERCHLORATE10

Date acquired: 4/20/2020 2:46:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_015.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	4/20/2020 2:46:25 PM	632804	49.13765	20200420_015	3.076	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	4/20/2020 2:46:25 PM	94118	1.00000	20200420_015	3.075	25.0000	1.0000	13

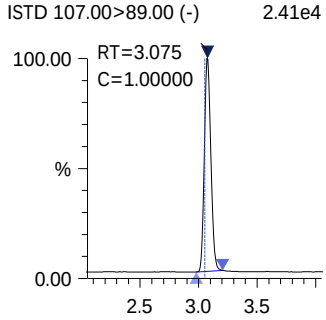
Perchlorate

Conc 49.13765
Area 632804



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 94118



ALS Group Houston

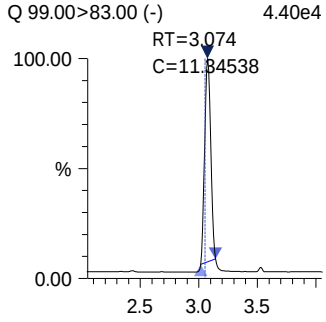
PERCHLORATEICV

Date acquired: 4/20/2020 2:54:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_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	4/20/2020 2:54:20 PM	149807	11.34538	20200420_016	3.074	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	4/20/2020 2:54:20 PM	96501	1.00000	20200420_016	3.072	25.0000	1.0000	14

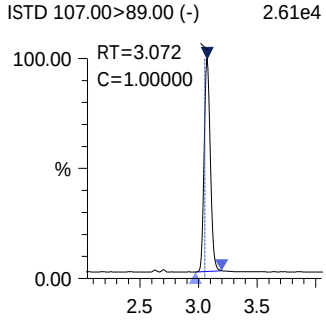
Perchlorate

Conc 11.34538
Area 149807



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 96501



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

20200512

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200512_001	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:09
	null		20200512_002	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:14
	IB		20200512_003	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:19
	PERCHLORATE7		20200512_004	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 12:27
	LODV		20200512_005	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:35
	EQ2000173-01		20200512_006	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:50
	EQ2000173-02		20200512_007	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:58
	EQ2000173-03		20200512_008	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:06
	E2000404-002		20200512_009	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:13
	EQ2000173-04		20200512_010	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:21
	EQ2000173-05		20200512_011	Perchlorate6850b.lcm	1x	☒	do not use	5/12/2020 13:29
	E2000382-001		20200512_012	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:37
	PERCHLORATE7		20200512_013	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 13:45
	E2000404-001		20200512_014	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:53
	E2000404-003		20200512_015	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:01
	E2000404-004		20200512_016	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:09
	E2000404-005		20200512_017	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:17
	E2000404-006		20200512_018	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:25
	E2000405-001		20200512_019	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:32
	E2000405-002		20200512_020	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:40
	E2000405-003		20200512_021	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:48
	E2000405-004		20200512_022	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:56
	E2000405-005		20200512_023	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:04
	PERCHLORATE7		20200512_024	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 15:12
	E2000406-001		20200512_025	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:20
	E2000406-002		20200512_26	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:28
	E2000406-003		20200512_027	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:36
	E2000407-001		20200512_028	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:44
	E2000408-001		20200512_029	Perchlorate6850b.lcm	1x	☒	dilution	5/12/2020 15:51
	E2000409-001		20200512_030	Perchlorate6850b.lcm	1x	☒	RR-poss carry-over	5/12/2020 15:59
	EQ2000173-05		20200512_031	Perchlorate6850b.lcm	1x	☒	do not use	5/12/2020 16:07
	PERCHLORATE7		20200512_032	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 16:15

20200513

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200513_001	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:40
	null		20200513_002	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:45
	IB		20200513_003	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:50
	PERCHLORATE7		20200513_004	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 11:58
	LODV		20200513_005	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:06
	EQ2000179-01		20200513_006	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:14
	EQ2000179-02		20200513_007	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:22
	EQ2000179-03		20200513_008	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:29
	EQ2000179-04		20200513_009	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:37
	EQ2000179-05		20200513_010	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:45
	E2000410-001		20200513_011	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:53
	E2000410-002		20200513_012	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:01
	E2000410-003		20200513_013	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:09
	E2000410-004		20200513_014	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:17
	E2000410-005		20200513_015	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:25
	PERCHLORATE7		20200513_016	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 13:33
	E2000410-006		20200513_017	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:41
	E2000410-007		20200513_018	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:49
	E2000408-001X200		20200513_019	Perchlorate6850b.lcm	200x	☒		5/13/2020 13:56
	PERCHLORATE7		20200513_020	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 14:04
	EQ2000173-05		20200513_021	Perchlorate6850b.lcm	1x	☒		5/13/2020 14:12
	E2000409-001		20200513_022	Perchlorate6850b.lcm	1x	☒		5/13/2020 14:20
	PERCHLORATE7		20200513_023	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 14:28

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050182

Service Request: E2000404
Date Analyzed: 5/12/20

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\20200512\20200512_004

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 679868
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.9	0.1368	0.1485	8.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Calibration ID:**	EC2000003
		Analysis Lot:	679868
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1502	9.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Calibration ID:**	EC2000003
		Analysis Lot:	680007
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1502	9.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050182

Service Request: E2000404
Date Analyzed: 5/12/20

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\20200512\20200512_024

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680007
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1505	10.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050182

Service Request: E2000404
Date Analyzed: 5/12/20

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\20200512\20200512_032

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680007
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1511	10.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050182

Service Request: E2000404
Date Analyzed: 5/13/20

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\20200513\20200513_004

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680124
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1368	0.1520	11.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050182

Service Request: E2000404
Date Analyzed: 5/13/20

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\20200513\20200513_016

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680124
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.3	0.1368	0.1546	13.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_020	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.7	0.1368	0.1461	6.8	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050182

Service Request: E2000404
Date Analyzed: 5/13/20

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\20200513\20200513_023

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680124
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1368	0.1523	11.3	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20 12:27

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

File ID:	I:\LCMS01\DATA\20200512\20200512_004	**Lab Code:**	EQ2000176-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	679868
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000176-01	77,004	3.01
Method Blank	EQ2000173-01	95,026	2.94
Lab Control Sample	EQ2000173-02	108,592	3.00
Duplicate Lab Control Sample	EQ2000173-03	109,300	3.00
04WW06-200504	E2000404-002	104,595	2.99
04WW06-200504MS	EQ2000173-04	114,639	2.99

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20 13:45

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Lab Code:**	EQ2000176-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	679868
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000176-02	99,187	2.99

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20 13:45

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

File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Lab Code:**	EQ2000180-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-01	99,187	2.99
04WW02-200504	E2000404-001	113,144	2.99
LHSMW02-200504	E2000404-003	136,948	2.99
LHSMW02-200504-FD	E2000404-004	130,371	2.99
04WW11-200504	E2000404-005	126,172	2.99
04WW04-200504	E2000404-006	109,406	2.99

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20 15:12

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

File ID:	I:\LCMS01\DATA\20200512\20200512_024	**Lab Code:**	EQ2000180-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-02	103,620	2.99

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/12/20 16:15

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

File ID:	I:\LCMS01\DATA\20200512\20200512_032	**Lab Code:**	EQ2000180-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-03	111,449	2.99

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/13/20 11:58

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20200513\20200513_004	**Lab Code:**	EQ2000186-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-01	106,329	3.00

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/13/20 13:33

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

File ID:	I:\LCMS01\DATA\20200513\20200513_016	**Lab Code:**	EQ2000186-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-02	116,942	3.00

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/13/20 14:04

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20200513\20200513_020	**Lab Code:**	EQ2000186-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-03	120,816	3.00
04WW06-200504DMS	EQ2000173-05	141,444	2.98

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:**	E2000404
Project:	HS20050182	**Date Analyzed:**	5/13/20 14:28

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

File ID:	I:\LCMS01\DATA\20200513\20200513_023	**Lab Code:**	EQ2000186-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-04	117,011	2.99

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

ALS Group Houston

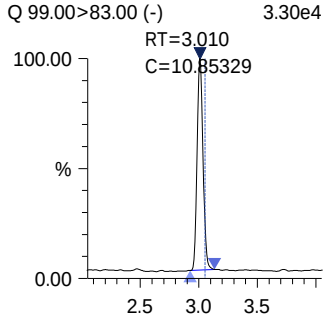
PERCHLORATE7

Date acquired: 5/12/2020 12:27:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_004.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 12:27:44 PM	114355	10.85329	20200512_004	3.010	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 12:27:44 PM	77004	1.00000	20200512_004	3.008	25.0000	1.0000	3

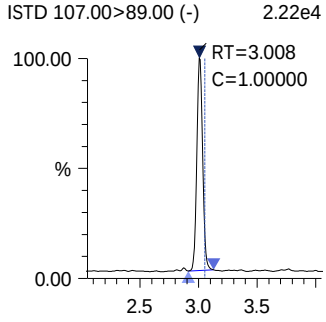
Perchlorate

Conc 10.85329
Area 114355



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 77004



ALS Group Houston

EQ2000173-01

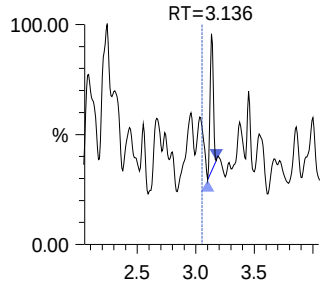
Date acquired: 5/12/2020 12:50:12 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_006.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-01	5/12/2020 12:50:12 PM	----	----	20200512_006	----	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	EQ2000173-01	5/12/2020 12:50:12 PM	95026	1.00000	20200512_006	2.942	25.0000	1.0000	5

Perchlorate

Conc ----
Area ----

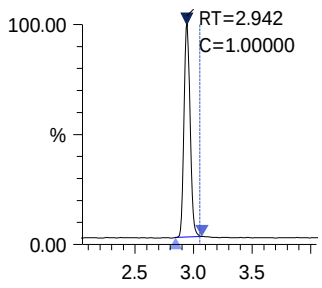
Q 99.00>83.00 (-) 3.00e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 95026

ISTD 107.00>89.00 (-) 2.66e4



ALS Group Houston

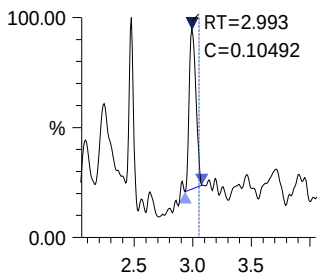
EQ2000173-02

Date acquired: 5/12/2020 12:58:07 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_007.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	EQ2000173-02	5/12/2020 12:58:07 PM	1559	0.10492	20200512_007	2.993	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	EQ2000173-02	5/12/2020 12:58:07 PM	108592	1.00000	20200512_007	3.004	25.0000	1.0000	6

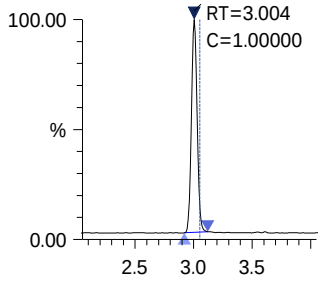
Perchlorate

Conc 0.10492
Area 1559
Q 99.00>83.00 (-) 5.16e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 108592
ISTD 107.00>89.00 (-) 3.19e4



ALS Group Houston

EQ2000173-03

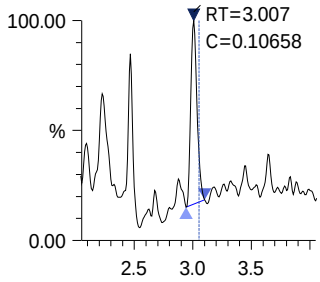
Date acquired: 5/12/2020 1:06:00 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_008.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-03	5/12/2020 1:06:00 PM	1594	0.10658	20200512_008	3.007	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	EQ2000173-03	5/12/2020 1:06:00 PM	109300	1.00000	20200512_008	3.004	25.0000	1.0000	7

Perchlorate

Conc 0.10658
Area 1594

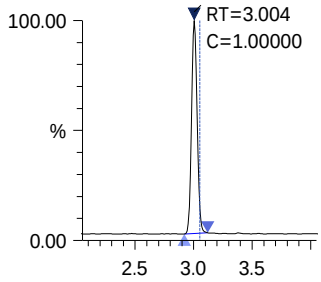
Q 99.00>83.00 (-) 4.99e2



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 109300

ISTD 107.00>89.00 (-) 3.26e4



ALS Group Houston

E2000404-002

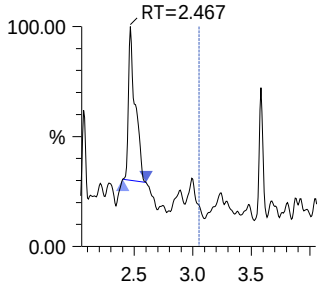
Date acquired: 5/12/2020 1:13:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_009.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000404-002	5/12/2020 1:13:54 PM	----	----	20200512_009	----	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	E2000404-002	5/12/2020 1:13:54 PM	104595	1.00000	20200512_009	2.994	25.0000	1.0000	8

Perchlorate

Conc ----
Area ----

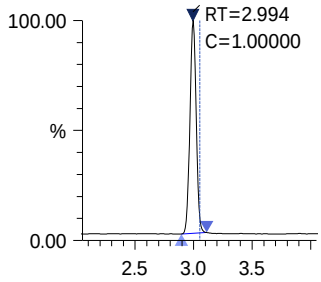
Q 99.00>83.00 (-) 7.21e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 104595

ISTD 107.00>89.00 (-) 2.82e4



ALS Group Houston

EQ2000173-04

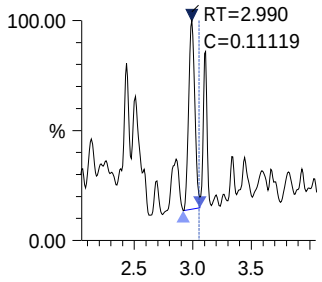
Date acquired: 5/12/2020 1:21:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_010.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-04	5/12/2020 1:21:48 PM	1744	0.11119	20200512_010	2.990	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	EQ2000173-04	5/12/2020 1:21:48 PM	114639	1.00000	20200512_010	2.990	25.0000	1.0000	9

Perchlorate

Conc 0.11119
Area 1744

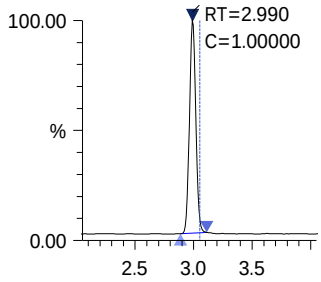
Q 99.00>83.00 (-) 5.32e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 114639

ISTD 107.00>89.00 (-) 3.06e4



ALS Group Houston

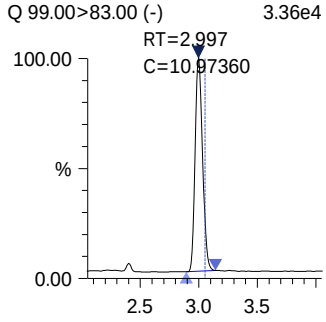
PERCHLORATE7

Date acquired: 5/12/2020 1:45:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_013.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 1:45:33 PM	148931	10.97360	20200512_013	2.997	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 1:45:33 PM	99187	1.00000	20200512_013	2.994	25.0000	1.0000	3

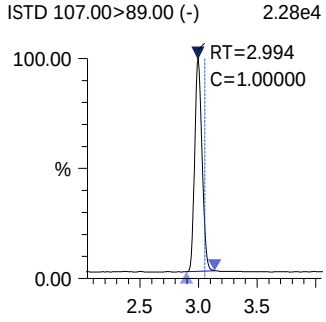
Perchlorate

Conc 10.97360
Area 148931



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 99187



ALS Group Houston

E2000404-001

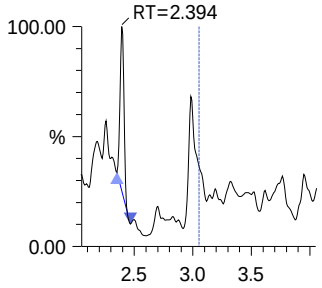
Date acquired: 5/12/2020 1:53:26 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_014.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000404-001	5/12/2020 1:53:26 PM	----	----	20200512_014	----	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	E2000404-001	5/12/2020 1:53:26 PM	113144	1.00000	20200512_014	2.989	25.0000	1.0000	12

Perchlorate

Conc ----
Area ----

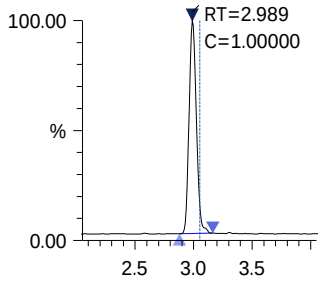
Q 99.00>83.00 (-) 5.20e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 113144

ISTD 107.00>89.00 (-) 2.62e4



ALS Group Houston

E2000404-003

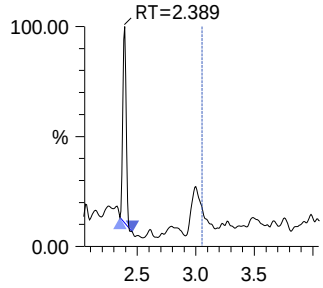
Date acquired: 5/12/2020 2:01:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_015.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000404-003	5/12/2020 2:01:22 PM	----	----	20200512_015	----	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	E2000404-003	5/12/2020 2:01:22 PM	136948	1.00000	20200512_015	2.993	25.0000	1.0000	13

Perchlorate

Conc ----
Area ----

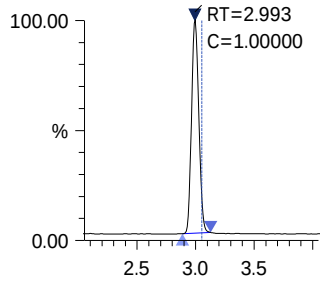
Q 99.00>83.00 (-) 1.42e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 136948

ISTD 107.00>89.00 (-) 3.18e4



ALS Group Houston

E2000404-004

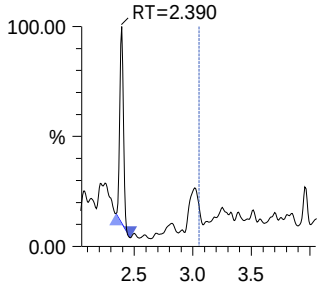
Date acquired: 5/12/2020 2:09:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_016.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000404-004	5/12/2020 2:09:16 PM	----	----	20200512_016	----	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	E2000404-004	5/12/2020 2:09:16 PM	130371	1.00000	20200512_016	2.993	25.0000	1.0000	14

Perchlorate

Conc ----
Area ----

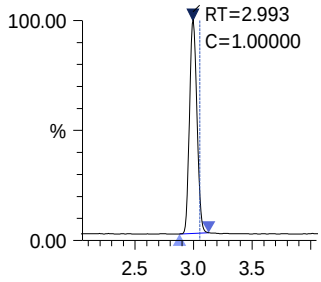
Q 99.00>83.00 (-) 1.10e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 130371

ISTD 107.00>89.00 (-) 2.95e4



ALS Group Houston

E2000404-005

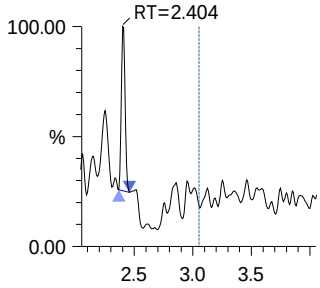
Date acquired: 5/12/2020 2:17:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_017.lcd
Vial: 15 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000404-005	5/12/2020 2:17:10 PM	----	----	20200512_017	----	25.0000	1.0000	15
Sodium Perchlorate-18O4_IS	E2000404-005	5/12/2020 2:17:10 PM	126172	1.00000	20200512_017	2.986	25.0000	1.0000	15

Perchlorate

Conc ----
Area ----

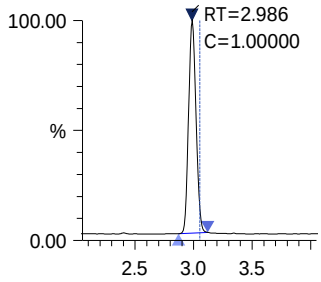
Q 99.00>83.00 (-) 5.19e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 126172

ISTD 107.00>89.00 (-) 2.89e4



ALS Group Houston

E2000404-006

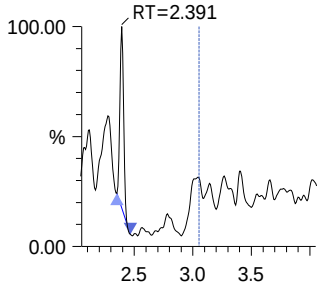
Date acquired: 5/12/2020 2:25:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_018.lcd
Vial: 16 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000404-006	5/12/2020 2:25:05 PM	----	----	20200512_018	----	25.0000	1.0000	16
Sodium Perchlorate-18O4_IS	E2000404-006	5/12/2020 2:25:05 PM	109406	1.00000	20200512_018	2.991	25.0000	1.0000	16

Perchlorate

Conc ----
Area ----

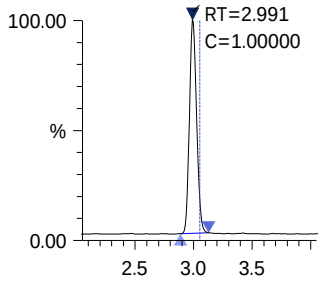
Q 99.00>83.00 (-) 4.57e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 109406

ISTD 107.00>89.00 (-) 2.57e4



ALS Group Houston

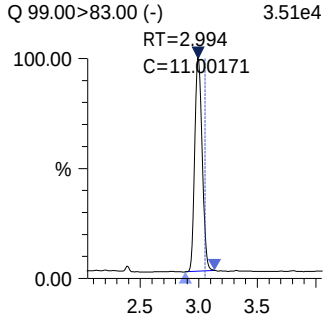
PERCHLORATE7

Date acquired: 5/12/2020 3:12:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_024.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 3:12:25 PM	155986	11.00171	20200512_024	2.994	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 3:12:25 PM	103620	1.00000	20200512_024	2.994	25.0000	1.0000	3

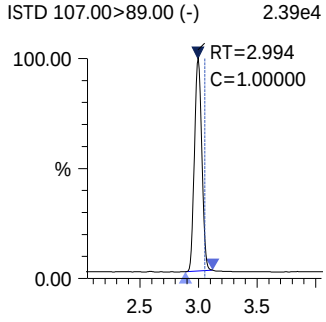
Perchlorate

Conc 11.00171
Area 155986



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 103620



ALS Group Houston

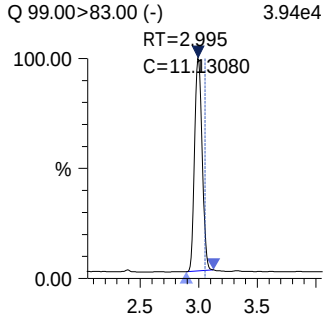
PERCHLORATE7

Date acquired: 5/13/2020 2:28:31 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_023.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/13/2020 2:28:31 PM	178211	11.13080	20200513_023	2.995	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/13/2020 2:28:31 PM	117011	1.00000	20200513_023	2.992	25.0000	1.0000	3

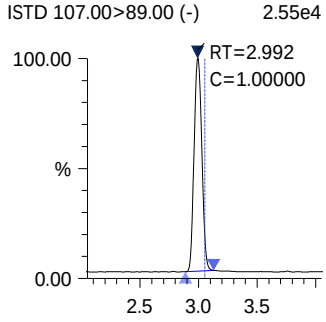
Perchlorate

Conc 11.13080
Area 178211



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 117011



ALS Group Houston

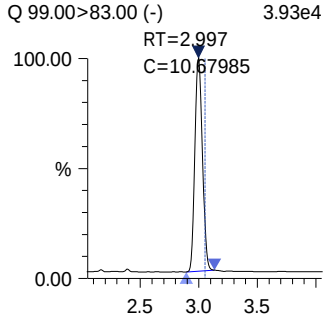
PERCHLORATE7

Date acquired: 5/13/2020 2:04:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_020.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/13/2020 2:04:49 PM	176552	10.67985	20200513_020	2.997	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/13/2020 2:04:49 PM	120816	1.00000	20200513_020	2.995	25.0000	1.0000	3

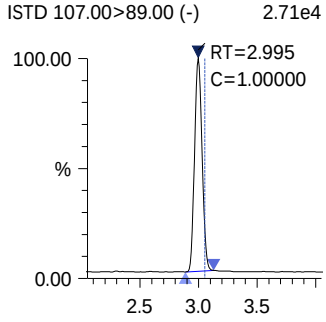
Perchlorate

Conc 10.67985
Area 176552



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 120816



ALS Group Houston

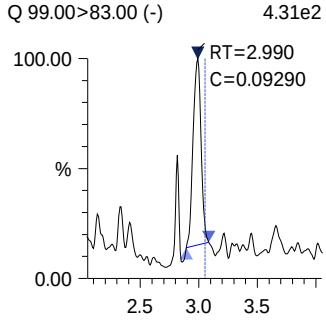
EQ2000173-05

Date acquired: 5/13/2020 2:12:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_021.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-05	5/13/2020 2:12:40 PM	1798	0.09290	20200513_021	2.990	25.0000	1.0000	18
Sodium Perchlorate-18O4_IS	EQ2000173-05	5/13/2020 2:12:40 PM	141444	1.00000	20200513_021	2.980	25.0000	1.0000	18

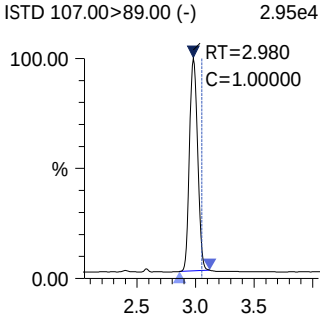
Perchlorate

Conc 0.09290
Area 1798



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 141444



ALS Environmental

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

WorkOrder: HS20050183

Longhorn Army Ammunition Plant

Aptim Environmental & Infrastucture, Inc.

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

21-May-2020

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

May 21, 2020

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

Work Order: **HS20050183**

Laboratory Results for: **Longhorn Army Ammunition Plant**

Dear Susan,

ALS Environmental received 3 sample(s) on May 06, 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: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050183

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20050183-01	04WW08-200504	Groundwater		04-May-2020 11:35	06-May-2020 09:00	☐
HS20050183-02	LHSMW01-200504	Groundwater		04-May-2020 12:20	06-May-2020 09:00	☐
HS20050183-03	04WW01-200504	Groundwater		04-May-2020 13:10	06-May-2020 09:00	☐

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050183

CASE NARRATIVE

Work Order Comments

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

ALS Houston, US

Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.

ANALYTICAL REPORT

Project: Longhorn Army Ammunition Plant

WorkOrder:HS20050183

Sample ID: 04WW08-200504

Lab ID:HS20050183-01

Collection Date: 04-May-2020 11:35

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US

Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.

ANALYTICAL REPORT

Project: Longhorn Army Ammunition Plant

WorkOrder:HS20050183

Sample ID: LHSMW01-200504

Lab ID:HS20050183-02

Collection Date: 04-May-2020 12:20

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US

Date: 21-May-20

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**
Project:	Longhorn Army Ammunition Plant	WorkOrder:HS20050183
Sample ID:	04WW01-200504	Lab ID:HS20050183-03
Collection Date:	04-May-2020 13:10	Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 10:37

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050183

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R361905 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20050183-01	04WW08-200504	04 May 2020 11:35			21 May 2020 10:37	1
HS20050183-02	LHSMW01-200504	04 May 2020 12:20			21 May 2020 10:37	1
HS20050183-03	04WW01-200504	04 May 2020 13:10			21 May 2020 10:37	1

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20050183**

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: 21-May-20

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050183

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20050183-01	04WW08-200504	Login	5/6/2020 2:10:38 PM	PMG	Sub

ALS Houston, US Date: 21-May-20

Sample Receipt Checklist

Work Order ID: HS20050183 **Date/Time Received:** **06-May-2020 09:00**

Client Name: CBI-Houston **Received by:** **Asad Chaudhry**

Completed By: */S/ Paresh M. Giga* (eSignature) 06-May-2020 13:57 (Date/Time) **Reviewed by:** */S/ RJ Modashia* (eSignature) 06-May-2020 14:59 (Date/Time)

Matrices: **Water** Carrier name: **FedEx**

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):	3.1C U/C	IR25
Cooler(s)/Kit(s):	45836	
Date/Time sample(s) sent to storage:	5/6/2020 14:25	

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:

01042026

CHAIN OF CUSTODY

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

HS20050183

Aptim Environmental & Infrastucture, Inc.
04LHAAP_Performance Monitoring 05_20ALS

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	**Project No.** 501032
Job: **04LHAAP_Performance Monitoring 05_20ALS**	
Prepared By: Scott Beesinger	**P.O. Number**

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	TOC by SM5310	Alkalinity by SM2320B	Anions (nitrate, nitrite, sulfate) by SW9056							Remarks (Preservatives, etc.)	Lab I.D.#
04WW08-200504	WG	5/4/20/1135		1	X											
LHSMW01-200504	WG	5/4/20/1220		1	X											
04WW01-200504	WG	5/4/20/1310		1	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	5/5/20	1430							AC	5/6/2020	09:00

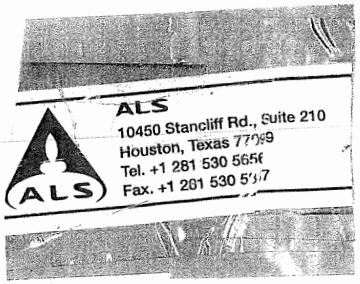
For Lab Use Only

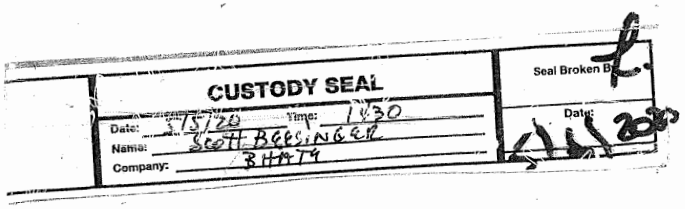
Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

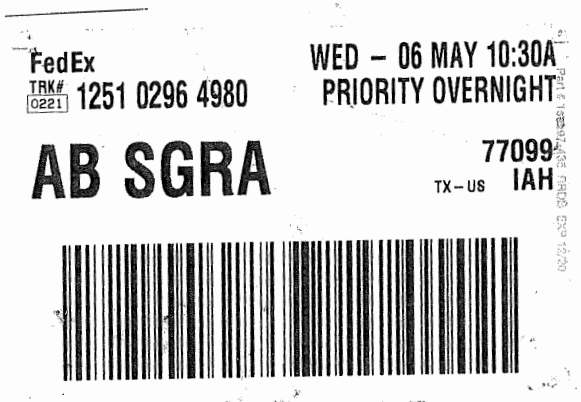
Remarks:

vlc. 3.1° #DS clf 0.0°

45836.


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887


CUSTODY SEAL
Seal Broken By
Date: 5/5/20
Time: 1430
Name: SCOTT BEESINGER
Company: BHMTG
Date:
5/6/2020


FedEx
TRK# 0221 1251 0296 4980
WED – 06 MAY 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US IAH

01042028

CHAIN OF CUSTODY

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

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

Project No. 501032

Job: 04LHAAP_Performance Monitoring 05_20ALS

Prepared By: Scott Beesinger

P.O. Number

HS20050182
Aptim Environmental & Infrastucture, Inc.
04LHAAP_Performance Monitoring 05_20ALS

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	TOC by SM5310	Alkalinity by SM2320B	Anions (nitrate, nitrite, sulfate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
04WW02-200504	WG	5/4/20/0735		1	X					
04WW06-200504	WG	5/4/20/0825		1	X					
04WW06-~~200504~~ 200504-MS	WG	5/4/20/0825		1	X					
04WW06-~~200504~~ 200504-MSD	WG	5/4/20/0825		1	X					
LHSMW02-200504	WG	5/4/20/0910		1	X					
LHSMW02-200504-FD	WG	5/4/20/0910		1	X					
04WW11-200504	WG	5/4/20/1000		1	X					
04WW04-200504	WG	5/4/20/1045		1	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	5/5/20	1430							AC	5/6/2020	09:00

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

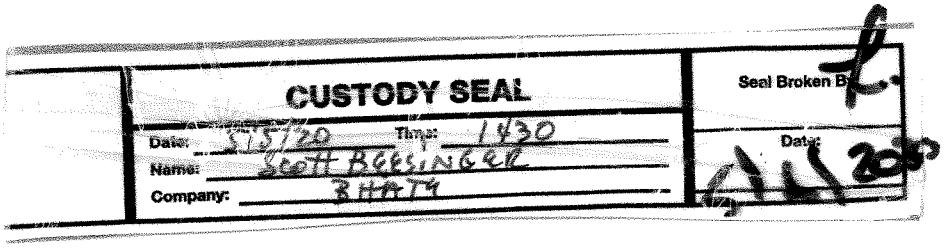
Remarks:

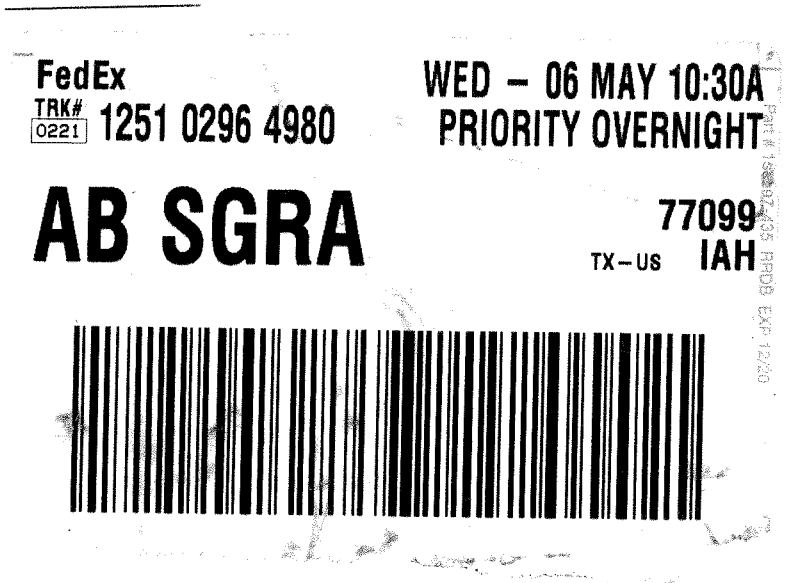
C/C 3.1 IR#25 CT0.0

45836

01042029

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887


CUSTODY SEAL
Date: 5/5/20
Time: 1430
Name: SCOTT BOESINGER
Company: BHATA
Seal Broken By
Date:


FedEx
TRK# 0221 1251 0296 4980
WED – 06 MAY 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX – US IAH

May 20, 2020 Service Request No:E2000406

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

Laboratory Results for: HS20050183

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 06, 2020
For your reference, these analyses have been assigned our service request number **E2000406.**

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.:**	E2000406
Project:	HS20050183	**Date Received:**	05/06/20
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

Three samples were received for analysis at ALS Environmental in Houston on 05/06/20.

The samples were received in good condition and is 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:

EQ2000173: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. MS/MSD 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:**E2000406
Project: HS20050183

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000406-001	04WW08-200504	5/4/2020	1135
E2000406-002	LHSMW01-200504	5/4/2020	1220
E2000406-003	04WW01-200504	5/4/2020	1310

Service Request Summary

Folder #: **E2000406**
Client Name: ALS Environmental - US
Project Name: HS20050183
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: 05/06/20
Internal Due Date: 5/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20050183
EDD: No EDD Specified

3 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3B
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000406-001	04WW08-200504	Ground Water	05/04/20 1135	**IV**
E2000406-002	LHSMW01-200504	Ground Water	05/04/20 1220	**IV**
E2000406-003	04WW01-200504	Ground Water	05/04/20 1310	**IV**

Service Request Summary

Folder #: **E2000406**
Client Name: ALS Environmental - US
Project Name: HS20050183
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: 05/06/20
Internal Due Date: 5/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20050183
EDD: No EDD Specified

3 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3B
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
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.
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.
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.

Data Qualifiers

Lab Standard

S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2020
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611	6/30/2020
Hawaii Department of Health	2020	4/30/2021
Kansas Department of Health and Environment	E-10352	7/31/2020
Louisiana Department of Environmental Quality	03087	6/30/2020
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Center for Disease Control and Prevention	201815	6/5/2020
Maryland Department of the Environment	343	6/30/2020
Minnesota Department of Health	1785988	12/31/2020
Nevada Department of Concervation and Natural Resources	TX026932019-1	7/31/2020
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	NLC190001	6/30/2020
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2019-067	8/31/2020
Pennsylvania Department of Environmental Protection	68-03441-013	6/30/2020
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
Utah Department of Health Environmental Laboratory Certification	TX026932019-9	7/31/2020
Washington Department of Health	C819	11/14/2020
West Virginia Department of Environmental Protection	347	6/30/2020

Chain of Custody

ALS Environmental - Houston HRMS
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E2000406 5
ALS Laboratory Group
HS20050183

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13864**

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:	HS20050183
TSR:	Sonia West

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS20050183-01**	**04WW08-200504**	**Groundwater**	**04 May 2020 11:35**
	SUB_Perch-6850			14 May 2020
2.	**HS20050183-02**	**LHSMW01-200504**	**Groundwater**	**04 May 2020 12:20**
	SUB_Perch-6850			14 May 2020
3.	**HS20050183-03**	**04WW01-200504**	**Groundwater**	**04 May 2020 13:10**
	SUB_Perch-6850			14 May 2020

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. [illegible] Date/Time: 5/6/20 14:40

Received By: COURIER Date/Time: 5/6/20 14:40

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist CH

Client/Project ALS-H

Thermometer ID SMOM / IR 11

Date/Time Received: 5/6/20 Initials: CH Date/Time Logged in: 5/6/20 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?
-		5/6/20	1440	CH	1.5	☒
						☐
						☐
						☐

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: E2000406 5

ALS Laboratory Group
HS20050183

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
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 358306 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/KBROWN **Prep Method:** Method **Prep Date/Time:** 5/12/20 09:34

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000382-001	LH18/24-SP650_042820_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2000404-001	04WW02-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2000404-002	04WW06-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2000404-003	LHSMW02-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2000404-004	LHSMW02-200504-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2000404-005	04WW11-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2000404-006	04WW04-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2000405-001	04WW05-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2000405-002	04WW09-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2000405-003	04WW10-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2000405-004	04WW10-200505-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2000405-005	04WW07-200505	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2000406-001	04WW08-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2000406-002	LHSMW01-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2000406-003	04WW01-200504	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2000407-001	LH18/24-SP650_050520_BIX	.01	6850/ClO4 DOD			Water	10mL	
17	E2000408-001	LH18/24-SP140_050520	.01	6850/ClO4 DOD			Water	10mL	
18	E2000409-001	LH18/24-SP650_050520_BIX	.01	6850/ClO4 DOD			Water	10mL	
19	EQ2000173-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2000173-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2000173-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2000173-04	04WW06-200504 MS	.01	6850/ClO4 DOD			Liquid	10mL	
23	EQ2000173-05	04WW06-200504 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

E2000382-001	100.00µL	E2000404-001	100.00µL	E2000404-002	100.00µL	E2000404-003	100.00µL	E2000404-004	100.00µL	E2000404-005	100.00µL
E2000404-006	100.00µL	E2000405-001	100.00µL	E2000405-002	100.00µL	E2000405-003	100.00µL	E2000405-004	100.00µL	E2000405-005	100.00µL
E2000406-001	100.00µL	E2000406-002	100.00µL	E2000406-003	100.00µL	E2000407-001	100.00µL	E2000408-001	100.00µL	E2000409-001	100.00µL
EQ2000173-01	100.00µL	EQ2000173-02	100.00µL	EQ2000173-03	100.00µL	EQ2000173-04	100.00µL	EQ2000173-05	100.00µL		

Name: Perchlorate Intermediate Stock1 Inventory ID 204799 Logbook Ref: 200657 1.0ug/mL KN Expires On: 05/15/2020

EQ2000173-02	1.00µL	EQ2000173-03	1.00µL	EQ2000173-04	1.00µL	EQ2000173-05	1.00µL

Preparation Information Benchsheet

Prep Run#: 358306
Team: Semivoa GCMS/KBROWN

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/12/20 09:34

Preparation Steps

Step: Preparation
Started: 5/12/20 09:34
Finished: 5/12/20 12:00
By: KBROWN
Comments

Comments: _____

Reviewed By: GR Date: 5/12/2020

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:**	E2000406
Project:	HS20050183	**Date Collected:**	5/ 4/20 1135
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW08-200504	**Units:**	µg/L
Lab Code:	E2000406-001	**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	**9.29**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 15:20	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Collected:**	5/ 4/20 1220
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	LHSMW01-200504	**Units:**	µg/L
Lab Code:	E2000406-002	**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	ND	U	0.100	0.0500	0.0250	1	5/12/20	5/12/20 15:28	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Collected:**	5/ 4/20 1310
Sample Matrix:	Ground Water	**Date Received:**	5/ 6/20
Sample Name:	04WW01-200504	**Units:**	µg/L
Lab Code:	E2000406-003	**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	5/12/20	5/12/20 15:36	358306	680007	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000173-01	**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	5/12/20	5/12/20 12:50	358306	679868	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20
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:	358306

	Lab Control Sample EQ2000173-02			Duplicate Lab Control Sample EQ2000173-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.105	0.100	105	0.107	0.100	107	84 - 119	2	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:**	E2000406
Project:	HS20050183	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000173-02	**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	**0.105**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 12:58	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000173-03	**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	5/12/20	5/12/20 13:06	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	5/12/20 - 5/13/20

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:	E2000404-002	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ2000173-04			Batch QCDMS **Duplicate Matrix Spike** EQ2000173-05						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**		**RPD Limit**
Perchlorate	ND	0.111	0.100	111	0.0929	0.100	93	84 - 119	18	*	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:**	E2000406
Project:	HS20050183	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000173-04	**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	**0.111**		0.100	0.0500	0.0250	1	5/12/20	5/12/20 13:21	358306	679868	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000173-05	**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	**0.0929**	J	0.100	0.0500	0.0250	1	5/12/20	5/13/20 14:12	358306	680124	

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20200420

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

	Sample Name		File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200420_001	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:01
	null		20200420_002	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:06
	DIBLK		20200420_003	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:11
	IB		20200420_004	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:19
	PERCHLORATE7		20200420_005	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 13:27
	LODV		20200420_006	Perchlorate6850b.lcm	1x	☒		4/20/2020 13:35
	PERCHLORATE1		20200420_007	Perchlorate6850b.lcm	1x	☒	3100804-05	4/20/2020 13:43
	PERCHLORATE2		20200420_008	Perchlorate6850b.lcm	1x	☒	3100804-06	4/20/2020 13:51
	PERCHLORATE3		20200420_009	Perchlorate6850b.lcm	1x	☒	3100804-07	4/20/2020 13:58
	PERCHLORATE4		20200420_010	Perchlorate6850b.lcm	1x	☒	3100804-08	4/20/2020 14:06
	PERCHLORATE5		20200420_011	Perchlorate6850b.lcm	1x	☒	3100804-09	4/20/2020 14:14
	PERCHLORATE6		20200420_012	Perchlorate6850b.lcm	1x	☒	3100805-01	4/20/2020 14:22
	PERCHLORATE8		20200420_013	Perchlorate6850b.lcm	1x	☒	3100805-03	4/20/2020 14:30
	PERCHLORATE9		20200420_014	Perchlorate6850b.lcm	1x	☒	3100805-04	4/20/2020 14:38
	PERCHLORATE10		20200420_015	Perchlorate6850b.lcm	1x	☒	3100805-05	4/20/2020 14:46
	ICV		20200420_016	Perchlorate6850b.lcm	1x	☒	3100805-06	4/20/2020 14:54
	LODV		20200420_017	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:02
	EQ2000143-01		20200420_018	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:10
	EQ2000143-02		20200420_019	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:18
	EQ2000143-03		20200420_020	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:26
	E2000275-001		20200420_021	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:33
	E2000275-002		20200420_022	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:41
	E2000275-003		20200420_023	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:49
	E2000287-001		20200420_024	Perchlorate6850b.lcm	1x	☒		4/20/2020 15:57
	E2000303-001		20200420_025	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:05
	E2000304-001		20200420_026	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:13
	E2000305-001		20200420_027	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:21
	PERCHLORATE7		20200420_028	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 16:29
	E2000303-001		20200420_029	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:47
	E2000304-001		20200420_030	Perchlorate6850b.lcm	1x	☒		4/20/2020 16:55
	PERCHLORATE7		20200420_031	Perchlorate6850b.lcm	1x	☒	3100805-02	4/20/2020 17:02

Initial Calibration - Detailed Report

Calibration ID: EC2000003 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
08	EC2000003-08	PERCHLORATE7	20200420_005	04/20/2020 13:27
01	EC2000003-01	PERCHLORATE1	20200420_007	04/20/2020 13:43
02	EC2000003-02	PERCHLORATE2	20200420_008	04/20/2020 13:51
03	EC2000003-03	PERCHLORATE3	20200420_009	04/20/2020 13:58
04	EC2000003-04	PERCHLORATE4	20200420_010	04/20/2020 14:06
05	EC2000003-05	PERCHLORATE5	20200420_011	04/20/2020 14:14
06	EC2000003-06	PERCHLORATE6	20200420_012	04/20/2020 14:22
07	EC2000003-07	PERCHLORATE8	20200420_013	04/20/2020 14:30
09	EC2000003-09	PERCHLORATE9	20200420_014	04/20/2020 14:38
10	EC2000003-10	PERCHLORATE10	20200420_015	04/20/2020 14:46

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

Perchlorate **Average RF** **RSD = 8.066** **Average RF = 0.1368**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1558	02	0.5000	0.1297	03	0.7000	0.1277	04	1.0000	0.1397
05	2.0000	0.1298	06	5.0000	0.1245	07	20.0000	0.1341	08	10.0000	0.1562
09	30.0000	0.1365	10	50.0000	0.1345						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.114	13.9	02	0.5000	0.474	-5.2	03	0.7000	0.653	-6.7
04	1.0000	1.02	2.1	05	2.0000	1.90	-5.1	06	5.0000	4.55	-9.0
07	20.0000	19.6	-2.0	08	10.0000	11.4	14.2	09	30.0000	29.9	-0.2
10	50.0000	49.1	-1.7								

Initial Calibration Verification Summary Report

Calibration ID:	EC2000003	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200420_016	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000003-11	T	Average RF	10	11.345	ng/mL	13.4	<= 15

ALS Group Houston

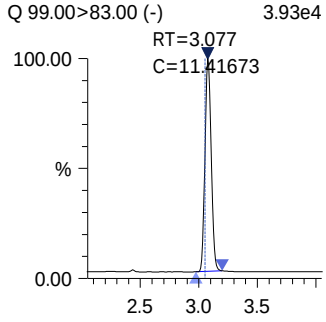
PERCHLORATE7

Date acquired: 4/20/2020 1:27:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_005.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	4/20/2020 1:27:21 PM	144494	11.41673	20200420_005	3.077	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	4/20/2020 1:27:21 PM	92497	1.00000	20200420_005	3.076	25.0000	1.0000	3

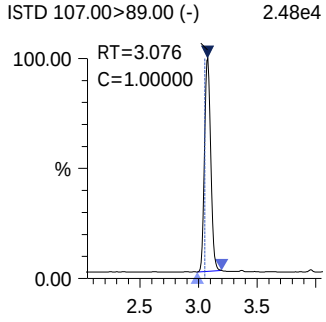
Perchlorate

Conc 11.41673
Area 144494



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 92497



ALS Group Houston

PERCHLORATE1

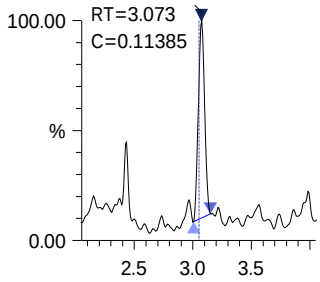
Date acquired: 4/20/2020 1:43:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_007.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	4/20/2020 1:43:09 PM	1840	0.11385	20200420_007	3.073	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	4/20/2020 1:43:09 PM	118078	1.00000	20200420_007	3.073	25.0000	1.0000	5

Perchlorate

Conc 0.11385
Area 1840

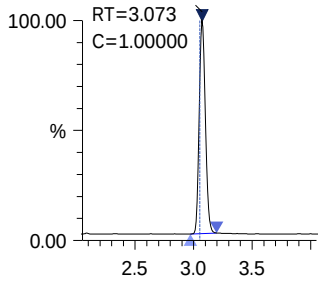
Q 99.00>83.00 (-) 5.37e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 118078

ISTD 107.00>89.00 (-) 3.18e4



ALS Group Houston

PERCHLORATE2

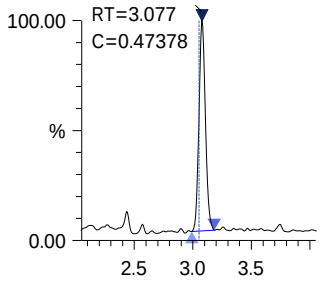
Date acquired: 4/20/2020 1:51:02 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_008.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	4/20/2020 1:51:02 PM	7551	0.47378	20200420_008	3.077	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	4/20/2020 1:51:02 PM	116479	1.00000	20200420_008	3.075	25.0000	1.0000	6

Perchlorate

Conc 0.47378
Area 7551

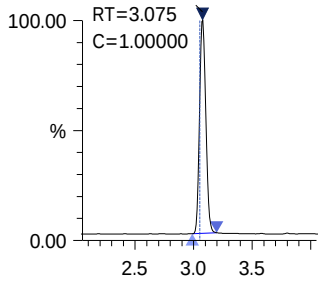
Q 99.00>83.00 (-) 2.00e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 116479

ISTD 107.00>89.00 (-) 3.08e4



ALS Group Houston

PERCHLORATE3

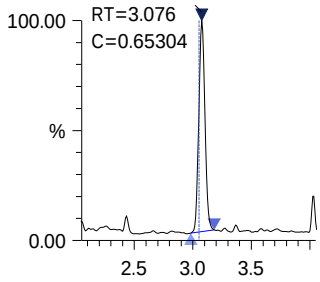
Date acquired: 4/20/2020 1:58:56 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_009.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	4/20/2020 1:58:56 PM	11235	0.65304	20200420_009	3.076	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	4/20/2020 1:58:56 PM	125731	1.00000	20200420_009	3.073	25.0000	1.0000	7

Perchlorate

Conc 0.65304
Area 11235

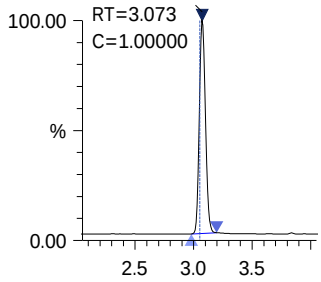
Q 99.00>83.00 (-) 3.12e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 125731

ISTD 107.00>89.00 (-) 3.41e4



ALS Group Houston

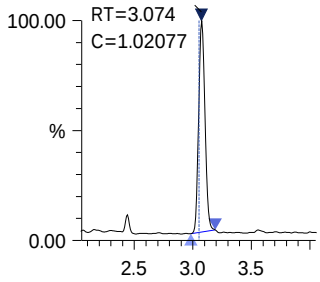
PERCHLORATE4

Date acquired: 4/20/2020 2:06:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_010.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	4/20/2020 2:06:51 PM	16670	1.02077	20200420_010	3.074	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	4/20/2020 2:06:51 PM	119354	1.00000	20200420_010	3.074	25.0000	1.0000	8

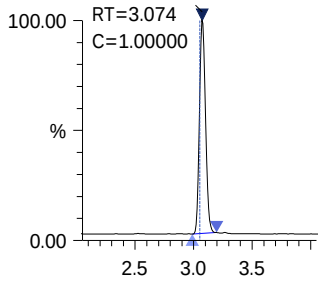
Perchlorate

Conc 1.02077
Area 16670
Q 99.00>83.00 (-) 4.51e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 119354
ISTD 107.00>89.00 (-) 3.26e4



ALS Group Houston

PERCHLORATE5

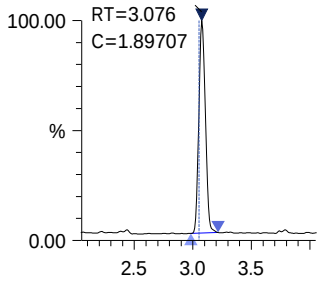
Date acquired: 4/20/2020 2:14:45 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_011.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	4/20/2020 2:14:45 PM	33786	1.89707	20200420_011	3.076	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	4/20/2020 2:14:45 PM	130159	1.00000	20200420_011	3.075	25.0000	1.0000	9

Perchlorate

Conc 1.89707
Area 33786

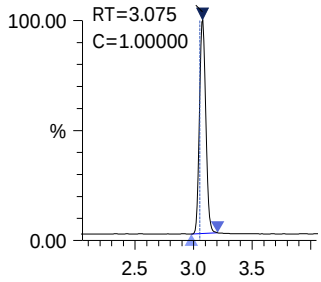
Q 99.00>83.00 (-) 8.73e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 130159

ISTD 107.00>89.00 (-) 3.41e4



ALS Group Houston

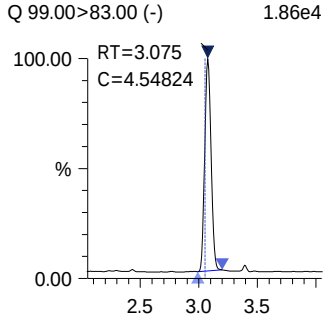
PERCHLORATE6

Date acquired: 4/20/2020 2:22:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_012.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	4/20/2020 2:22:39 PM	69848	4.54824	20200420_012	3.075	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	4/20/2020 2:22:39 PM	112235	1.00000	20200420_012	3.074	25.0000	1.0000	10

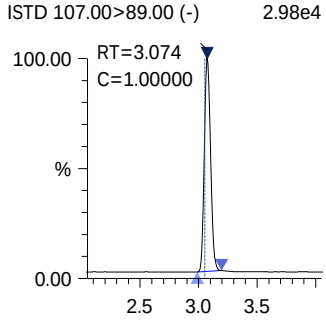
Perchlorate

Conc 4.54824
Area 69848



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 112235



ALS Group Houston

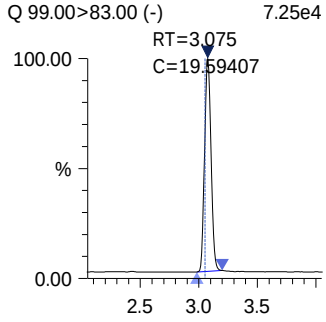
PERCHLORATE8

Date acquired: 4/20/2020 2:30:36 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_013.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	4/20/2020 2:30:36 PM	275854	19.59407	20200420_013	3.075	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	4/20/2020 2:30:36 PM	102890	1.00000	20200420_013	3.072	25.0000	1.0000	11

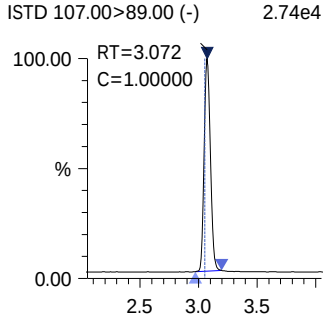
Perchlorate

Conc 19.59407
Area 275854



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 102890



ALS Group Houston

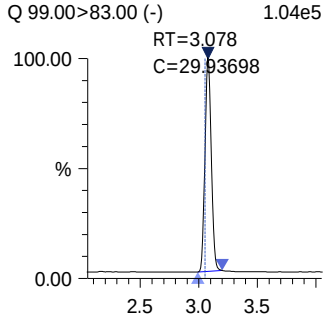
PERCHLORATE9

Date acquired: 4/20/2020 2:38:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_014.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	4/20/2020 2:38:33 PM	390068	29.93698	20200420_014	3.078	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	4/20/2020 2:38:33 PM	95225	1.00000	20200420_014	3.075	25.0000	1.0000	12

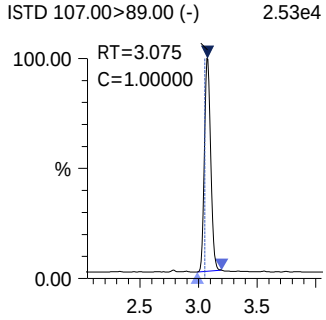
Perchlorate

Conc 29.93698
Area 390068



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 95225



ALS Group Houston

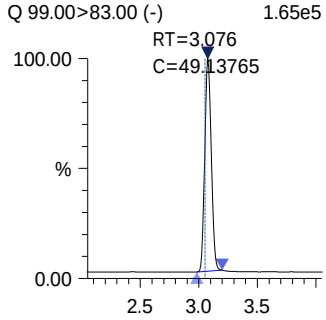
PERCHLORATE10

Date acquired: 4/20/2020 2:46:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_015.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	4/20/2020 2:46:25 PM	632804	49.13765	20200420_015	3.076	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	4/20/2020 2:46:25 PM	94118	1.00000	20200420_015	3.075	25.0000	1.0000	13

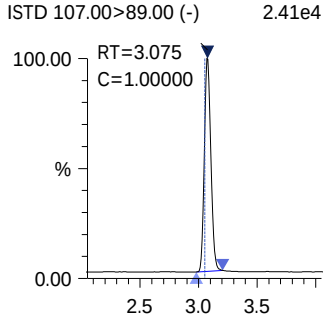
Perchlorate

Conc 49.13765
Area 632804



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 94118



ALS Group Houston

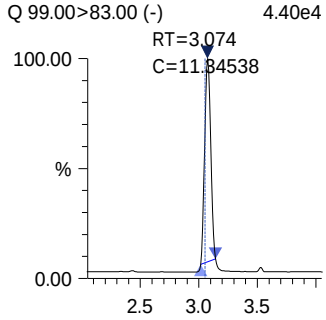
PERCHLORATEICV

Date acquired: 4/20/2020 2:54:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200420\20200420_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	4/20/2020 2:54:20 PM	149807	11.34538	20200420_016	3.074	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	4/20/2020 2:54:20 PM	96501	1.00000	20200420_016	3.072	25.0000	1.0000	14

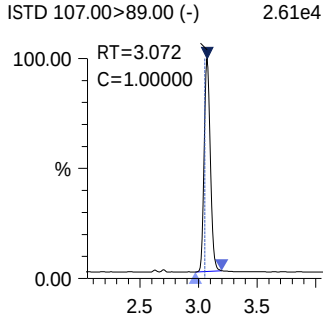
Perchlorate

Conc 11.34538
Area 149807



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 96501



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

20200512

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200512_001	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:09
	null		20200512_002	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:14
	IB		20200512_003	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:19
	PERCHLORATE7		20200512_004	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 12:27
	LODV		20200512_005	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:35
	EQ2000173-01		20200512_006	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:50
	EQ2000173-02		20200512_007	Perchlorate6850b.lcm	1x	☒		5/12/2020 12:58
	EQ2000173-03		20200512_008	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:06
	E2000404-002		20200512_009	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:13
	EQ2000173-04		20200512_010	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:21
	EQ2000173-05		20200512_011	Perchlorate6850b.lcm	1x	☒	do not use	5/12/2020 13:29
	E2000382-001		20200512_012	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:37
	PERCHLORATE7		20200512_013	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 13:45
	E2000404-001		20200512_014	Perchlorate6850b.lcm	1x	☒		5/12/2020 13:53
	E2000404-003		20200512_015	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:01
	E2000404-004		20200512_016	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:09
	E2000404-005		20200512_017	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:17
	E2000404-006		20200512_018	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:25
	E2000405-001		20200512_019	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:32
	E2000405-002		20200512_020	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:40
	E2000405-003		20200512_021	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:48
	E2000405-004		20200512_022	Perchlorate6850b.lcm	1x	☒		5/12/2020 14:56
	E2000405-005		20200512_023	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:04
	PERCHLORATE7		20200512_024	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 15:12
	E2000406-001		20200512_025	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:20
	E2000406-002		20200512_26	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:28
	E2000406-003		20200512_027	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:36
	E2000407-001		20200512_028	Perchlorate6850b.lcm	1x	☒		5/12/2020 15:44
	E2000408-001		20200512_029	Perchlorate6850b.lcm	1x	☒	dilution	5/12/2020 15:51
	E2000409-001		20200512_030	Perchlorate6850b.lcm	1x	☒	RR-poss carry-over	5/12/2020 15:59
	EQ2000173-05		20200512_031	Perchlorate6850b.lcm	1x	☒	do not use	5/12/2020 16:07
	PERCHLORATE7		20200512_032	Perchlorate6850b.lcm	1x	☒	3100805-02	5/12/2020 16:15

20200513

1st Review: Kneir
2nd Review: Hvan

ALS Environmental
LCMS01 -Shimadzu 8050

ICAL Date: 4/20/2020
Cal. Std. xp: 5/14/2020
ICAL ID: **EC2000003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100803-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
	null		20200513_001	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:40
	null		20200513_002	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:45
	IB		20200513_003	Perchlorate6850b.lcm	1x	☒		5/13/2020 11:50
	PERCHLORATE7		20200513_004	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 11:58
	LODV		20200513_005	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:06
	EQ2000179-01		20200513_006	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:14
	EQ2000179-02		20200513_007	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:22
	EQ2000179-03		20200513_008	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:29
	EQ2000179-04		20200513_009	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:37
	EQ2000179-05		20200513_010	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:45
	E2000410-001		20200513_011	Perchlorate6850b.lcm	1x	☒		5/13/2020 12:53
	E2000410-002		20200513_012	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:01
	E2000410-003		20200513_013	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:09
	E2000410-004		20200513_014	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:17
	E2000410-005		20200513_015	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:25
	PERCHLORATE7		20200513_016	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 13:33
	E2000410-006		20200513_017	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:41
	E2000410-007		20200513_018	Perchlorate6850b.lcm	1x	☒		5/13/2020 13:49
	E2000408-001X200		20200513_019	Perchlorate6850b.lcm	200x	☒		5/13/2020 13:56
	PERCHLORATE7		20200513_020	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 14:04
	EQ2000173-05		20200513_021	Perchlorate6850b.lcm	1x	☒		5/13/2020 14:12
	E2000409-001		20200513_022	Perchlorate6850b.lcm	1x	☒		5/13/2020 14:20
	PERCHLORATE7		20200513_023	Perchlorate6850b.lcm	1x	☒	3100805-02	5/13/2020 14:28

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050183

Service Request: E2000406
Date Analyzed: 5/12/20

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\20200512\20200512_004

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 679868
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.9	0.1368	0.1485	8.5	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050183

Service Request: E2000406
Date Analyzed: 5/12/20

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\20200512\20200512_013

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 679868
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1502	9.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Calibration ID:**	EC2000003
		Analysis Lot:	680007
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1502	9.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050183

Service Request: E2000406
Date Analyzed: 5/12/20

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\20200512\20200512_024

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680007
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1505	10.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050183

Service Request: E2000406
Date Analyzed: 5/12/20

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\20200512\20200512_032

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680007
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.0	0.1368	0.1511	10.4	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20050183

Service Request: E2000406
Date Analyzed: 5/13/20

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\20200513\20200513_004

Calibration Date: 4/20/20
Calibration ID: EC2000003
Analysis Lot: 680124
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1368	0.1520	11.1	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_016	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.3	0.1368	0.1546	13.0	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_020	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.7	0.1368	0.1461	6.8	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20

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

Analytical Method:	6850	**Calibration Date:**	4/20/20
File ID:	I:\LCMS01\DATA\20200513\20200513_023	**Calibration ID:**	EC2000003
		Analysis Lot:	680124
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1368	0.1523	11.3	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20 12:27

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

File ID:	I:\LCMS01\DATA\20200512\20200512_004	**Lab Code:**	EQ2000176-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	679868
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000176-01	77,004	3.01
Method Blank	EQ2000173-01	95,026	2.94
Lab Control Sample	EQ2000173-02	108,592	3.00
Duplicate Lab Control Sample	EQ2000173-03	109,300	3.00
Batch QC	E2000404-002	104,595	2.99
Batch QCMS	EQ2000173-04	114,639	2.99

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20 13:45

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

File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Lab Code:**	EQ2000176-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	679868
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000176-02	99,187	2.99

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20 13:45

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

File ID:	I:\LCMS01\DATA\20200512\20200512_013	**Lab Code:**	EQ2000180-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-01	99,187	2.99

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20 15:12

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

File ID:	I:\LCMS01\DATA\20200512\20200512_024	**Lab Code:**	EQ2000180-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-02	103,620	2.99
04WW08-200504	E2000406-001	139,333	2.97
LHSMW01-200504	E2000406-002	163,249	2.97
04WW01-200504	E2000406-003	99,839	2.97

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/12/20 16:15

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

File ID:	I:\LCMS01\DATA\20200512\20200512_032	**Lab Code:**	EQ2000180-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680007
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000180-03	111,449	2.99

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20 11:58

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20200513\20200513_004	**Lab Code:**	EQ2000186-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-01	106,329	3.00

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20 13:33

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

File ID:	I:\LCMS01\DATA\20200513\20200513_016	**Lab Code:**	EQ2000186-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-02	116,942	3.00

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20 14:04

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

File ID:	I:\LCMS01\DATA\20200513\20200513_020	**Lab Code:**	EQ2000186-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-03	120,816	3.00
Batch QCDMS	EQ2000173-05	141,444	2.98

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:**	E2000406
Project:	HS20050183	**Date Analyzed:**	5/13/20 14:28

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20200513\20200513_023	**Lab Code:**	EQ2000186-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	680124
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	110,677	3.07
	Upper Limit ==>	166,016	5.07
	Lower Limit ==>	55,339	1.07
Associated Analyses			
Continuing Calibration Verification	EQ2000186-04	117,011	2.99

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

ALS Group Houston

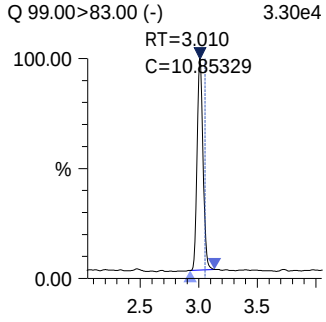
PERCHLORATE7

Date acquired: 5/12/2020 12:27:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_004.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 12:27:44 PM	114355	10.85329	20200512_004	3.010	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 12:27:44 PM	77004	1.00000	20200512_004	3.008	25.0000	1.0000	3

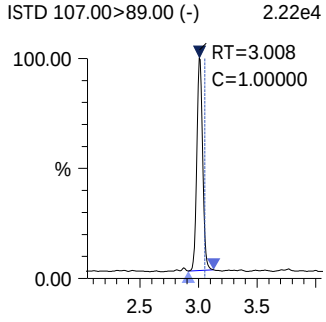
Perchlorate

Conc 10.85329
Area 114355



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 77004



ALS Group Houston

EQ2000173-01

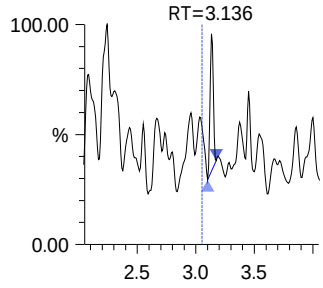
Date acquired: 5/12/2020 12:50:12 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_006.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-01	5/12/2020 12:50:12 PM	----	----	20200512_006	----	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	EQ2000173-01	5/12/2020 12:50:12 PM	95026	1.00000	20200512_006	2.942	25.0000	1.0000	5

Perchlorate

Conc ----
Area ----

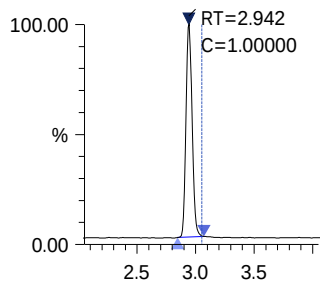
Q 99.00>83.00 (-) 3.00e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 95026

ISTD 107.00>89.00 (-) 2.66e4



ALS Group Houston

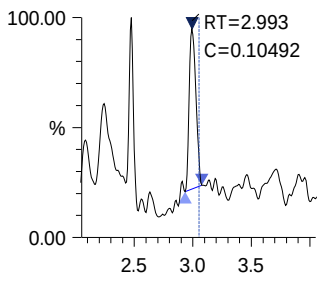
EQ2000173-02

Date acquired: 5/12/2020 12:58:07 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_007.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	EQ2000173-02	5/12/2020 12:58:07 PM	1559	0.10492	20200512_007	2.993	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	EQ2000173-02	5/12/2020 12:58:07 PM	108592	1.00000	20200512_007	3.004	25.0000	1.0000	6

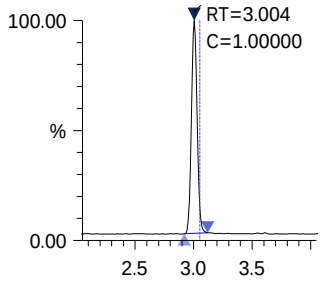
Perchlorate

Conc 0.10492
Area 1559
Q 99.00>83.00 (-) 5.16e2



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 108592
ISTD 107.00>89.00 (-) 3.19e4



ALS Group Houston

EQ2000173-03

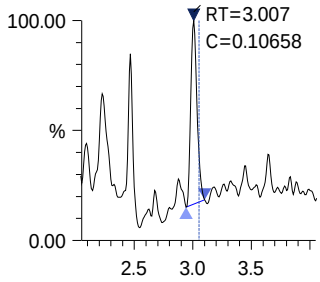
Date acquired: 5/12/2020 1:06:00 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_008.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-03	5/12/2020 1:06:00 PM	1594	0.10658	20200512_008	3.007	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	EQ2000173-03	5/12/2020 1:06:00 PM	109300	1.00000	20200512_008	3.004	25.0000	1.0000	7

Perchlorate

Conc 0.10658
Area 1594

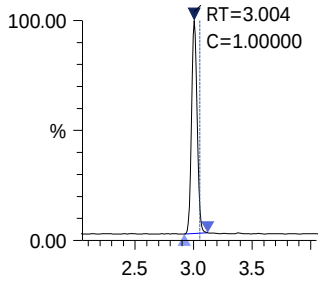
Q 99.00>83.00 (-) 4.99e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 109300

ISTD 107.00>89.00 (-) 3.26e4



ALS Group Houston

EQ2000173-04

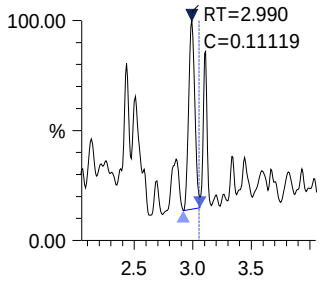
Date acquired: 5/12/2020 1:21:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_010.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-04	5/12/2020 1:21:48 PM	1744	0.11119	20200512_010	2.990	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	EQ2000173-04	5/12/2020 1:21:48 PM	114639	1.00000	20200512_010	2.990	25.0000	1.0000	9

Perchlorate

Conc 0.11119
Area 1744

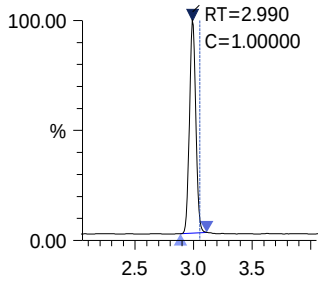
Q 99.00>83.00 (-) 5.32e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 114639

ISTD 107.00>89.00 (-) 3.06e4



ALS Group Houston

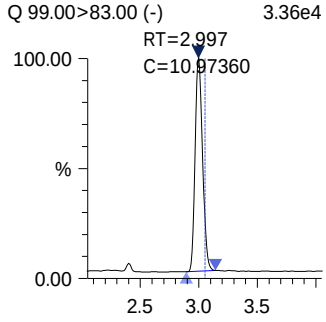
PERCHLORATE7

Date acquired: 5/12/2020 1:45:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_013.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 1:45:33 PM	148931	10.97360	20200512_013	2.997	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 1:45:33 PM	99187	1.00000	20200512_013	2.994	25.0000	1.0000	3

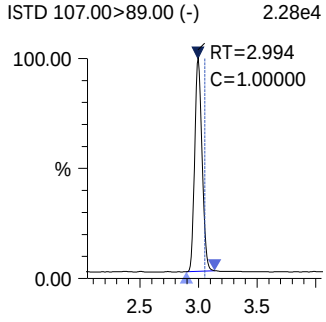
Perchlorate

Conc 10.97360
Area 148931



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 99187



ALS Group Houston

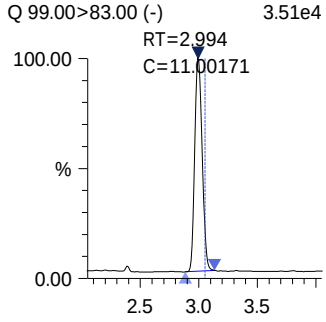
PERCHLORATE7

Date acquired: 5/12/2020 3:12:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_024.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 3:12:25 PM	155986	11.00171	20200512_024	2.994	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 3:12:25 PM	103620	1.00000	20200512_024	2.994	25.0000	1.0000	3

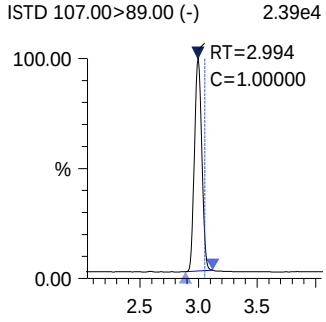
Perchlorate

Conc 11.00171
Area 155986



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 103620



ALS Group Houston

E2000406-001

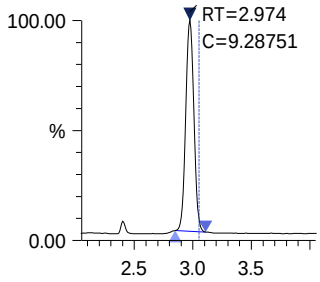
Date acquired: 5/12/2020 3:20:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_025.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000406-001	5/12/2020 3:20:17 PM	177066	9.28751	20200512_025	2.974	25.0000	1.0000	22
Sodium Perchlorate-18O4_IS	E2000406-001	5/12/2020 3:20:17 PM	139333	1.00000	20200512_025	2.974	25.0000	1.0000	22

Perchlorate

Conc 9.28751
Area 177066

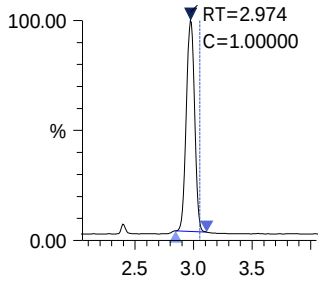
Q 99.00>83.00 (-) 3.65e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 139333

ISTD 107.00>89.00 (-) 2.88e4



ALS Group Houston

E2000406-002

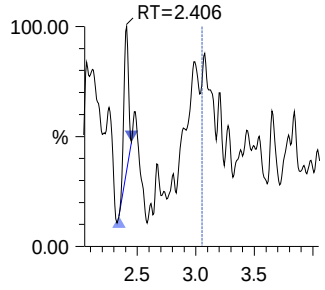
Date acquired: 5/12/2020 3:28:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_026.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000406-002	5/12/2020 3:28:09 PM	----	----	20200512_026	----	25.0000	1.0000	23
Sodium Perchlorate-18O4_IS	E2000406-002	5/12/2020 3:28:09 PM	163249	1.00000	20200512_026	2.970	25.0000	1.0000	23

Perchlorate

Conc ----
Area ----

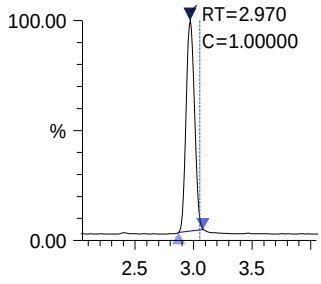
Q 99.00>83.00 (-) 3.03e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 163249

ISTD 107.00>89.00 (-) 3.36e4



ALS Group Houston

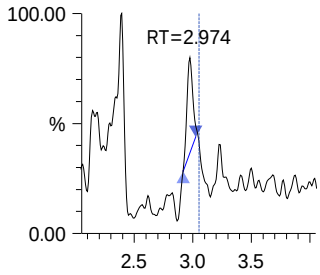
E2000406-003

Date acquired: 5/12/2020 3:36:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_027.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	E2000406-003	5/12/2020 3:36:06 PM	----	----	20200512_027	----	25.0000	1.0000	24
Sodium Perchlorate-18O4_IS	E2000406-003	5/12/2020 3:36:06 PM	99839	1.00000	20200512_027	2.973	25.0000	1.0000	24

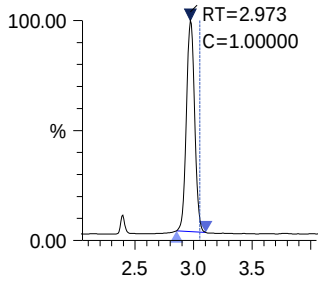
Perchlorate

Conc ----
Area ----
Q 99.00>83.00 (-) 4.49e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 99839
ISTD 107.00>89.00 (-) 2.09e4



ALS Group Houston

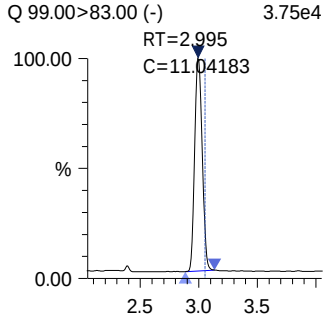
PERCHLORATE7

Date acquired: 5/12/2020 4:15:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200512\20200512_032.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/12/2020 4:15:37 PM	168384	11.04183	20200512_032	2.995	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/12/2020 4:15:37 PM	111449	1.00000	20200512_032	2.993	25.0000	1.0000	3

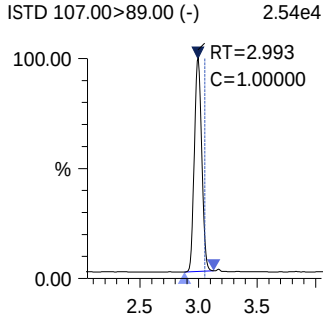
Perchlorate

Conc 11.04183
Area 168384



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 111449



ALS Group Houston

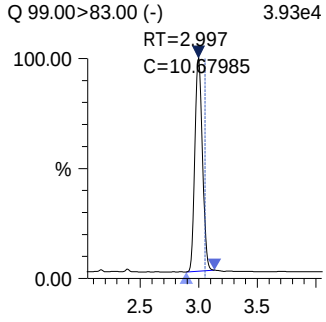
PERCHLORATE7

Date acquired: 5/13/2020 2:04:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_020.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/13/2020 2:04:49 PM	176552	10.67985	20200513_020	2.997	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/13/2020 2:04:49 PM	120816	1.00000	20200513_020	2.995	25.0000	1.0000	3

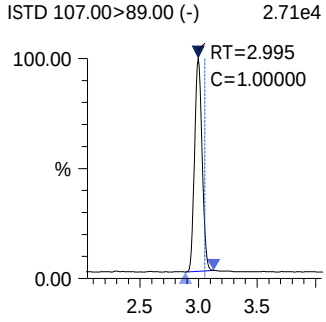
Perchlorate

Conc 10.67985
Area 176552



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 120816



ALS Group Houston

EQ2000173-05

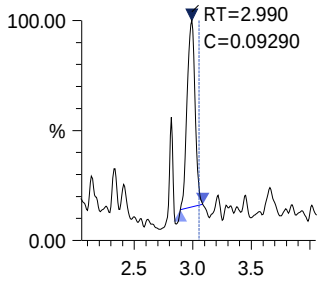
Date acquired: 5/13/2020 2:12:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_021.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000173-05	5/13/2020 2:12:40 PM	1798	0.09290	20200513_021	2.990	25.0000	1.0000	18
Sodium Perchlorate-18O4_IS	EQ2000173-05	5/13/2020 2:12:40 PM	141444	1.00000	20200513_021	2.980	25.0000	1.0000	18

Perchlorate

Conc 0.09290
Area 1798

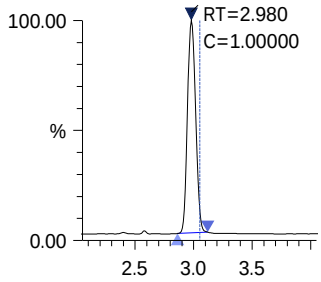
Q 99.00>83.00 (-) 4.31e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 141444

ISTD 107.00>89.00 (-) 2.95e4



ALS Group Houston

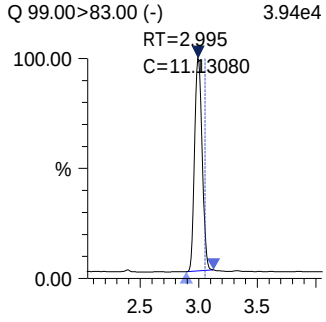
PERCHLORATE7

Date acquired: 5/13/2020 2:28:31 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200513\20200513_023.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	5/13/2020 2:28:31 PM	178211	11.13080	20200513_023	2.995	25.0000	1.0000	3
Sodium Perchlorate-18O4_IS	PERCHLORATE7	5/13/2020 2:28:31 PM	117011	1.00000	20200513_023	2.992	25.0000	1.0000	3

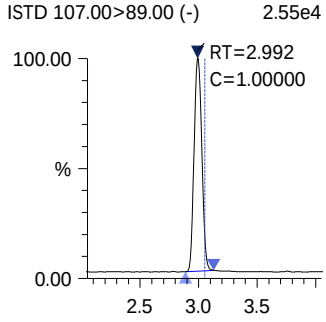
Perchlorate

Conc 11.13080
Area 178211



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 117011



10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

August 31, 2020

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

Work Order: **HS20080476**

Laboratory Results for: **Longhorn Army Ammunition Plant 04**

Dear Susan Huang,

ALS Environmental received 14 sample(s) on Aug 12, 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: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Work Order: HS20080476

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20080476-01	LHSMW01-200810	Groundwater		10-Aug-2020 07:50	12-Aug-2020 10:25	☐
HS20080476-02	04WW04-200810	Groundwater		10-Aug-2020 08:35	12-Aug-2020 10:25	☐
HS20080476-03	04WW08-200810	Groundwater		10-Aug-2020 09:20	12-Aug-2020 10:25	☐
HS20080476-04	04WW08-200810-FD	Groundwater		10-Aug-2020 09:20	12-Aug-2020 10:25	☐
HS20080476-05	04WW02-200810	Groundwater		10-Aug-2020 10:00	12-Aug-2020 10:25	☐
HS20080476-06	04WW06-200810	Groundwater		10-Aug-2020 10:45	12-Aug-2020 10:25	☐
HS20080476-07	LHSMW02-200810	Groundwater		10-Aug-2020 11:30	12-Aug-2020 10:25	☐
HS20080476-08	04WW11-200810	Groundwater		10-Aug-2020 12:15	12-Aug-2020 10:25	☐
HS20080476-09	04WW01-200810	Groundwater		10-Aug-2020 13:00	12-Aug-2020 10:25	☐
HS20080476-10	04WW05-200811	Groundwater		11-Aug-2020 10:25	12-Aug-2020 10:25	☐
HS20080476-11	04WW09-200811	Groundwater		11-Aug-2020 11:15	12-Aug-2020 10:25	☐
HS20080476-12	04WW10-200811	Groundwater		11-Aug-2020 12:00	12-Aug-2020 10:25	☐
HS20080476-13	04WW07-200811	Groundwater		11-Aug-2020 12:50	12-Aug-2020 10:25	☐
HS20080476-14	04WW07-200811-FD	Groundwater		11-Aug-2020 12:50	12-Aug-2020 10:25	☐

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant 04
Work Order: HS20080476

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

WetChemistry by Method SM2320B

Batch ID: R366759

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

WetChemistry by Method SW9056

Batch ID: R366794

Sample ID: 04WW10-200811 (HS20080476-12)

- MS/MSD was reported at 5X in previous batch

Batch ID: R366741

Sample ID: 04WW10-200811 (HS20080476-12MS)

- 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: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: LHSMW01-200810
Collection Date: 10-Aug-2020 07:50

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-01
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW04-200810
Collection Date: 10-Aug-2020 08:35

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-02
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW08-200810
Collection Date: 10-Aug-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-03
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW08-200810-FD
Collection Date: 10-Aug-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-04
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW02-200810
Collection Date: 10-Aug-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-05
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW06-200810
Collection Date: 10-Aug-2020 10:45

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-06
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: LHSMW02-200810
Collection Date: 10-Aug-2020 11:30

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-07
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW11-200810
Collection Date: 10-Aug-2020 12:15

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-08
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW01-200810
Collection Date: 10-Aug-2020 13:00

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-09
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	27-Aug-2020 17:43

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW05-200811
Collection Date: 11-Aug-2020 10:25

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**542**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	13-Aug-2020 20:18
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 18:14
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 18:14
Sulfate	**85.8**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Aug-2020 18:14
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	31-Aug-2020 15:27

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW09-200811
Collection Date: 11-Aug-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**504**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	13-Aug-2020 20:25
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	**0.0347**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	12-Aug-2020 18:32
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 18:32
Sulfate	**2.31**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Aug-2020 18:32
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	31-Aug-2020 15:27

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW10-200811
Collection Date: 11-Aug-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**703**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	13-Aug-2020 20:04
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	12-Aug-2020 19:26
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	12-Aug-2020 19:26
Sulfate	**1,540**		**20.0**	**50.0**	**50.0**	**mg/L**	100	13-Aug-2020 20:02
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	31-Aug-2020 15:27

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW07-200811
Collection Date: 11-Aug-2020 12:50

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**923**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	13-Aug-2020 20:34
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 18:50
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 18:50
Sulfate	**1.27**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Aug-2020 18:50
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	31-Aug-2020 15:27

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
Sample ID: 04WW07-200811-FD
Collection Date: 11-Aug-2020 12:50

ANALYTICAL REPORT
WorkOrder:HS20080476
Lab ID:HS20080476-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**922**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	13-Aug-2020 20:42
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 17:20
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Aug-2020 17:20
Sulfate	**2.47**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Aug-2020 17:20
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	31-Aug-2020 15:27

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

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
WorkOrder: HS20080476

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R366741 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20080476-10	04WW05-200811	11 Aug 2020 10:25			12 Aug 2020 18:14	1
HS20080476-11	04WW09-200811	11 Aug 2020 11:15			12 Aug 2020 18:32	1
HS20080476-12	04WW10-200811	11 Aug 2020 12:00			12 Aug 2020 19:26	5
HS20080476-13	04WW07-200811	11 Aug 2020 12:50			12 Aug 2020 18:50	1
HS20080476-14	04WW07-200811-FD	11 Aug 2020 12:50			12 Aug 2020 17:20	1
Batch ID: R366759 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20080476-10	04WW05-200811	11 Aug 2020 10:25			13 Aug 2020 20:18	1
HS20080476-11	04WW09-200811	11 Aug 2020 11:15			13 Aug 2020 20:25	1
HS20080476-12	04WW10-200811	11 Aug 2020 12:00			13 Aug 2020 20:04	1
HS20080476-13	04WW07-200811	11 Aug 2020 12:50			13 Aug 2020 20:34	1
HS20080476-14	04WW07-200811-FD	11 Aug 2020 12:50			13 Aug 2020 20:42	1
Batch ID: R366794 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20080476-12	04WW10-200811	11 Aug 2020 12:00			13 Aug 2020 20:02	100
Batch ID: R367591 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20080476-01	LHSMW01-200810	10 Aug 2020 07:50			27 Aug 2020 17:43	1
HS20080476-02	04WW04-200810	10 Aug 2020 08:35			27 Aug 2020 17:43	1
HS20080476-03	04WW08-200810	10 Aug 2020 09:20			27 Aug 2020 17:43	1
HS20080476-04	04WW08-200810-FD	10 Aug 2020 09:20			27 Aug 2020 17:43	1
HS20080476-05	04WW02-200810	10 Aug 2020 10:00			27 Aug 2020 17:43	1
HS20080476-06	04WW06-200810	10 Aug 2020 10:45			27 Aug 2020 17:43	1
HS20080476-07	LHSMW02-200810	10 Aug 2020 11:30			27 Aug 2020 17:43	1
HS20080476-08	04WW11-200810	10 Aug 2020 12:15			27 Aug 2020 17:43	1
HS20080476-09	04WW01-200810	10 Aug 2020 13:00			27 Aug 2020 17:43	1
HS20080476-10	04WW05-200811	11 Aug 2020 10:25			27 Aug 2020 17:43	1
HS20080476-11	04WW09-200811	11 Aug 2020 11:15			27 Aug 2020 17:43	1
HS20080476-12	04WW10-200811	11 Aug 2020 12:00			27 Aug 2020 17:43	1
HS20080476-13	04WW07-200811	11 Aug 2020 12:50			27 Aug 2020 17:43	1
HS20080476-14	04WW07-200811-FD	11 Aug 2020 12:50			27 Aug 2020 17:43	1
Batch ID: R367765 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20080476-10	04WW05-200811	11 Aug 2020 10:25			31 Aug 2020 15:27	1
HS20080476-11	04WW09-200811	11 Aug 2020 11:15			31 Aug 2020 15:27	1
HS20080476-12	04WW10-200811	11 Aug 2020 12:00			31 Aug 2020 15:27	1
HS20080476-13	04WW07-200811	11 Aug 2020 12:50			31 Aug 2020 15:27	1
HS20080476-14	04WW07-200811-FD	11 Aug 2020 12:50			31 Aug 2020 15:27	1

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
WorkOrder: HS20080476

QC BATCH REPORT

Batch ID: R366741 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-081220** Units: **mg/L** Analysis Date: **12-Aug-2020 13:19**
Client ID: Run ID: **ICS-Integrion_366741** SeqNo: **5699913** PrepDate: DF: **1**

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

LCS Sample ID: **LCS-081220** Units: **mg/L** Analysis Date: **12-Aug-2020 13:37**
Client ID: Run ID: **ICS-Integrion_366741** SeqNo: **5699914** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.768	0.100	4	0	94.2	80 - 120				
Nitrogen, Nitrite (As N)	4.266	0.100	4	0	107	80 - 120				
Sulfate	19.66	0.500	20	0	98.3	80 - 120				

MS Sample ID: **HS20080476-12MS** Units: **mg/L** Analysis Date: **12-Aug-2020 19:44**
Client ID: **04WW10-200811** Run ID: **ICS-Integrion_366741** SeqNo: **5699925** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	11.47	0.500	10	0	115	80 - 120				
Nitrogen, Nitrite (As N)	10.98	0.500	10	0	110	80 - 120				
Sulfate	1462	2.50	50	1440	42.9	80 - 120				SEO

MSD Sample ID: **HS20080476-12MSD** Units: **mg/L** Analysis Date: **12-Aug-2020 20:02**
Client ID: **04WW10-200811** Run ID: **ICS-Integrion_366741** SeqNo: **5699926** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	11.62	0.500	10	0	116	80 - 120	11.47	1.22	20	
Nitrogen, Nitrite (As N)	11.02	0.500	10	0	110	80 - 120	10.98	0.332	20	
Sulfate	1469	2.50	50	1440	57.4	80 - 120	1462	0.495	20	SEO

The following samples were analyzed in this batch: HS20080476-10 HS20080476-11 HS20080476-12 HS20080476-13 HS20080476-14

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
WorkOrder: HS20080476

QC BATCH REPORT

Batch ID: R366759 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW1-081320** Units: **mg/L** Analysis Date: **13-Aug-2020 18:44**
Client ID: Run ID: **ManTech01_366759** SeqNo: **5700354** 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: **WLCS1-081320** Units: **mg/L** Analysis Date: **13-Aug-2020 18:52**
Client ID: Run ID: **ManTech01_366759** SeqNo: **5700355** 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)	1001	5.00	1000	0	100	85 - 115				

LCSD Sample ID: **WLCSD1-081320** Units: **mg/L** Analysis Date: **13-Aug-2020 19:01**
Client ID: Run ID: **ManTech01_366759** SeqNo: **5700356** 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)	999.7	5.00	1000	0	100.0	85 - 115	1001	0.137	20	

DUP Sample ID: **HS20080539-02DUP** Units: **mg/L** Analysis Date: **13-Aug-2020 19:13**
Client ID: Run ID: **ManTech01_366759** SeqNo: **5700358** 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)	138.6	5.00					139.5	0.64	20	

DUP Sample ID: **HS20080476-12DUP** Units: **mg/L** Analysis Date: **13-Aug-2020 20:12**
Client ID: **04WW10-200811** Run ID: **ManTech01_366759** SeqNo: **5700366** 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)	698.4	5.00					702.8	0.629	20	

The following samples were analyzed in this batch: HS20080476-10 HS20080476-11 HS20080476-12 HS20080476-13 HS20080476-14

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
WorkOrder: HS20080476

QC BATCH REPORT

Batch ID: R366794 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-081320** Units: **mg/L** Analysis Date: **14-Aug-2020 04:26**
Client ID: Run ID: **ICS-Integrion_366794** SeqNo: **5701180** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-081320** Units: **mg/L** Analysis Date: **14-Aug-2020 10:44**
Client ID: Run ID: **ICS-Integrion_366794** SeqNo: **5701181** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	18.93	0.500	20	0	94.6	80 - 120				

MS Sample ID: **HS20080519-01MS** Units: **mg/L** Analysis Date: **13-Aug-2020 23:02**
Client ID: Run ID: **ICS-Integrion_366794** SeqNo: **5701170** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	9.698	0.500	10	0.2457	94.5	80 - 120				

MSD Sample ID: **HS20080519-01MSD** Units: **mg/L** Analysis Date: **13-Aug-2020 23:20**
Client ID: Run ID: **ICS-Integrion_366794** SeqNo: **5701171** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	9.764	0.500	10	0.2457	95.2	80 - 120	9.698	0.674	20	

The following samples were analyzed in this batch: HS20080476-12

ALS Houston, US Date: 31-Aug-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 04
WorkOrder: **HS20080476**

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	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
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 31-Aug-20

Sample Receipt Checklist

Work Order ID: HS20080476 **Date/Time Received:** 12-Aug-2020 10:25

Client Name: CBI-Houston **Received by:** Paresh M. Giga

Completed By: /S/ Paresh M. Giga (eSignature) 12-Aug-2020 15:34 (Date/Time) **Reviewed by:** /S/ RJ Modashia (eSignature) 12-Aug-2020 16:50 (Date/Time)

Matrices: **GW** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.9C U/c	IR31	
Cooler(s)/Kit(s):	46108		
Date/Time sample(s) sent to storage:	8/12/2020 15:50		
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: R.J Modashia

Page 1 of 1

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **04LHAAP_Performance Monitoring 05_20ALS**	
Prepared By: Scott Beesinger	P.O. Number

HS20080476

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 04

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	Analyses: TOC by SM5310	Analyses: Anions (nitrate, nitrite and sulfate) by SW9056 and Alkalinity by SM2320B	Remarks (Preservatives, etc.)	Lab I.D.#
LHSmw01-200810	WG	8/10/20/0750		1	X				
04ww04-200810	WG	8/10/20/0835		1	X				
04ww08-~~200810~~ 200810	WG	8/10/20/0920		1	X				
04ww08-200810-FD	WG	8/10/20/0920		1	X				
04ww02-200810	WG	8/10/20/1000		1	X				
04ww06-200810	WG	8/10/20/1045		1	X				
LHSmw02-200810	WG	8/10/20/1130		1	X				
04ww11-200810	WG	8/10/20/1215		1	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	8/11/20	1430		8/12/2020	10:20						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

46108 1.9 #31 Clear.

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

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

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **04LHAAP_Performance Monitoring 05_20ALS**	
Prepared By: Scott Beesinger	P.O. Number

HS20080476

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant 04

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Perchlorate by SW6850	TOC by SM5310	Anions (nitrate, nitrite and sulfate) by SW9056 and Alkalinity by SM2320B							Remarks (Preservatives, etc.)	Lab I.D.#
04WW01-200810	WG	8/10/20/1300		1	X										
04WW05-200811	WG	8/11/20/1025		4	X	X	X								
04WW09-200811	WG	8/11/20/1115		4	X	X	X								
04WW10-200811	WG	8/11/20/1200		4	X	X	X								
04WW10-200811-MS	WG	8/11/20/1200		4	X	X	X								
04WW10-200811-MSD	WG	8/11/20/1200		4	X	X	X								
04WW07-200811	WG	8/11/20/1250		4	X	X	X								
04WW07-200811-FD	WG	8/11/20/1250		4	X	X	X								

Additional Remarks: **Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com**

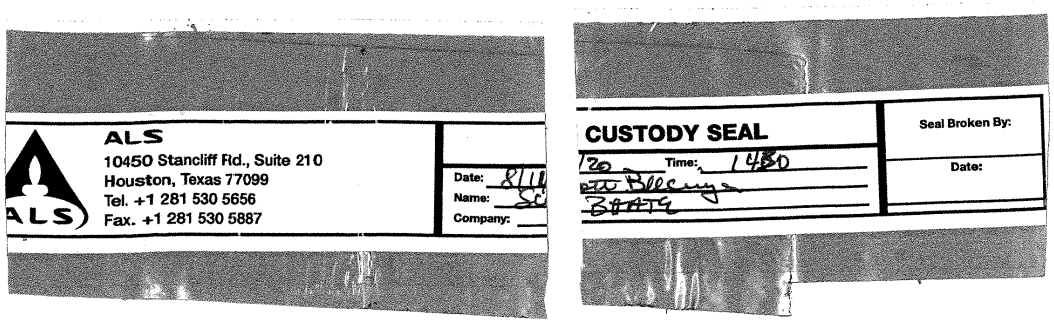
Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	8/11/20	1430		8/12/20	0:30						

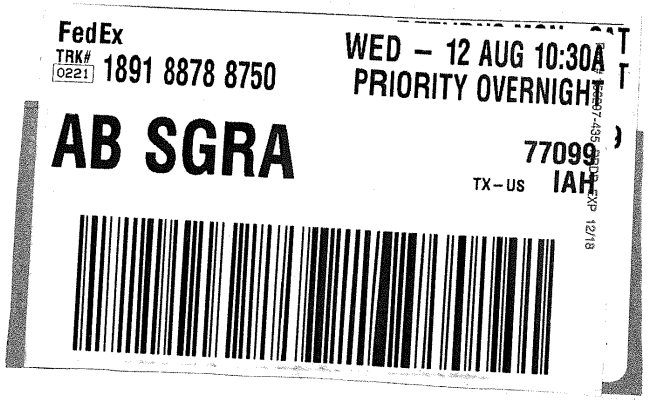
For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

(Word) S:\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
Date:
Name:
Company:
CUSTODY SEAL
Time:
Seal Broken By:
Date:


FedEx
TRK#
0221
1891 8878 8750
WED – 12 AUG 10:30A
PRIORITY OVERNIGH
AB SGRA
77099
TX – US
IAH

August 27, 2020 Service Request No:E2000742

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

Laboratory Results for: HS20080476

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory August 13, 2020
For your reference, these analyses have been assigned our service request number **E2000742.**

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.:**	E2000742
Project:	HS20080476	**Date Received:**	08/13/20
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

Fourteen samples were received for analysis at ALS Environmental in Houston on 08/13/20.

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 (EQ2000359-06) and MSD ((EQ2000359-07) were performed on unrelated samples. The LCS and LCSD recovery passed. MS recovery was above QC limits (EQ200359-04 – E2000472-012).

Lowest practical dilution performed on samples (10x & 2x DF) due to matrix interferences.

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:**E2000742
Project: HS20080476

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000742-001	LHSMW01-200810	8/10/2020	0750
E2000742-002	04WW04-200810	8/10/2020	0835
E2000742-003	04WW08-200810	8/10/2020	0920
E2000742-004	04WW08-200810-FD	8/10/2020	0920
E2000742-005	04WW02-200810	8/10/2020	1000
E2000742-006	04WW06-200810	8/10/2020	1045
E2000742-007	LHSMW02-200810	8/10/2020	1130
E2000742-008	04WW11-200810	8/10/2020	1215
E2000742-009	04WW01-200810	8/10/2020	1300
E2000742-010	04WW05-200811	8/11/2020	1025
E2000742-011	04WW09-200811	8/11/2020	1115
E2000742-012	04WW10-200811	8/11/2020	1200
E2000742-013	04WW07-200811	8/11/2020	1250
E2000742-014	04WW07-200811-FD	8/11/2020	1250

Service Request Summary

Folder #: **E2000742**
Client Name: ALS Environmental - US
Project Name: HS20080476
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: 08/13/20
Internal Due Date: 8/26/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20080476
EDD: No EDD Specified

16 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3C
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000742-001	LHSMW01-200810	Ground Water	08/10/20 0750	**IV**
E2000742-002	04WW04-200810	Ground Water	08/10/20 0835	**IV**
E2000742-003	04WW08-200810	Ground Water	08/10/20 0920	**IV**
E2000742-004	04WW08-200810-FD	Ground Water	08/10/20 0920	**IV**
E2000742-005	04WW02-200810	Ground Water	08/10/20 1000	**IV**
E2000742-006	04WW06-200810	Ground Water	08/10/20 1045	**IV**
E2000742-007	LHSMW02-200810	Ground Water	08/10/20 1130	**IV**
E2000742-008	04WW11-200810	Ground Water	08/10/20 1215	**IV**
E2000742-009	04WW01-200810	Ground Water	08/10/20 1300	**IV**
E2000742-010	04WW05-200811	Ground Water	08/11/20 1025	**IV**
E2000742-011	04WW09-200811	Ground Water	08/11/20 1115	**IV**
E2000742-012	04WW10-200811	Ground Water	08/11/20 1200	**IV**
E2000742-013	04WW07-200811	Ground Water	08/11/20 1250	**IV**
E2000742-014	04WW07-200811-FD	Ground Water	08/11/20 1250	**IV**

Service Request Summary

Folder #: **E2000742**
Client Name: ALS Environmental - US
Project Name: HS20080476
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: 08/13/20
Internal Due Date: 8/26/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20080476
EDD: No EDD Specified

16 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3C
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000742-001	LHSMW01-200810	Ground Water	08/10/20 0750	**IV**
E2000742-002	04WW04-200810	Ground Water	08/10/20 0835	**IV**
E2000742-003	04WW08-200810	Ground Water	08/10/20 0920	**IV**
E2000742-004	04WW08-200810-FD	Ground Water	08/10/20 0920	**IV**
E2000742-005	04WW02-200810	Ground Water	08/10/20 1000	**IV**
E2000742-006	04WW06-200810	Ground Water	08/10/20 1045	**IV**
E2000742-007	LHSMW02-200810	Ground Water	08/10/20 1130	**IV**
E2000742-008	04WW11-200810	Ground Water	08/10/20 1215	**IV**
E2000742-009	04WW01-200810	Ground Water	08/10/20 1300	**IV**
E2000742-010	04WW05-200811	Ground Water	08/11/20 1025	**IV**
E2000742-011	04WW09-200811	Ground Water	08/11/20 1115	**IV**
E2000742-012	04WW10-200811	Ground Water	08/11/20 1200	**IV**
E2000742-013	04WW07-200811	Ground Water	08/11/20 1250	**IV**
E2000742-014	04WW07-200811-FD	Ground Water	08/11/20 1250	**IV**

Service Request Summary

Folder #: **E2000742**
Client Name: ALS Environmental - US
Project Name: HS20080476
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: 08/13/20
Internal Due Date: 8/26/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20080476
EDD: No EDD Specified

16 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3C
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	13	Level II due 8/26,level IV 9/2
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

E2000742 5
ALS Laboratory Group
HS20080476

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14489**

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: HS20080476
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20080476-01**	**LHSMW01-200810**	**Groundwater**	**10 Aug 2020 07:50**
	SUB_Perch-6850			26 Aug 2020
2.	**HS20080476-02**	**04WW04-200810**	**Groundwater**	**10 Aug 2020 08:35**
	SUB_Perch-6850			26 Aug 2020
3.	**HS20080476-03**	**04WW08-200810**	**Groundwater**	**10 Aug 2020 09:20**
	SUB_Perch-6850			26 Aug 2020
4.	**HS20080476-04**	**04WW08-200810-FD**	**Groundwater**	**10 Aug 2020 09:20**
	SUB_Perch-6850			26 Aug 2020
5.	**HS20080476-05**	**04WW02-200810**	**Groundwater**	**10 Aug 2020 10:00**
	SUB_Perch-6850			26 Aug 2020
6.	**HS20080476-06**	**04WW06-200810**	**Groundwater**	**10 Aug 2020 10:45**
	SUB_Perch-6850			26 Aug 2020
7.	**HS20080476-07**	**LHSMW02-200810**	**Groundwater**	**10 Aug 2020 11:30**
	SUB_Perch-6850			26 Aug 2020
8.	**HS20080476-08**	**04WW11-200810**	**Groundwater**	**10 Aug 2020 12:15**
	SUB_Perch-6850			26 Aug 2020
9.	**HS20080476-09**	**04WW01-200810**	**Groundwater**	**10 Aug 2020 13:00**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14489**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
	SUB_Perch-6850			26 Aug 2020
10.	**HS20080476-10**	**04WW05-200811**	**Groundwater**	**11 Aug 2020 10:25**
	SUB_Perch-6850			26 Aug 2020
11.	**HS20080476-11**	**04WW09-200811**	**Groundwater**	**11 Aug 2020 11:15**
	SUB_Perch-6850			26 Aug 2020
12.	**HS20080476-12**	**04WW10-200811**	**Groundwater**	**10 Aug 2020 12:00**
	SUB_Perch-6850			26 Aug 2020
13.	**HS20080476-13**	**04WW07-200811**	**Groundwater**	**11 Aug 2020 12:50**
	SUB_Perch-6850			26 Aug 2020
14.	**HS20080476-14**	**04WW07-200811-FD**	**Groundwater**	**11 Aug 2020 12:50**
	SUB_Perch-6850			26 Aug 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20080476-12 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. MALCOLM Date/Time: 8/13/20

Received By: CG Date/Time: 8/13/20 1346

Cooler ID(s): Temperature(s):

12 Aug 2020 Page 2 of 2

ALS Environmental

Cooler Receipt Form

Project Chemist CL

Client/Project ALS-HI

Thermometer ID IR31

Date/Time Received: 8/13/12 Initials: J.M Date/Time Logged in: 8/13/12 Initials CL

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 If yes, how many and where?
Were they intact? ○ Yes ○ No ✓ N/A
Were they signed and dated? ○ Yes ○ No ✓ N/A

4. Packing Material: ○ Inserts ✓ Baggies ○ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		8/13/12	1346	CL	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: **E2000742** 5
ALS Laboratory Group
HS20080476

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#: 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
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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 0750
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	LHSMW01-200810	**Units:**	µg/L
Lab Code:	E2000742-001	**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	**0.179**	J	0.200	0.100	0.0500	2	8/24/20	8/26/20 16:54	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 0835
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW04-200810	**Units:**	µg/L
Lab Code:	E2000742-002	**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	ND	U	0.200	0.100	0.0500	2	8/24/20	8/26/20 17:02	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW08-200810	**Units:**	µg/L
Lab Code:	E2000742-003	**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	**1.66**		1.00	0.500	0.250	10	8/24/20	8/26/20 17:10	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 0920
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW08-200810-FD	**Units:**	µg/L
Lab Code:	E2000742-004	**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	**1.22**		1.00	0.500	0.250	10	8/24/20	8/26/20 17:18	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 1000
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW02-200810	**Units:**	µg/L
Lab Code:	E2000742-005	**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	**0.0477**	J	0.100	0.0500	0.0250	1	8/24/20	8/25/20 21:02	364168	692783	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 1045
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW06-200810	**Units:**	µg/L
Lab Code:	E2000742-006	**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	**0.567**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 17:26	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 1130
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	LHSMW02-200810	**Units:**	µg/L
Lab Code:	E2000742-007	**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	**0.121**		0.100	0.0500	0.0250	1	8/24/20	8/25/20 21:18	364168	692783	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 1215
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW11-200810	**Units:**	µg/L
Lab Code:	E2000742-008	**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	**0.0435**	J	0.100	0.0500	0.0250	1	8/24/20	8/25/20 21:26	364168	692783	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/10/20 1300
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW01-200810	**Units:**	µg/L
Lab Code:	E2000742-009	**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	**0.561**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 17:41	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1025
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW05-200811	**Units:**	µg/L
Lab Code:	E2000742-010	**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	**0.399**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 17:49	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1115
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW09-200811	**Units:**	µg/L
Lab Code:	E2000742-011	**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	**3.92**		1.00	0.500	0.250	10	8/24/20	8/26/20 17:57	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1200
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW10-200811	**Units:**	µg/L
Lab Code:	E2000742-012	**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	**0.339**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 18:05	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1250
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW07-200811	**Units:**	µg/L
Lab Code:	E2000742-013	**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	**0.557**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 18:13	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1250
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW07-200811-FD	**Units:**	µg/L
Lab Code:	E2000742-014	**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	**0.580**	J	1.00	0.500	0.250	10	8/24/20	8/26/20 18:21	364168	692775	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000742
Project:	HS20080476	**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

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20080476
Sample Matrix: Ground Water

Service Request: E2000742
Date Analyzed: 8/26/20

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: 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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
		Date Analyzed:	8/26/20

Matrix Spike Summary

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

Sample Name:	04WW10-200811	**Units:**	µg/L
Lab Code:	E2000742-012	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		04WW10-200811MS				04WW10-200811DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2000359-04				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:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1200
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW10-200811	**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:**	E2000742
Project:	HS20080476	**Date Collected:**	8/11/20 1200
Sample Matrix:	Ground Water	**Date Received:**	8/13/20
Sample Name:	04WW10-200811	**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:**	E2000742
Project:	HS20080476	**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:	E2000759-002	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS				Batch QCDMS					
		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:**	E2000742
Project:	HS20080476	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**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:**	E2000742
Project:	HS20080476	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**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

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20200819

ALS Environmental

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

1st Review: Kneir
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		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

ALS Environmental

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

1st Review: Kneir
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
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

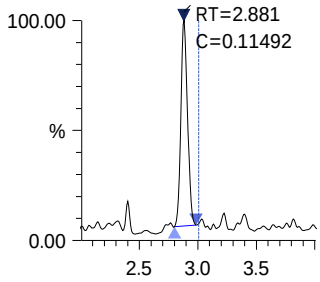
Date acquired: 8/19/2020 10:42:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_005.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

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

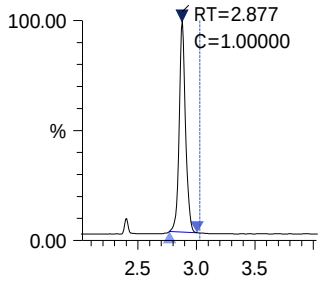
Q 99.00>83.00 (-) 1.00e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 292622

ISTD 107.00>89.00 (-) 7.83e4



ALS Group Houston

PERCHLORATE2

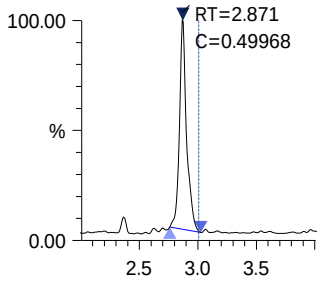
Date acquired: 8/19/2020 10:50:33 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_006.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

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

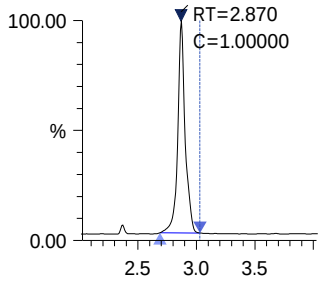
Q 99.00>83.00 (-) 4.32e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 319274

ISTD 107.00>89.00 (-) 7.26e4



ALS Group Houston

PERCHLORATE3

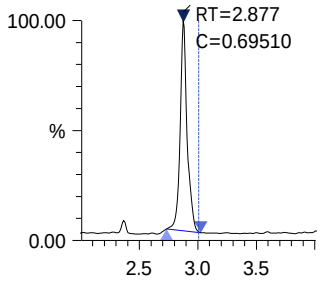
Date acquired: 8/19/2020 10:58:27 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_007.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

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

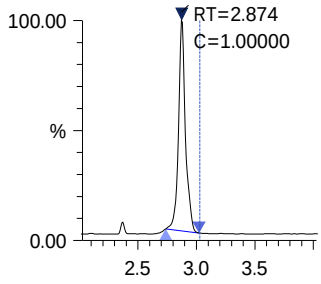
Q 99.00>83.00 (-) 5.99e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 310422

ISTD 107.00>89.00 (-) 7.56e4



ALS Group Houston

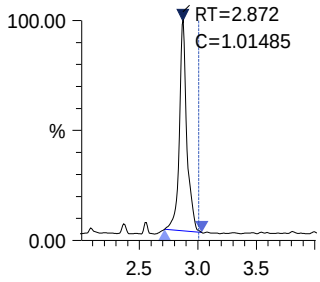
PERCHLORATE4

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

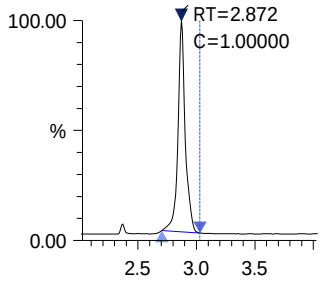
Perchlorate

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

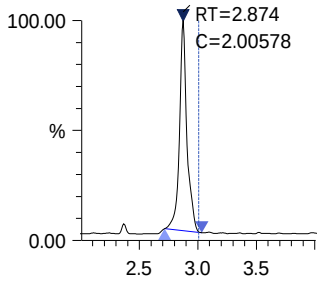
Date acquired: 8/19/2020 11:14:18 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_009.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

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

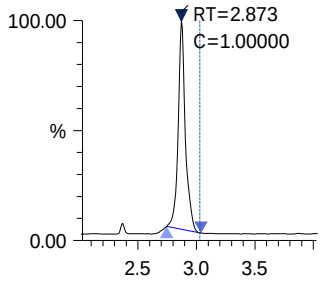
Q 99.00>83.00 (-) 1.49e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 287158

ISTD 107.00>89.00 (-) 6.84e4



ALS Group Houston

PERCHLORATE6

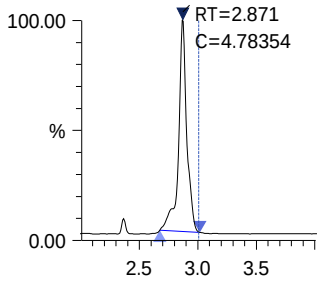
Date acquired: 8/19/2020 11:22:10 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_010.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

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

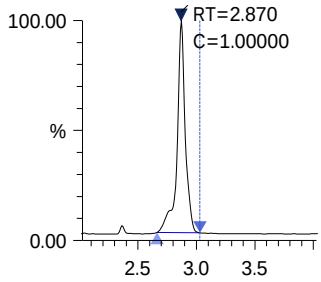
Q 99.00>83.00 (-) 3.45e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 310462

ISTD 107.00>89.00 (-) 6.38e4



ALS Group Houston

PERCHLORATE7

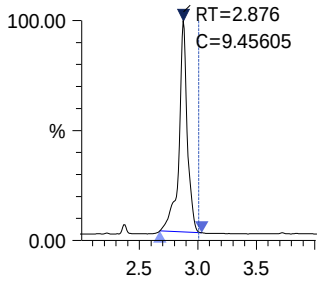
Date acquired: 8/19/2020 11:30:05 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_011.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

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

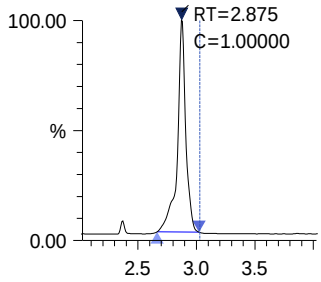
Q 99.00>83.00 (-) 6.35e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 289828

ISTD 107.00>89.00 (-) 5.81e4



ALS Group Houston

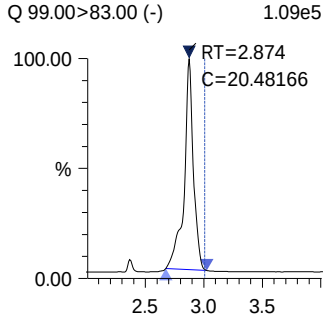
PERCHLORATE8

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

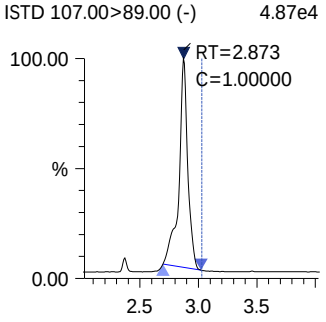
Perchlorate

Conc 20.48166
Area 587088



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 253551



ALS Group Houston

PERCHLORATE9

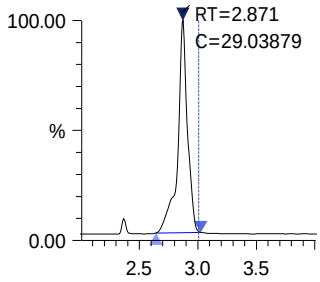
Date acquired: 8/19/2020 11:45:53 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_013.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

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

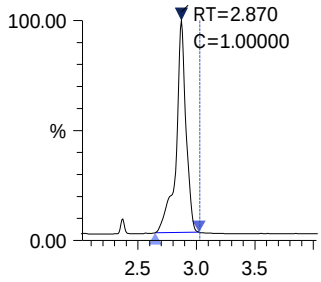
Q 99.00>83.00 (-) 1.48e5



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 258702

ISTD 107.00>89.00 (-) 4.43e4



ALS Group Houston

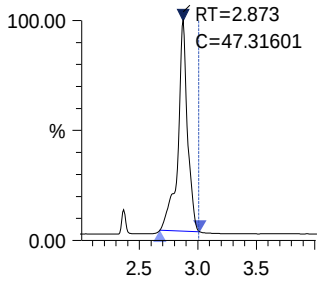
PERCHLORATE10

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

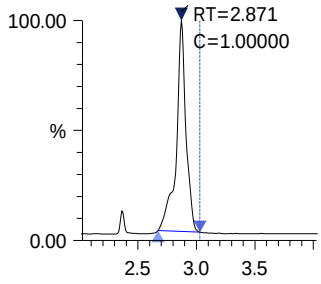
Perchlorate

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

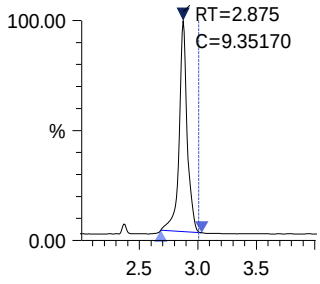
Date acquired: 8/19/2020 12:09:35 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200819\20200819_016.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

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

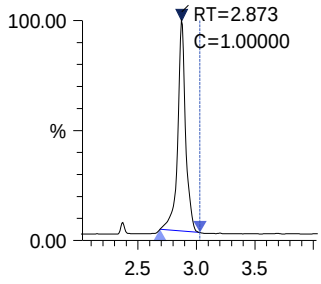
Q 99.00>83.00 (-) 6.27e4



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

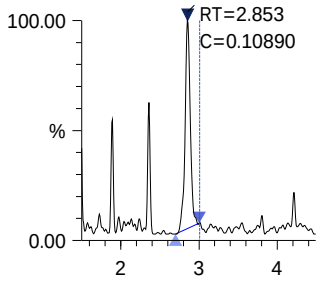
Date acquired: 8/26/2020 11:55:32 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_024.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

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

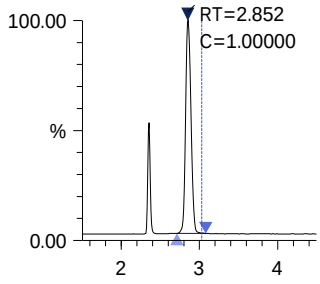
Q 99.00>83.00 (-) 4.92e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 190859

ISTD 107.00>89.00 (-) 3.91e4



ALS Group Houston

PERCHLORATE2

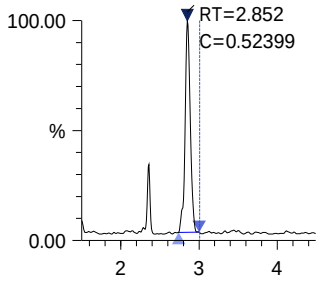
Date acquired: 8/26/2020 12:03:28 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_025.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

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

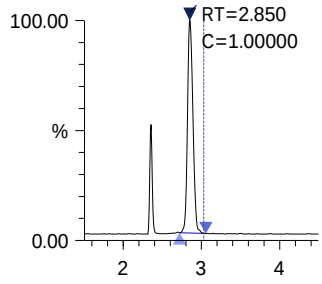
Q 99.00>83.00 (-) 2.37e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 193789

ISTD 107.00>89.00 (-) 3.95e4



ALS Group Houston

PERCHLORATE3

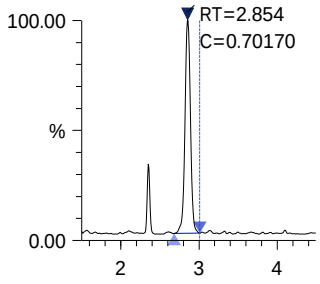
Date acquired: 8/26/2020 12:11:22 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_026.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

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

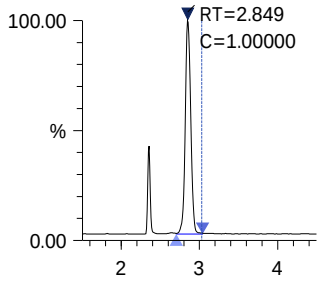
Q 99.00>83.00 (-) 3.07e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 200410

ISTD 107.00>89.00 (-) 4.03e4



ALS Group Houston

PERCHLORATE4

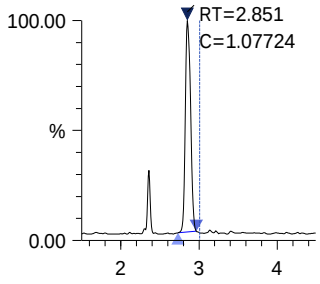
Date acquired: 8/26/2020 12:19:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_027.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

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

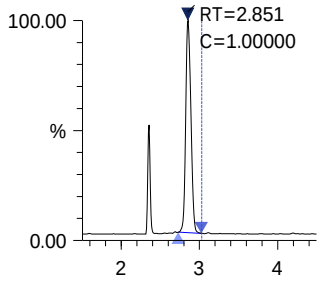
Q 99.00>83.00 (-) 4.54e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 183791

ISTD 107.00>89.00 (-) 3.92e4



ALS Group Houston

PERCHLORATE5

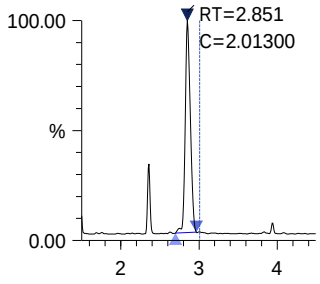
Date acquired: 8/26/2020 12:27:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_028.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

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

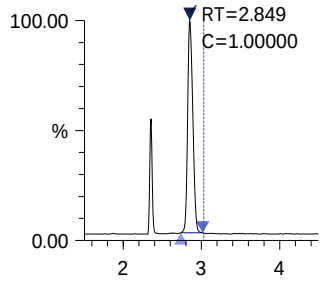
Q 99.00>83.00 (-) 8.76e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 183386

ISTD 107.00>89.00 (-) 3.95e4



ALS Group Houston

PERCHLORATE6

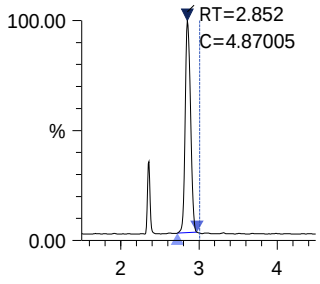
Date acquired: 8/26/2020 12:35:02 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_029.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

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

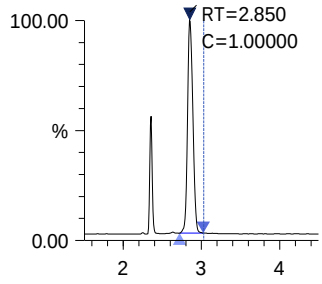
Q 99.00>83.00 (-) 2.04e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 185768

ISTD 107.00>89.00 (-) 3.86e4



ALS Group Houston

PERCHLORATE7

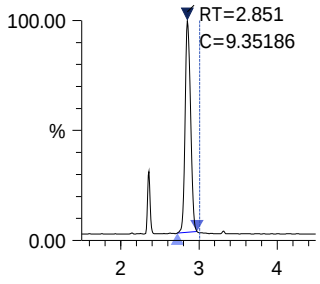
Date acquired: 8/26/2020 12:42:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_030.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

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

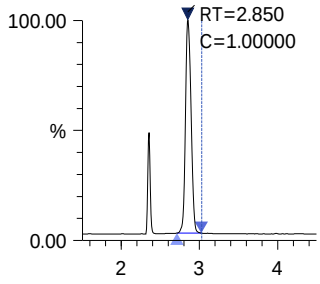
Q 99.00>83.00 (-) 3.57e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 171796

ISTD 107.00>89.00 (-) 3.39e4



ALS Group Houston

PERCHLORATE8

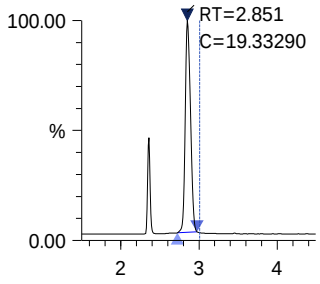
Date acquired: 8/26/2020 12:50:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_031.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 1

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

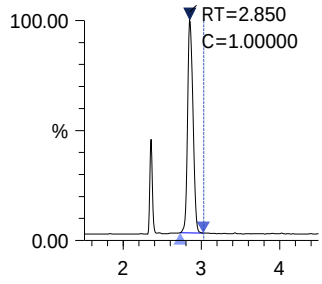
Q 99.00>83.00 (-) 7.14e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 160727

ISTD 107.00>89.00 (-) 3.30e4



ALS Group Houston

PERCHLORATE9

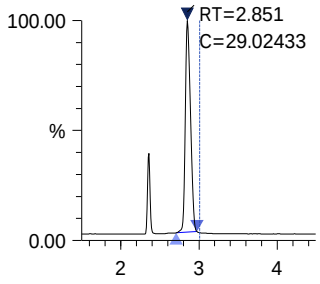
Date acquired: 8/26/2020 12:58:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_032.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

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

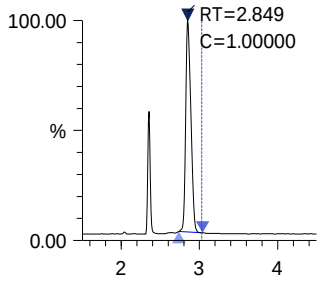
Q 99.00>83.00 (-) 1.00e5



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148144

ISTD 107.00>89.00 (-) 3.19e4



ALS Group Houston

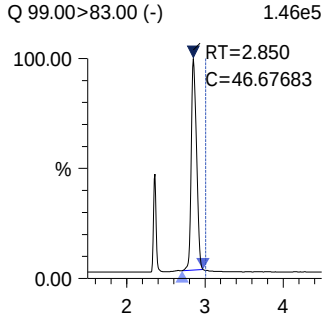
PERCHLORATE10

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

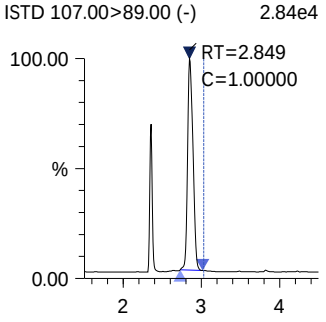
Perchlorate

Conc 46.67683
Area 694738



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 137234



ALS Group Houston

PERCHLORATEICV

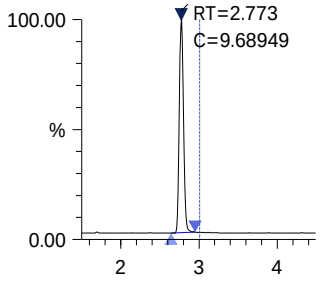
Date acquired: 8/26/2020 2:26:45 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_035.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

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

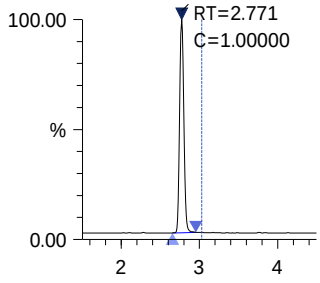
Q 99.00>83.00 (-) 7.12e4



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

ALS Environmental

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

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	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

ALS Environmental

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

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
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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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: HS20080476

Service Request: E2000742
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: HS20080476

Service Request: E2000742
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	**Service Request:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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
04WW10-200811MS	EQ2000359-04	136,805	2.85
04WW10-200811DMS	EQ2000359-05	144,861	2.85
Batch QCMS	EQ2000359-06	127,802	2.85
Batch QCDMS	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:**	E2000742
Project:	HS20080476	**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
LHSMW01-200810	E2000742-001	144,751	2.85
04WW04-200810	E2000742-002	124,092	2.87
04WW08-200810	E2000742-003	128,305	2.85
04WW08-200810-FD	E2000742-004	129,017	2.85
04WW06-200810	E2000742-006	160,105	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:**	E2000742
Project:	HS20080476	**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
04WW01-200810	E2000742-009	137,677	2.86
04WW05-200811	E2000742-010	170,001	2.86
04WW09-200811	E2000742-011	159,138	2.86
04WW10-200811	E2000742-012	141,019	2.85
04WW07-200811	E2000742-013	144,370	2.87
04WW07-200811-FD	E2000742-014	153,063	2.86
Batch QC	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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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:**	E2000742
Project:	HS20080476	**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
04WW02-200810	E2000742-005	152,285	2.87
LHSMW02-200810	E2000742-007	199,944	2.82
04WW11-200810	E2000742-008	150,832	2.80

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:**	E2000742
Project:	HS20080476	**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

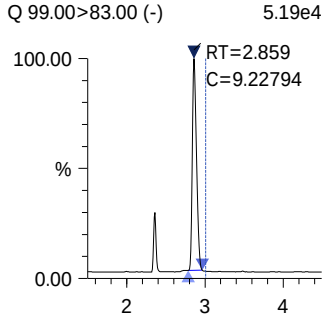
PERCHLORATE7

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

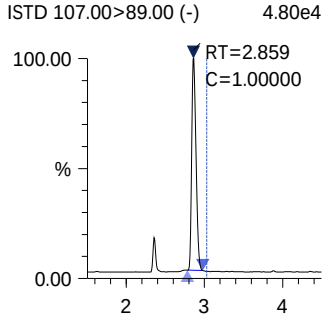
Perchlorate

Conc 9.22794
Area 193948



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 185913



ALS Group Houston

EQ2000359-01

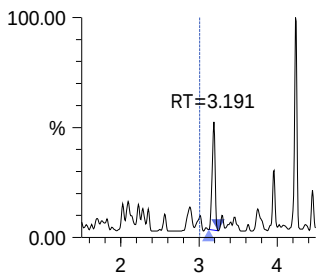
Date acquired: 8/25/2020 6:56:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200825\20200825_031.lcd
Vial: 1 | Inj. Volume: 25.0000uL | Tray: 5

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 ----

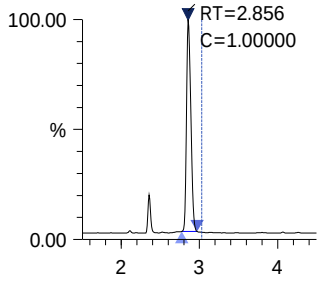
Q 99.00>83.00 (-) 5.44e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 246634

ISTD 107.00>89.00 (-) 6.33e4



ALS Group Houston

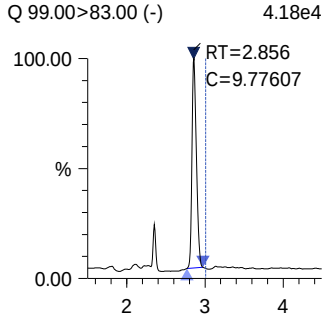
PERCHLORATE7

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

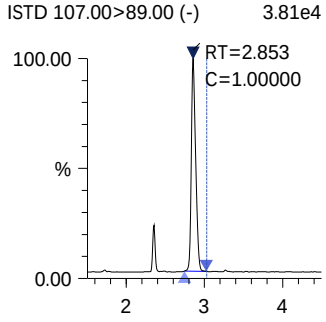
Perchlorate

Conc 9.77607
Area 164008



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148398



ALS Group Houston

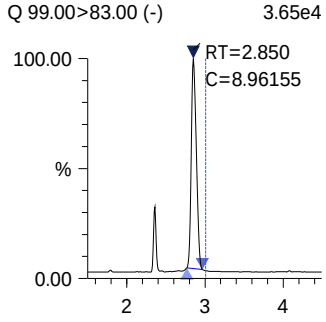
PERCHLORATE7

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

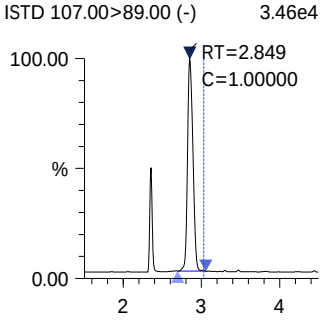
Perchlorate

Conc 8.96155
Area 163923



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 168655



ALS Group Houston

EQ2000359-02

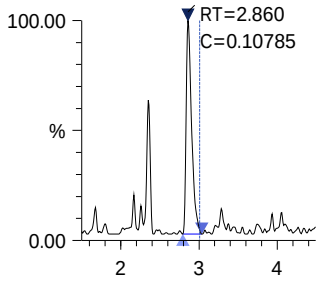
Date acquired: 8/26/2020 3:35:46 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_042.lcd
Vial: 2 | Inj. Volume: 25.0000uL | Tray: 5

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

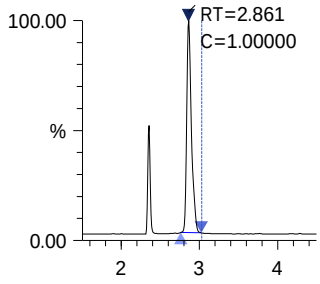
Q 99.00>83.00 (-) 5.15e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 218301

ISTD 107.00>89.00 (-) 5.16e4



ALS Group Houston

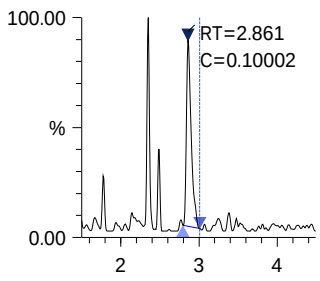
EQ2000359-03

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

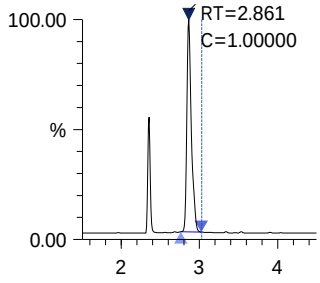
Perchlorate

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

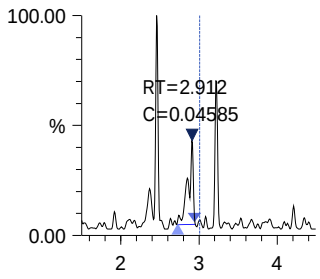
Date acquired: 8/26/2020 3:43:38 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_043.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 5

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

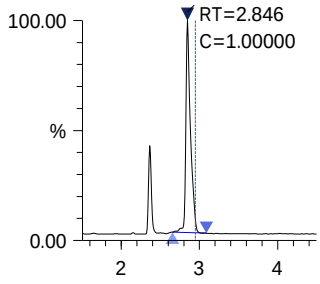
Q 99.00>83.00 (-) 4.91e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 136805

ISTD 107.00>89.00 (-) 3.30e4



ALS Group Houston

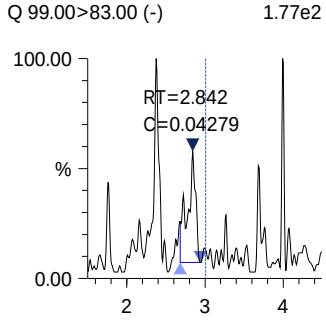
EQ2000359-05X10

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

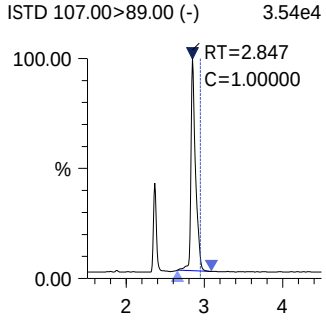
Perchlorate

Conc 0.04279
Area 672



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144861



ALS Group Houston

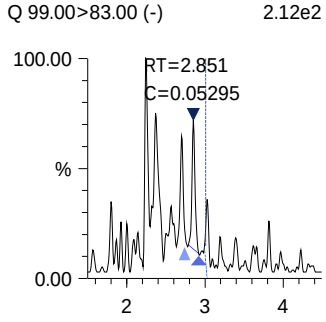
EQ2000359-06X10

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

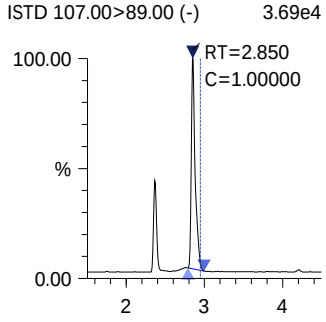
Perchlorate

Conc 0.05295
Area 734



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 127802



ALS Group Houston

EQ2000359-07X10

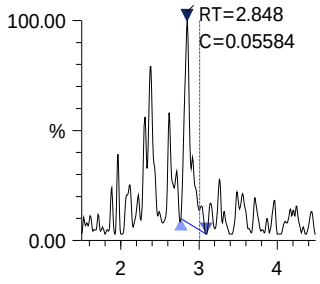
Date acquired: 8/26/2020 4:07:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200826\20200826_046.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 5

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

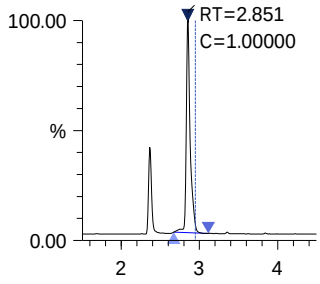
Q 99.00>83.00 (-) 1.53e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144838

ISTD 107.00>89.00 (-) 4.13e4



ALS Group Houston

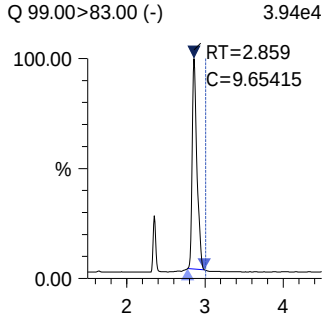
PERCHLORATE7

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

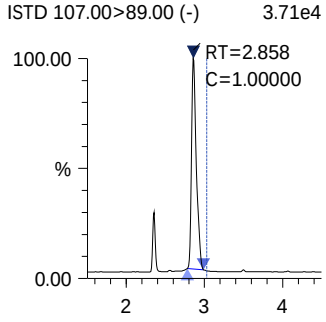
Perchlorate

Conc 9.65415
Area 166904



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 159403



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August 31, 2020

Analytical Report for Service Request No: K2007018

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

RE: ALS Houston DOD TOC / HS20080476

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory August 14, 2020
For your reference, these analyses have been assigned our service request number **K2007018.**

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

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

Service Request: K2007018
Date Received: 08/14/2020

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:

Five ground water samples were received for analysis at ALS Environmental on 08/14/2020. 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 08/31/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
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K20070018

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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:** **14488**

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:	HS20080476
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20080476-10**	**04WW05-200811**	**Groundwater**	**11 Aug 2020 10:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020
2.	**HS20080476-11**	**04WW09-200811**	**Groundwater**	**11 Aug 2020 11:15**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020
3.	**HS20080476-12**	**04WW10-200811**	**Groundwater**	**11 Aug 2020 12:00**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020
4.	**HS20080476-13**	**04WW07-200811**	**Groundwater**	**11 Aug 2020 12:50**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Aug 2020
5.	**HS20080476-14**	**04WW07-200811-FD**	**Groundwater**	**11 Aug 2020 12:50**
	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.
HS20080476-12 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14488**

Relinquished By: J. [illegible] Date/Time: 8/13/20 18:00

Received By: [signature] Date/Time: 8/14/20 0915

Cooler ID(s): Temperature(s):

PM KL

Cooler Receipt and Preservation Form

Client ALS / Houston Service Request K20 67018

Received: 8/14/20 Opened: 8/14/20 By: [illegible] Unloaded: 8/14/20 By: [illegible]

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
0.8	—	IR02	14488 /86			1891 8879 3472	

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
1317 South 13th Avenue, Kelso, WA 98626
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:**	K2007018
Project:	ALS Houston DOD TOC/HS20080476	**Date Collected:**	08/11/20
Sample Matrix:	Ground Water	**Date Received:**	08/14/20
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
04WW05-200811	K2007018-001	**2.31**	0.50	0.20	0.07	1	08/20/20 10:28	
04WW09-200811	K2007018-002	**470**	5.0	2.0	0.7	10	08/20/20 10:28	
04WW10-200811	K2007018-003	**3.10**	0.50	0.20	0.07	1	08/26/20 09:35	
04WW07-200811	K2007018-004	**23.8**	0.50	0.20	0.07	1	08/20/20 10:28	
04WW07-200811-FD	K2007018-005	**24.2**	0.50	0.20	0.07	1	08/20/20 10:28	
Method Blank	K2007018-MB1	ND U	0.50	0.20	0.07	1	08/20/20 10:28	
Method Blank	K2007018-MB2	ND U	0.50	0.20	0.07	1	08/26/20 09:35	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007018
Project	ALS Houston DOD TOC/HS20080476	**Date Collected:**	08/11/20
Sample Matrix:	Ground Water	**Date Received:**	08/14/20
		Date Analyzed:	08/26/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	04WW10-200811	**Units:**	mg/L
Lab Code:	K2007018-003	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2007018-003DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	3.10	3.07	3.08	<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.
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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007018
Project:	ALS Houston DOD TOC/HS20080476	**Date Collected:**	08/11/20
Sample Matrix:	Ground Water	**Date Received:**	08/14/20
		Date Analyzed:	08/26/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	04WW10-200811	**Units:**	mg/L
Lab Code:	K2007018-003	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2007018-003MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	3.10	28.1	25.0	100	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.
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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007018
Project:	ALS Houston DOD TOC/HS20080476	**Date Analyzed:**	08/20/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Duplicate Lab Control Sample Summary
General Chemistry Parameters

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	692113

	Lab Control Sample K2007018-LCS1			Duplicate Lab Control Sample K2007018-DLCS1					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic	23.0	25.0	92	22.8	25.0	91	83-117	1	10

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2007018
Project:	ALS Houston DOD TOC/HS20080476	**Date Analyzed:**	08/26/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Duplicate Lab Control Sample Summary
General Chemistry Parameters

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	692897

	Lab Control Sample K2007018-LCS2			Duplicate Lab Control Sample K2007018-DLCS2					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic	24.3	25.0	97	24.2	25.0	97	83-117	<1	10

ALS Group USA, Corp.
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QA/QC Report

Client: ALS Environmental - US **Service Request:** K2007018
Project: ALS Houston DOD TOC/HS20080476

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	692113	KQ2011930-06	08/20/20 10:28	25.0	23.9	96	90-110
CCV2	692113	KQ2011930-07	08/20/20 10:28	25.0	23.4	94	90-110
CCV3	692113	KQ2011930-08	08/20/20 10:28	25.0	23.0	92	90-110
CCV4	692113	KQ2011930-12	08/20/20 10:28	25.0	24.0	96	90-110
CCV5	692897	KQ2012129-09	08/26/20 09:35	25.0	23.3	93	90-110
CCV6	692897	KQ2012129-10	08/26/20 09:35	25.0	23.0	92	90-110
CCV7	692897	KQ2012129-11	08/26/20 09:35	25.0	23.4	93	90-110

ALS Group USA, Corp.
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QA/QC Report

Client: ALS Environmental - US **Service Request:**K2007018
Project: ALS Houston DOD TOC/HS20080476

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	692113	KQ2011930-09	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB2	692113	KQ2011930-10	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB3	692113	KQ2011930-11	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB4	692113	KQ2011930-13	08/20/20 10:28	0.50	0.20	0.07	ND	U
CCB5	692897	KQ2012129-12	08/26/20 09:35	0.50	0.20	0.07	ND	U
CCB6	692897	KQ2012129-13	08/26/20 09:35	0.50	0.20	0.07	ND	U
CCB7	692897	KQ2012129-14	08/26/20 09:35	0.50	0.20	0.07	ND	U

Raw Data

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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 7063

Analyst: MK IV II Run # 692111 692113

Analysis: TVC/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: _____ 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

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: MM	Date Analyzed: 8/10/20
Reviewed By: JC	Date Reviewed: 8/20/20

Work Request # 7206 7018 7273 7277 7284

Tier: III IV # # #

Date Analyzed: 8-26-20

Analyst: MK Run # 692897

Analysis: TOC

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:

7277-001 High RDD Sample is less than 5 times MRL

Final Approved by: _____ Date: 8/28/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 692897 **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
K2007018-003	Carbon, Total Organic	N/A		Ground Water	3.10 mg/L	10 mL	3.10 mg/L	1	0.07	0.50			8/26/20 09:35:00	Y	IV
K2007206-001	Carbon, Total Organic	N/A		Water	0.09 mg/L	10 mL	0.09 mg/L J	1	0.07	0.50			8/26/20 09:35:00	N	III
K2007206-002	Carbon, Total Organic	N/A		Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/26/20 09:35:00	N	III
K2007273-001	Carbon, Total Organic	N/A		Ground Water	11.07 mg/L	10 mL	11.1 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007273-002	Carbon, Total Organic	N/A		Ground Water	4.23 mg/L	10 mL	4.23 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007273-003	Carbon, Total Organic	N/A		Ground Water	2.12 mg/L	10 mL	2.12 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007273-004	Carbon, Total Organic	N/A		Ground Water	2.62 mg/L	10 mL	2.62 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007273-005	Carbon, Total Organic	N/A		Ground Water	2.76 mg/L	10 mL	2.76 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007273-006	Carbon, Total Organic	N/A		Ground Water	0.10 mg/L	10 mL	0.1 mg/L J	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007277-001	Carbon, Total Organic	N/A		Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
K2007284-001	Carbon, Total Organic	N/A		Drinking Water	0.69 mg/L	10 mL	0.69 mg/L	1	0.07	0.50			8/26/20 09:35:00	N	II
KQ2012129-01	Carbon, Total Organic	DUP	K2007018-003	Ground Water	3.07 mg/L	10 mL	3.07 mg/L	1	0.07	0.50		<1	8/26/20 09:35:00	N	IV
KQ2012129-02	Carbon, Total Organic	MS	K2007018-003	Ground Water	28.13 mg/L	10 mL	28.1 mg/L	1	0.07	0.50	100		8/26/20 09:35:00	N	IV
KQ2012129-04	Carbon, Total Organic	DUP	K2007277-001	Water	1.34 mg/L	10 mL	1.34 mg/L	1	0.07	0.50		12*	8/26/20 09:35:00	N	II
KQ2012129-05	Carbon, Total Organic	MS	K2007277-001	Water	27.81 mg/L	10 mL	27.8 mg/L	1	0.07	0.50	105		8/26/20 09:35:00	N	II
KQ2012129-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/26/20 09:35:00	N	III
KQ2012129-09	Carbon, Total Organic	CCV		Water	23.33 mg/L	10 mL	23.3 mg/L	1					8/26/20 09:35:00	N	III
KQ2012129-10	Carbon, Total Organic	CCV		Water	23.03 mg/L	10 mL	23.0 mg/L	1					8/26/20 09:35:00	N	III
KQ2012129-11	Carbon, Total Organic	CCV		Water	23.36 mg/L	10 mL	23.4 mg/L	1					8/26/20 09:35:00	N	III
KQ2012129-12	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/26/20 09:35:00	N	III
KQ2012129-13	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/26/20 09:35:00	N	III
KQ2012129-14	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			8/26/20 09:35:00	N	III
KQ2012129-15	Carbon, Total Organic	LCS		Water	24.25 mg/L	10 mL	24.3 mg/L	1	0.07	0.50	97		8/26/20 09:35:00	N	III
KQ2012129-16	Carbon, Total Organic	DLCS		Water	24.25 mg/L	10 mL	24.2 mg/L	1	0.07	0.50	97	<1	8/26/20 09:35:00	N	III

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

Fusion Report - 082620
Wednesday, August 26, 2020 09:35 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/08/27 08:46 - Thursday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	082620	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) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/08/26 09:35

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	14.23	28.40	14.17	49.67	05:30
2	TC Clean	10.96	24.52	13.56	49.85	07:16
3	TC Clean	1.89	15.14	13.25	49.81	07:00
4	TC Clean	1.11	14.20	13.09	49.80	07:03

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/08/26 10:07

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.08	13.12	13.04	49.62	05:18
2	TC Clean	3.98	17.03	13.06	49.78	07:16

3	TC Clean	0.62	13.78	13.16	49.98	07:00
4	TC Clean	0.49	13.75	13.25	49.86	07:00

Sample Type: Clean From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/08/26 10:38

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.52	12.51	13.03	49.59	05:25
2	TC Clean	3.66	16.56	12.90	49.90	07:17
3	TC Clean	0.53	13.57	13.04	49.85	07:04
4	TC Clean	0.73	13.52	12.79	49.90	07:01

Sample Type: Blank (Creating v1438) From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2020/08/26 11:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.31	12.55	12.86	49.66	05:18
2	TC Clean	3.78	16.88	13.11	49.83	07:19
3	TC Clean	0.64	13.66	13.02	49.85	07:03
4	TC Clean	0.54	13.53	12.98	49.87	07:01
5	Reagent Blank	4.75	17.76	13.01	49.86	08:12
6	Acid Blank	0.07	13.03	12.96	49.58	05:34

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.1746 ppm	0.0000 ppm	0.0000%	2020/08/26 11:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1746	1.7456	10.44	23.29	12.84	50.07	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 1

	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)	23.3274 ppm (PASS)	0.0000 ppm	0%	2020/08/26 12:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.3274	233.2744	173.53	186.50	12.97	50.01	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 1

	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%	2020/08/26 12:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.31	22.22	12.91	49.99	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 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2020/08/26 12:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.92	21.83	12.91	49.94	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	24.2545 ppm (PASS)	0.0000 ppm	0%	2020/08/26 12:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.2545	242.5448	180.03	193.05	13.02	49.97	10:32

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 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.3870 ppm	0.0000 ppm	0.0000%	2020/08/26 13:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3870	3.8696	11.93	24.93	12.99	49.96	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> LCS From Schedule Version 2

	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)	24.2521 ppm (PASS)	0.0000 ppm	0%	2020/08/26 13:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.2521	242.5205	180.02	192.94	12.92	49.95	10:32

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 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2007206-001	0.0902 ppm	0.0249 ppm	27.5900%	2020/08/26 13:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1078	1.0784	9.98	23.03	13.05	49.98	10:28
2	TOC	0.0726	0.7263	9.73	22.75	13.02	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K2007206-002	0.0110 ppm	0.0156 ppm	141.4200%	2020/08/26 14:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0220	0.2202	9.37	22.27	12.89	49.96	10:29
2	TOC	0.0000	0.0000	9.09	22.05	12.96	49.94	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2007273-001	11.0671 ppm	0.0046 ppm	0.0400%	2020/08/26 14:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.0638	110.6378	86.83	99.79	12.96	49.93	10:27
2	TOC	11.0703	110.7034	86.88	99.78	12.91	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2007273-002	4.2264 ppm	0.0439 ppm	1.0400%	2020/08/26 15:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2575	42.5748	39.08	52.03	12.95	49.90	10:28
2	TOC	4.1953	41.9533	38.65	51.65	13.01	49.91	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2007273-003	2.1229 ppm	0.0693 ppm	3.2600%	2020/08/26 15:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1719	21.7190	24.46	37.39	12.94	50.01	10:27
2	TOC	2.0740	20.7396	23.77	36.73	12.96	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2007273-004	2.6196 ppm	0.0003 ppm	0.0100%	2020/08/26 15:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6198	26.1981	27.60	40.62	13.02	49.99	10:26
2	TOC	2.6194	26.1938	27.59	40.52	12.93	50.00	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 6

	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)	23.0343 ppm (PASS)	0.0000 ppm	0%	2020/08/26 16:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.0343	230.3435	171.47	184.56	13.09	50.01	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 6

	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%	2020/08/26 16:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.20	22.28	13.08	49.99	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 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K2007273-005	2.7633 ppm	0.0100 ppm	0.3600%	2020/08/26 16:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	2.7562	27.5623	28.55	41.45	12.89	49.98	10:29
2	TOC	2.7703	27.7034	28.65	41.67	13.02	50.00	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2007273-006	0.0956 ppm	0.0192 ppm	20.0400%	2020/08/26 17:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1091	1.0912	9.99	23.04	13.06	49.93	10:26
2	TOC	0.0820	0.8204	9.79	22.80	13.01	50.00	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2007284-001	0.6882 ppm	0.0202 ppm	2.9300%	2020/08/26 17:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7024	7.0244	14.15	26.94	12.80	49.96	10:29
2	TOC	0.6739	6.7393	13.95	27.11	13.16	50.07	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2007018-003	3.0978 ppm	0.0722 ppm	2.3300%	2020/08/26 18:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1488	31.4883	31.31	44.22	12.91	50.01	10:29
2	TOC	3.0468	30.4676	30.59	43.48	12.89	50.11	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2007018-003D	3.0671 ppm	0.0296 ppm	0.9700%	2020/08/26 18:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0881	30.8810	30.88	43.89	13.01	50.09	10:28
2	TOC	3.0462	30.4619	30.59	43.50	12.91	50.02	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K2007018-002 25X	18.7751 ppm	0.4495 ppm	2.3900%	2020/08/26 19:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.4573	184.5726	138.69	151.81	13.11	50.07	10:27
2	TOC	19.0929	190.9291	143.15	156.33	13.17	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K2007277-001	1.5009 ppm	0.1550 ppm	10.3300%	2020/08/26 19:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6105	16.1052	20.52	33.63	13.11	50.03	10:26
2	TOC	1.3913	13.9127	18.98	32.10	13.12	50.10	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2007277-001D	1.3367 ppm	0.0619 ppm	4.6300%	2020/08/26 20:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3804	13.8043	18.90	31.83	12.93	50.00	10:29
2	TOC	1.2929	12.9290	18.29	31.32	13.03	49.97	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2007277-001MS	27.8119 ppm	0.3041 ppm	1.0900%	2020/08/26 20:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0270	280.2699	205.82	218.88	13.05	49.99	10:30
2	TOC	27.5969	275.9690	202.81	215.99	13.18	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2007018--003MS	28.1326 ppm	0.0519 ppm	0.1800%	2020/08/26 21:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0958	280.9585	206.31	219.47	13.16	49.96	10:25

2	TOC	28.1693	281.6926	206.82	219.83	13.01	49.92	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 6

	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)	23.3627 ppm (PASS)	0.0000 ppm	0%	2020/08/26 21:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.3627	233.6265	173.78	186.75	12.97	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 6

	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%	2020/08/26 21:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.71	22.67	12.96	49.92	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 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC		0.1076 ppm	0.0000 ppm	0.0000%	2020/08/26 22:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1076	1.0756	9.97	22.99	13.01	49.90	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2195 (IC) (v1438)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1437	1.5957	0.3770	0.0000	0.0000	0.0000	2020/08/24 12:34	Fusion1 (Fusion1)
v1438	1.5833	0.0690	0.0000	0.0000	0.0000	2020/08/26 11:56	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

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

DetectorSweepFlow	500 ml/min	SyringeSpeedReagent	7
PreSpargeTime	2.00 mins	SyringeSpeedDIWater	7
SystemFlow	500 ml/min	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	2020/08/26 22:22

ALS Environmental

StarLIMS Run: 692897

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:	MR	Date Analyzed:	8-26-20
Reviewed By:	gc	Date Reviewed:	8/28/20

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 04, 2020

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

Work Order: **HS20110285**

Laboratory Results for: **LHAAP 04 November 2020**

Dear Susan Huang,

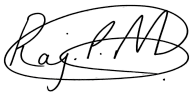
ALS Environmental received 14 sample(s) on Nov 06, 2020 for the analysis presented in the following report.

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: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Work Order: HS20110285

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20110285-01	LHSMW01-201104	Groundwater		04-Nov-2020 07:20	06-Nov-2020 09:25	☐
HS20110285-02	04WW04-201104	Groundwater		04-Nov-2020 08:00	06-Nov-2020 09:25	☐
HS20110285-03	04WW08-201104	Groundwater		04-Nov-2020 08:40	06-Nov-2020 09:25	☐
HS20110285-04	04WW02-201104	Groundwater		04-Nov-2020 09:20	06-Nov-2020 09:25	☐
HS20110285-05	04WW06-201104	Groundwater		04-Nov-2020 10:00	06-Nov-2020 09:25	☐
HS20110285-06	LHSMW02-201104	Groundwater		04-Nov-2020 10:45	06-Nov-2020 09:25	☐
HS20110285-07	04WW11-201104	Groundwater		04-Nov-2020 11:30	06-Nov-2020 09:25	☐
HS20110285-08	04WW11-201104-FD	Groundwater		04-Nov-2020 11:30	06-Nov-2020 09:25	☐
HS20110285-09	04WW01-201104	Groundwater		04-Nov-2020 12:10	06-Nov-2020 09:25	☐
HS20110285-10	04WW05-201105	Groundwater		05-Nov-2020 07:35	06-Nov-2020 09:25	☐
HS20110285-11	04WW09-201105	Groundwater		05-Nov-2020 08:20	06-Nov-2020 09:25	☐
HS20110285-12	04WW09-201105-FD	Groundwater		05-Nov-2020 08:20	06-Nov-2020 09:25	☐
HS20110285-13	04WW10-201105	Groundwater		05-Nov-2020 09:10	06-Nov-2020 09:25	☐
HS20110285-14	04WW07-201105	Groundwater		05-Nov-2020 10:05	06-Nov-2020 09:25	☐

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 04 November 2020
Work Order: HS20110285

Work Order Comments

- REV01: Revised to update the Case Narratives.
- The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.

  The analysis for Perchlorate was subcontracted to ALS High Res Lab Houston, TX. Final report attached.

WetChemistry by Method SW9056

Batch ID: R372797,R373118

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

WetChemistry by Method SM2320B

Batch ID: R372174

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: LHSMW01-201104
Collection Date: 04-Nov-2020 07:20

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-01
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW04-201104
Collection Date: 04-Nov-2020 08:00

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-02
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW08-201104
Collection Date: 04-Nov-2020 08:40

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-03
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW02-201104
Collection Date: 04-Nov-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-04
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW06-201104
Collection Date: 04-Nov-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-05
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: LHSMW02-201104
Collection Date: 04-Nov-2020 10:45

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-06
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW11-201104
Collection Date: 04-Nov-2020 11:30

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-07
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW11-201104-FD
Collection Date: 04-Nov-2020 11:30

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-08
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW01-201104
Collection Date: 04-Nov-2020 12:10

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-09
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	23-Nov-2020 18:12

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW05-201105
Collection Date: 05-Nov-2020 07:35

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**605**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	08-Nov-2020 11:22
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 16:09
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 16:09
Sulfate	**117**		**2.00**	**5.00**	**5.00**	**mg/L**	10	17-Nov-2020 14:44
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Nov-2020 18:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Nov-2020 17:40

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW09-201105
Collection Date: 05-Nov-2020 08:20

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**537**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	08-Nov-2020 11:29
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 16:23
Nitrogen, Nitrite (As N)	**1.63**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-Nov-2020 16:23
Sulfate	**1.04**		**0.200**	**0.500**	**0.500**	**mg/L**	1	17-Nov-2020 13:49
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Nov-2020 18:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Nov-2020 17:40

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW09-201105-FD
Collection Date: 05-Nov-2020 08:20

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**538**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	08-Nov-2020 11:35
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 18:34
Nitrogen, Nitrite (As N)	**1.57**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-Nov-2020 18:34
Sulfate	**0.956**		**0.200**	**0.500**	**0.500**	**mg/L**	1	17-Nov-2020 14:07
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Nov-2020 18:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Nov-2020 17:40

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW10-201105
Collection Date: 05-Nov-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**663**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	08-Nov-2020 11:07
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 18:49
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 18:49
Sulfate	**1,040**		**10.0**	**25.0**	**25.0**	**mg/L**	50	17-Nov-2020 15:38
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Nov-2020 18:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Nov-2020 17:40

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
Sample ID: 04WW07-201105
Collection Date: 05-Nov-2020 10:05

ANALYTICAL REPORT
WorkOrder:HS20110285
Lab ID:HS20110285-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**1,180**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	08-Nov-2020 11:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 19:03
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	06-Nov-2020 19:03
Sulfate	**2.68**		**0.200**	**0.500**	**0.500**	**mg/L**	1	17-Nov-2020 14:25
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	23-Nov-2020 18:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Nov-2020 17:40

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

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
WorkOrder: HS20110285

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R372174 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20110285-10	04WW05-201105	05 Nov 2020 07:35			08 Nov 2020 11:22	1
HS20110285-11	04WW09-201105	05 Nov 2020 08:20			08 Nov 2020 11:29	1
HS20110285-12	04WW09-201105-FD	05 Nov 2020 08:20			08 Nov 2020 11:35	1
HS20110285-13	04WW10-201105	05 Nov 2020 09:10			08 Nov 2020 11:07	1
HS20110285-14	04WW07-201105	05 Nov 2020 10:05			08 Nov 2020 11:45	1
Batch ID: R372797 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20110285-10	04WW05-201105	05 Nov 2020 07:35			17 Nov 2020 14:44	10
HS20110285-11	04WW09-201105	05 Nov 2020 08:20			17 Nov 2020 13:49	1
HS20110285-12	04WW09-201105-FD	05 Nov 2020 08:20			17 Nov 2020 14:07	1
HS20110285-13	04WW10-201105	05 Nov 2020 09:10			17 Nov 2020 15:38	50
HS20110285-14	04WW07-201105	05 Nov 2020 10:05			17 Nov 2020 14:25	1
Batch ID: R372809 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20110285-10	04WW05-201105	05 Nov 2020 07:35			17 Nov 2020 17:40	1
HS20110285-11	04WW09-201105	05 Nov 2020 08:20			17 Nov 2020 17:40	1
HS20110285-12	04WW09-201105-FD	05 Nov 2020 08:20			17 Nov 2020 17:40	1
HS20110285-13	04WW10-201105	05 Nov 2020 09:10			17 Nov 2020 17:40	1
HS20110285-14	04WW07-201105	05 Nov 2020 10:05			17 Nov 2020 17:40	1
Batch ID: R373118 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20110285-10	04WW05-201105	05 Nov 2020 07:35			06 Nov 2020 16:09	1
HS20110285-11	04WW09-201105	05 Nov 2020 08:20			06 Nov 2020 16:23	1
HS20110285-12	04WW09-201105-FD	05 Nov 2020 08:20			06 Nov 2020 18:34	1
HS20110285-13	04WW10-201105	05 Nov 2020 09:10			06 Nov 2020 18:49	1
HS20110285-14	04WW07-201105	05 Nov 2020 10:05			06 Nov 2020 19:03	1

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020 **DATES REPORT**
WorkOrder: HS20110285

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R373247 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20110285-01	LHSMW01-201104	04 Nov 2020 07:20			23 Nov 2020 18:12	1
HS20110285-02	04WW04-201104	04 Nov 2020 08:00			23 Nov 2020 18:12	1
HS20110285-03	04WW08-201104	04 Nov 2020 08:40			23 Nov 2020 18:12	1
HS20110285-04	04WW02-201104	04 Nov 2020 09:20			23 Nov 2020 18:12	1
HS20110285-05	04WW06-201104	04 Nov 2020 10:00			23 Nov 2020 18:12	1
HS20110285-06	LHSMW02-201104	04 Nov 2020 10:45			23 Nov 2020 18:12	1
HS20110285-07	04WW11-201104	04 Nov 2020 11:30			23 Nov 2020 18:12	1
HS20110285-08	04WW11-201104-FD	04 Nov 2020 11:30			23 Nov 2020 18:12	1
HS20110285-09	04WW01-201104	04 Nov 2020 12:10			23 Nov 2020 18:12	1
HS20110285-10	04WW05-201105	05 Nov 2020 07:35			23 Nov 2020 18:12	1
HS20110285-11	04WW09-201105	05 Nov 2020 08:20			23 Nov 2020 18:12	1
HS20110285-12	04WW09-201105-FD	05 Nov 2020 08:20			23 Nov 2020 18:12	1
HS20110285-13	04WW10-201105	05 Nov 2020 09:10			23 Nov 2020 18:12	1
HS20110285-14	04WW07-201105	05 Nov 2020 10:05			23 Nov 2020 18:12	1

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
WorkOrder: HS20110285

QC BATCH REPORT

Batch ID: R372174 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW1-201108** Units: **mg/L** Analysis Date: **08-Nov-2020 10:42**
Client ID: Run ID: **ManTech01_372174** SeqNo: **5821438** 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: **LCS1-201108** Units: **mg/L** Analysis Date: **08-Nov-2020 10:50**
Client ID: Run ID: **ManTech01_372174** SeqNo: **5821439** 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)	1018	5.00	1000	0	102	85 - 115				

LCSD Sample ID: **LCSD1-201108** Units: **mg/L** Analysis Date: **08-Nov-2020 11:00**
Client ID: Run ID: **ManTech01_372174** SeqNo: **5821440** 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)	1022	5.00	1000	0	102	85 - 115	1018	0.309	20	

DUP Sample ID: **HS20110285-13DUP** Units: **mg/L** Analysis Date: **08-Nov-2020 11:14**
Client ID: **04WW10-201105** Run ID: **ManTech01_372174** SeqNo: **5821442** 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)	662.2	5.00					663.2	0.139	20	

The following samples were analyzed in this batch: HS20110285-10 HS20110285-11 HS20110285-12 HS20110285-13 HS20110285-14

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
WorkOrder: HS20110285

QC BATCH REPORT

Batch ID: R372797 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-111620** Units: **mg/L** Analysis Date: **16-Nov-2020 11:01**
Client ID: Run ID: **ICS-Integrion_372797** SeqNo: **5836405** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-111620** Units: **mg/L** Analysis Date: **16-Nov-2020 11:19**
Client ID: Run ID: **ICS-Integrion_372797** SeqNo: **5836406** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.81	0.500	20	0	99.1	80 - 120				

MS Sample ID: **HS20110285-13MS** Units: **mg/L** Analysis Date: **17-Nov-2020 15:56**
Client ID: **04WW10-201105** Run ID: **ICS-Integrion_372797** SeqNo: **5836788** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1523	25.0	500	1035	97.5	80 - 120				

MSD Sample ID: **HS20110285-13MSD** Units: **mg/L** Analysis Date: **17-Nov-2020 16:14**
Client ID: **04WW10-201105** Run ID: **ICS-Integrion_372797** SeqNo: **5836789** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1523	25.0	500	1035	97.6	80 - 120	1523	0.0302	20	

The following samples were analyzed in this batch: HS20110285-10 HS20110285-11 HS20110285-12 HS20110285-13 HS20110285-14

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
WorkOrder: HS20110285

QC BATCH REPORT

Batch ID: R373118 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-110620** Units: **mg/L** Analysis Date: **07-Nov-2020 07:10**
Client ID: Run ID: **ICS2100_373118** SeqNo: **5843911** PrepDate: DF: **1**

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

LCS Sample ID: **LCS-110620** Units: **mg/L** Analysis Date: **07-Nov-2020 07:24**
Client ID: Run ID: **ICS2100_373118** SeqNo: **5843912** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.735	0.100	4	0	93.4	80 - 120				
Nitrogen, Nitrite (As N)	3.843	0.100	4	0	96.1	80 - 120				

MS Sample ID: **HS20110285-13MS** Units: **mg/L** Analysis Date: **07-Nov-2020 06:11**
Client ID: **04WW10-201105** Run ID: **ICS2100_373118** SeqNo: **5843909** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.659	0.100	2	0	82.9	80 - 120				
Nitrogen, Nitrite (As N)	1.704	0.100	2	0	85.2	80 - 120				

MSD Sample ID: **HS20110285-13MSD** Units: **mg/L** Analysis Date: **07-Nov-2020 06:26**
Client ID: **04WW10-201105** Run ID: **ICS2100_373118** SeqNo: **5843910** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.887	0.100	2	0	94.4	80 - 120	1.659	12.9	20	
Nitrogen, Nitrite (As N)	1.99	0.100	2	0	99.5	80 - 120	1.704	15.5	20	

The following samples were analyzed in this batch: HS20110285-10 HS20110285-11 HS20110285-12 HS20110285-13 HS20110285-14

ALS Houston, US Date: 04-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 04 November 2020
WorkOrder: **HS20110285**

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	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 04-Dec-20

Sample Receipt Checklist

Work Order ID: HS20110285 **Date/Time Received:** **06-Nov-2020 09:25**

Client Name: CBI-Houston **Received by:** **Paresh M. Giga**

Completed By:	/S/ Jared R. Makan	06-Nov-2020 13:15	**Reviewed by:**	/S/ RJ Modashia	06-Nov-2020 16:40
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
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):	0.8°C/0.8°C UC/C	IR31
Cooler(s)/Kit(s):	24013	
Date/Time sample(s) sent to storage:	11/06/2020 13 :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 (281) 530-5656 ATTN: R.J Modashia

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

Project No. 501032

Job: **LHAAP 04 November 2020**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	Analyses: TOC by SM5310	Analyses: Anions (nitrate, nitrite and sulfate) by SW9056 and Alkalinity by SM2320B	Remarks (Preservatives, etc.)	Lab I.D.#
LHSmw01-201104	WG	11/4/20/0720		1	X				
04WW04-201104	WG	11/4/20/0800		1	X				
04WW08-201104	WG	11/4/20/0840		1	X				
04WW02-201104	WG	11/4/20/0920		1	X				
04WW06-201104	WG	11/4/20/1000		1	X				
LHSMW02-201104	WG	11/4/20/1045		1	X				
04WW11-201104	WG	11/4/20/1130		1	X				
04WW11-201104-FD	WG	11/4/20/1130		1	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	11/5/20	1430	PM	11/6/2020	9:25						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS20110285

Aptim Environmental & Infrastucture, Inc.
LHAAP 04 November 2020

24013 U/C. 0.8° 431 CIP 04

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

Project No. 501032

Job: LHAAP 04 November 2020

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: Perchlorate by SW6850	Analyses: TOC by SM5310	Analyses: Anions (nitrate, nitrite and sulfate) by SW9056 and Alkalinity by SM2320B	Remarks (Preservatives, etc.)	Lab I.D.#
04WW01-201104	WG	11/4/20/1210		1	X				
04WW05-201105	WG	11/5/20/0735		4	X	X	X		
04WW09-201105	WG	11/5/20/0820		4	X	X	X		
04WW09-201105-FD	WG	11/5/20/0820		4	X	X	X		
04WW10-201105	WG	11/5/20/0910		4	X	X			
04WW10-201105-MS	WG	11/5/20/0910		4	X	X	X		
04WW10-201105-MSD	WG	11/5/20/0910		4	X	X	X		
04WW07-201105	WG	11/5/20/1005		4	X	X	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	11/5/20	1430	P.M	11/6/2020	09:25						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS20110285

Aptim Environmental & Infrastucture, Inc.
LHAAP 04 November 2020

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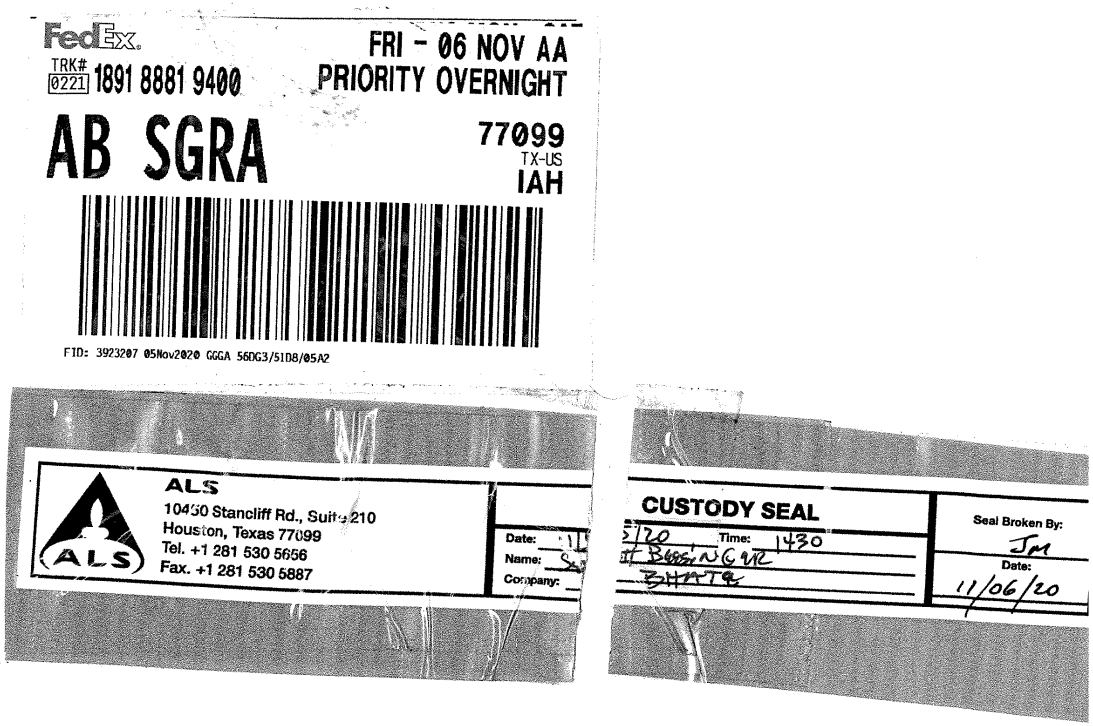
FedEx
TRK# 0221 1891 8881 9400
FRI - 06 NOV AA
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH
FID: 3923207 05Nov2020 GGGA 56DG3/51D8/05A2
ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Company:
CUSTODY SEAL
Time: 1430
Seal Broken By:
JM
Date:
11/06/20

November 23, 2020 Service Request No:E2001090

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

Laboratory Results for: HS20110285

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 09, 2020
For your reference, these analyses have been assigned our service request number **E2001090.**

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