

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701**



Analytical Report

Prepared for:

Christine Alderman
Cimarex
600 N. Marinfeld, Ste. 600
Midland, TX 79701

Project: Assault SWD

Project Number: [none]

Location:

Lab Order Number: 7H13002



NELAP/TCEQ # T104704516-16-7

Report Date: 08/18/17

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
7	7H13002-01	Water	08/13/17 09:15	08-13-2017 17:15
11	7H13002-02	Water	08/13/17 09:10	08-13-2017 17:15
8	7H13002-03	Water	08/13/17 10:20	08-13-2017 17:15
10	7H13002-04	Water	08/13/17 10:50	08-13-2017 17:15
9	7H13002-05	Water	08/13/17 11:05	08-13-2017 17:15
12	7H13002-06	Water	08/13/17 11:25	08-13-2017 17:15
7A	7H13002-07	Water	08/13/17 11:50	08-13-2017 17:15
7B	7H13002-08	Water	08/13/17 12:10	08-13-2017 17:15
7C	7H13002-09	Water	08/13/17 12:35	08-13-2017 17:15
7D	7H13002-10	Water	08/13/17 13:05	08-13-2017 17:15
DUP-8/13	7H13002-11	Water	08/13/17 00:00	08-13-2017 17:15

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

7

7H13002-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		70.3 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		81.5 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1408	08/14/17	08/15/17	EPA 300.0	
Chloride	89.6	12.5	mg/L	25	P7H1408	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	2920	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	7.86		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	23.10		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	2830	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1440	25.0	mg/L	25	P7H1408	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	728	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	49.8	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	8.15	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	99.6	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	2020	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

11

7H13002-02 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		70.3 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		81.3 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	70.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	70.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1408	08/14/17	08/15/17	EPA 300.0	
Chloride	3370	50.0	mg/L	100	P7H1408	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	12200	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	7.78		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	23.00		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	8900	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	2320	100	mg/L	100	P7H1408	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	1610	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	291	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	33.2	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	2660	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	5220	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

8

7H13002-03 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		71.1 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		83.0 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	0.303	0.0500	mg/L	1	P7H1408	08/14/17	08/15/17	EPA 300.0	
Chloride	102	12.5	mg/L	25	P7H1408	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	1710	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	7.84		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	23.00		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	2490	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1230	25.0	mg/L	25	P7H1408	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	568	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	30.3	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	6.66	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	83.9	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1540	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

10
7H13002-04 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		76.6 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		88.5 %	70-130		P7H1512	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	1630	25.0	mg/L	50	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	7700	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	8.04		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	23.00		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	6010	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1780	50.0	mg/L	50	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	448	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	161	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	17.6	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	838	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1780	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

9

7H13002-05 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		74.2 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		84.8 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	75.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	75.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	1800	25.0	mg/L	50	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	8150	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	8.04		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	22.90		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	6260	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1930	50.0	mg/L	50	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	436	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	162	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	16.9	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	844	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1750	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

12

7H13002-06 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		81.1 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		92.2 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	85.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	85.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	1840	25.0	mg/L	50	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	7950	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	8.09		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	22.80		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	6170	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1880	50.0	mg/L	50	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	435	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	167	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	17.7	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	879	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1780	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

7A

7H13002-07 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		87.3 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		98.6 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	100	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	100	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	100	12.5	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	2960	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	8.01		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	22.70		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	3000	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1620	25.0	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	43.7	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	17.7	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	1.70	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	J, QAL2
Sodium	90.6	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	182	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

7B

7H13002-08 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		119 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		126 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	97.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	97.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	99.2	12.5	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	2920	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	7.91		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	22.70		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	2940	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1660	25.0	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	547	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	40.6	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	5.95	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	85.1	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1530	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

7C

7H13002-09 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		116 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		125 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	122	12.5	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	2890	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	7.99		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	22.80		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	2750	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1490	25.0	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	687	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	47.9	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	6.95	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	100	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1910	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

7D
7H13002-10 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		94.9 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		102 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	93.2	12.5	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	2630	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	7.92		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	23.30		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	2630	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	1420	25.0	mg/L	25	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	568	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	32.6	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	6.44	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	90.5	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	1550	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

DUP-8/13
7H13002-11 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		118 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		127 %	70-130		P7H1517	08/15/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/15/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bicarbonate Alkalinity	80.0	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1413	08/14/17	08/14/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1410	08/14/17	08/15/17	EPA 300.0	
Chloride	1910	50.0	mg/L	100	P7H1410	08/14/17	08/15/17	EPA 300.0	
Specific Conductance (EC)	8050	5.00	umhos/cm	1	P7H1501	08/15/17	08/15/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1415	08/14/17	08/14/17	CHEMets	QAL1
pH	8.02		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Temperature	23.20		pH Units	1	P7H1414	08/14/17	08/14/17	EPA 150.1	
Total Dissolved Solids	6370	20.0	mg/L	1	P7H1416	08/14/17	08/14/17	EPA 160.1	
Sulfate	2040	100	mg/L	100	P7H1410	08/14/17	08/15/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	492	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Magnesium	187	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Potassium	20.1	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Sodium	974	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2
Hardness	2000	5.00	mg/L	1	P7H1412	08/14/17	08/16/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1512 - TX 1005

Blank (P7H1512-BLK1)

Prepared & Analyzed: 08/15/17

C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	9.70		"	9.38		104	70-130			
Surrogate: o-Terphenyl	5.41		"	4.69		115	70-130			

LCS (P7H1512-BS1)

Prepared & Analyzed: 08/15/17

C6-C12	81.8	2.50	mg/L	93.8		87.3	75-125			
>C12-C28	70.4	2.50	"	93.8		75.1	75-125			
Surrogate: 1-Chlorooctane	8.15		"	9.38		86.9	70-130			
Surrogate: o-Terphenyl	3.96		"	4.69		84.4	70-130			

LCS Dup (P7H1512-BSD1)

Prepared & Analyzed: 08/15/17

C6-C12	75.8	2.50	mg/L	93.8		80.8	75-125	7.67	20	
>C12-C28	82.8	2.50	"	93.8		88.3	75-125	16.1	20	
Surrogate: 1-Chlorooctane	9.71		"	9.38		104	70-130			
Surrogate: o-Terphenyl	5.01		"	4.69		107	70-130			

Duplicate (P7H1512-DUP1)

Source: 7H15006-03

Prepared: 08/15/17 Analyzed: 08/16/17

C6-C12	7.60	2.50	mg/L		7.53			0.917	20	
>C12-C28	ND	2.50	"		1.10				20	
Surrogate: 1-Chlorooctane	10.7		"	9.38		114	70-130			
Surrogate: o-Terphenyl	5.70		"	4.69		122	70-130			

Batch P7H1517 - TX 1005

Blank (P7H1517-BLK1)

Prepared: 08/15/17 Analyzed: 08/16/17

C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	11.1		"	9.38		118	70-130			
Surrogate: o-Terphenyl	5.79		"	4.69		124	70-130			

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1517 - TX 1005

LCS (P7H1517-BS1)

Prepared: 08/15/17 Analyzed: 08/16/17

C6-C12	72.8	2.50	mg/L	93.8		77.7	75-125			
>C12-C28	71.0	2.50	"	93.8		75.8	75-125			
Surrogate: 1-Chlorooctane	11.0		"	9.38		118	70-130			
Surrogate: o-Terphenyl	5.50		"	4.69		117	70-130			

LCS Dup (P7H1517-BSD1)

Prepared: 08/15/17 Analyzed: 08/16/17

C6-C12	72.0	2.50	mg/L	93.8		76.8	75-125	1.07	20	
>C12-C28	70.7	2.50	"	93.8		75.4	75-125	0.466	20	
Surrogate: 1-Chlorooctane	11.0		"	9.38		118	70-130			
Surrogate: o-Terphenyl	5.49		"	4.69		117	70-130			

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1408 - * DEFAULT PREP *****

Blank (P7H1408-BLK1)

Prepared: 08/14/17 Analyzed: 08/15/17

Bromide	ND	0.0500	mg/L							
Sulfate	ND	1.00	"							
Chloride	ND	0.500	"							

LCS (P7H1408-BS1)

Prepared: 08/14/17 Analyzed: 08/15/17

Bromide	5.93	0.0500	mg/L	5.00		119	80-120			
Sulfate	38.9	1.00	"	40.0		97.1	85-115			
Chloride	42.8	0.500	"	40.0		107	85-115			

LCS Dup (P7H1408-BSD1)

Prepared: 08/14/17 Analyzed: 08/15/17

Bromide	5.98	0.0500	mg/L	5.00		120	80-120	0.772	20	
Sulfate	38.9	1.00	"	40.0		97.3	85-115	0.139	20	
Chloride	43.4	0.500	"	40.0		108	85-115	1.35	20	

Duplicate (P7H1408-DUP1)

Source: 7H13001-01

Prepared: 08/14/17 Analyzed: 08/15/17

Chloride	80.9	12.5	mg/L		81.0			0.0618	20	
Bromide	ND	0.0500	"		0.237				20	
Sulfate	1700	25.0	"		1700			0.137	20	

Duplicate (P7H1408-DUP2)

Source: 7H13001-11

Prepared: 08/14/17 Analyzed: 08/15/17

Bromide	ND	0.0500	mg/L		0.225				20	
Sulfate	1400	25.0	"		1370			1.62	20	
Chloride	52.4	12.5	"		51.6			1.59	20	

Matrix Spike (P7H1408-MS1)

Source: 7H13001-01

Prepared: 08/14/17 Analyzed: 08/15/17

Sulfate	2070	25.0	mg/L	400	1700	93.8	80-120			
Chloride	458	12.5	"	400	81.0	94.3	80-120			
Bromide	49.4	1.25	"	50.0	ND	98.8	75-125			

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1410 - * DEFAULT PREP *****

Blank (P7H1410-BLK1)

Prepared: 08/14/17 Analyzed: 08/15/17

Bromide	ND	0.0500	mg/L
Chloride	ND	0.500	"
Sulfate	ND	1.00	"

LCS (P7H1410-BS1)

Prepared: 08/14/17 Analyzed: 08/15/17

Chloride	43.2	0.500	mg/L	40.0	108	85-115
Bromide	5.97	0.0500	"	5.00	119	80-120
Sulfate	39.1	1.00	"	40.0	97.8	85-115

LCS Dup (P7H1410-BSD1)

Prepared: 08/14/17 Analyzed: 08/15/17

Bromide	5.99	0.0500	mg/L	5.00	120	80-120	0.351	20
Sulfate	39.3	1.00	"	40.0	98.2	85-115	0.449	20
Chloride	43.3	0.500	"	40.0	108	85-115	0.312	20

Duplicate (P7H1410-DUP1)

Source: 7H13002-04

Prepared: 08/14/17 Analyzed: 08/15/17

Chloride	1630	25.0	mg/L	1630	0.248	20
Sulfate	1780	50.0	"	1780	0.267	20
Bromide	ND	0.0500	"	ND		20

Matrix Spike (P7H1410-MS1)

Source: 7H13002-04

Prepared: 08/14/17 Analyzed: 08/15/17

Sulfate	2140	50.0	mg/L	40.0	1780	879	80-120	QM-05
Bromide	42.5	2.50	"	5.00	ND	850	75-125	QM-05
Chloride	1950	25.0	"	40.0	1630	786	80-120	QM-05

Batch P7H1413 - * DEFAULT PREP *****

Blank (P7H1413-BLK1)

Prepared & Analyzed: 08/14/17

Total Alkalinity	ND	10.0	mg/L
Carbonate Alkalinity	ND	10.0	"
Bicarbonate Alkalinity	ND	10.0	"
Hydroxide Alkalinity	ND	10.0	"

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1413 - * DEFAULT PREP *****

Blank (P7H1413-BLK2)

Prepared & Analyzed: 08/14/17

Total Alkalinity	ND	10.0	mg/L
Carbonate Alkalinity	ND	10.0	"
Bicarbonate Alkalinity	ND	10.0	"
Hydroxide Alkalinity	ND	10.0	"

Duplicate (P7H1413-DUP1)

Source: 7H13001-01

Prepared & Analyzed: 08/14/17

Total Alkalinity	125	10.0	mg/L	120	4.08	20
Carbonate Alkalinity	ND	10.0	"	ND		20
Bicarbonate Alkalinity	125	10.0	"	120	4.08	20
Hydroxide Alkalinity	ND	10.0	"	ND		20

Duplicate (P7H1413-DUP2)

Source: 7H13002-04

Prepared & Analyzed: 08/14/17

Total Alkalinity	77.0	10.0	mg/L	80.0	3.82	20
Carbonate Alkalinity	ND	10.0	"	ND		20
Bicarbonate Alkalinity	77.0	10.0	"	80.0	3.82	20
Hydroxide Alkalinity	ND	10.0	"	ND		20

Batch P7H1414 - * DEFAULT PREP *****

Duplicate (P7H1414-DUP1)

Source: 7H13001-01

Prepared & Analyzed: 08/14/17

pH	7.85	pH Units	7.87	0.254	20
Temperature	23.40	"	23.40	0.00	200

Duplicate (P7H1414-DUP2)

Source: 7H13002-04

Prepared & Analyzed: 08/14/17

pH	8.00	pH Units	8.04	0.499	20
Temperature	23.00	"	23.00	0.00	200

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1415 - * DEFAULT PREP *****

Duplicate (P7H1415-DUP1)		Source: 7H13002-11			Prepared & Analyzed: 08/14/17					
Dissolved Oxygen	6.00		mg/L		6.00			0.00	200	QAL1

Batch P7H1416 - * DEFAULT PREP *****

Blank (P7H1416-BLK1)					Prepared & Analyzed: 08/14/17					
Total Dissolved Solids	ND	20.0	mg/L							

Blank (P7H1416-BLK2)					Prepared & Analyzed: 08/14/17					
Total Dissolved Solids	ND	20.0	mg/L							

Duplicate (P7H1416-DUP1)		Source: 7H13001-01			Prepared & Analyzed: 08/14/17					
Total Dissolved Solids	2950	20.0	mg/L		2810			4.86	20	

Duplicate (P7H1416-DUP2)		Source: 7H13002-04			Prepared & Analyzed: 08/14/17					
Total Dissolved Solids	5960	20.0	mg/L		6010			0.835	20	

Batch P7H1501 - * DEFAULT PREP *****

Duplicate (P7H1501-DUP1)		Source: 7H13001-01			Prepared & Analyzed: 08/15/17					
Specific Conductance (EC)	2990	5.00	umhos/cm		2970			0.671	20	

Duplicate (P7H1501-DUP2)		Source: 7H13002-01			Prepared & Analyzed: 08/15/17					
Specific Conductance (EC)	2980	5.00	umhos/cm		2920			2.03	20	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Total Metals by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	------	----------------	-----	--------------	-------

Batch P7H1412 - * DEFAULT PREP *****

Blank (P7H1412-BLK1)

Prepared: 08/14/17 Analyzed: 08/16/17

Calcium	0.311	5.00	mg/L							J, QAL2
Magnesium	ND	5.00	"							QAL2
Potassium	ND	5.00	"							QAL2
Sodium	0.262	5.00	"							J, QAL2
Hardness	ND	5.00	"							QAL2

LCS (P7H1412-BS1)

Prepared: 08/14/17 Analyzed: 08/16/17

Calcium	52.7	5.00	mg/L	50.0		105	80-120			QAL2
Magnesium	51.4	5.00	"	50.0		103	80-120			QAL2
Potassium	55.2	5.00	"	50.0		110	80-120			QAL2
Sodium	57.5	5.00	"	50.0		115	80-120			QAL2

Duplicate (P7H1412-DUP1)

Source: 7H13001-13

Prepared: 08/14/17 Analyzed: 08/16/17

Calcium	695	5.00	mg/L		599			14.9	20	QAL2
Magnesium	24.8	5.00	"		22.4			10.2	20	QAL2
Potassium	6.75	5.00	"		5.98			12.2	20	QAL2
Sodium	49.1	5.00	"		43.9			11.2	20	QAL2
Hardness	1840	5.00	"		1590			14.6	20	QAL2

Matrix Spike (P7H1412-MS1)

Source: 7H13001-13

Prepared: 08/14/17 Analyzed: 08/16/17

Calcium	678	5.00	mg/L	50.0	599	159	75-125			QAL2, QM-07
Magnesium	80.3	5.00	"	50.0	22.4	116	75-125			QAL2
Potassium	70.8	5.00	"	50.0	5.98	130	75-125			QAL2, QM-07
Sodium	107	5.00	"	50.0	43.9	126	75-125			QAL2, QM-07

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

QAL2 Certification in process for this analyte.

QAL1 The Laboratory is not NELAC Certified for this analyte or analysis.

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

8/18/2017

Brent Barron, Laboratory Director/Technical Director

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Assault SWD
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.



Facility Name Assault S&D		Analytical Laboratory Name BE		Today's Date 8/13/17											
Address		Address 1900 Oak Hill Midland TX		Page 1 Of 1											
City	State NM	Zip TX	Contact Name and Report to: CLIMACEX ; Person in Charge		Analysis/Analytes										
Sample Group Identifier			Phone 432-571-7800	Fax 432-571-7832											
Site/Project Name or Identifier Assault S&D			Carrier Waybill Number												
Special Instructions															
Station Name or Sample ID	Sample Date	Time 24 hrs	Matrix	Sample Top Btm	Size	Containers Type No	Y	Filtered N	Preservative	Comments					
7	8/12/17	0915	H ₂ O	NA NA	500/250 400/100	121			Part 4.0 c	BB TC	Catione/Anion				
11	0910										TPH T+1005				
8	1020														
10	1050														
9	1105														
12	1125														
7A	1150														
7B	1210														
7C	1235														
7D	1305														
Dup-8/13	0000														
Notes: (ENT) NIGS Samples to Fred Charanza & Brenda Brown															
Potential Hazardous Characteristics ☒ Non-Haz ☐ RCRA D001, 2&3, or 4 ☐ RCRA Listed ☐ Radioactive ☐ Unknown						Sample Disposal ☐ Disposal by Lab ☐ Return to Client ☐ Hold pending further instructions									
1. Received by Fred Charanza		Date 8/13/17		Time 16:15		2. Received by CLIMACEX		Date 8/13/17		Time 16:15					
3. Relinquished by Brenda Brown		Date 8/13/17		Time 17:15		4. Received by CLIMACEX		Date 8/13/17		Time 17:15					
5. Relinquished by		Date		Time		6. Received by		Date		Time					
Comments		Date		Time		Samples released by or H.P. name		Date		Time					
Send invoice to ESH Department															

Original – Send to lab with sample

Yellow – Return to FSH

Pink – Remain in book

Version 1: 4/21/2011.