

**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: 7H12001



NELAP/TCEQ # T104704516-16-7

Report Date: 08/15/17

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Midland TX, 79701

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

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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
9	7H12001-01	Water	08/11/17 10:15	08-11-2017 18:34
10	7H12001-02	Water	08/11/17 11:35	08-11-2017 18:34
8	7H12001-03	Water	08/11/17 11:55	08-11-2017 18:34
7A	7H12001-04	Water	08/11/17 13:05	08-11-2017 18:34
7B	7H12001-05	Water	08/11/17 13:35	08-11-2017 18:34
7C	7H12001-06	Water	08/11/17 13:55	08-11-2017 18:34
7D	7H12001-07	Water	08/11/17 14:15	08-11-2017 18:34
12	7H12001-08	Water	08/11/17 15:00	08-11-2017 18:34
11	7H12001-09	Water	08/11/17 09:35	08-11-2017 18:34
DUP-8	7H12001-10	Water	08/11/17 00:00	08-11-2017 18:34
7	7H12001-11	Water	08/11/17 10:15	08-11-2017 18:34

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7H12001-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
Surrogate: 1-Chlorooctane		129 %	70-130		P7H1201	08/12/17	08/15/17	TX 1005	
Surrogate: o-Terphenyl		145 %	70-130		P7H1201	08/12/17	08/15/17	TX 1005	S-GC
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/15/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	62.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	62.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.798	0.0500	mg/L	1	P7H1208	08/12/17	08/13/17	EPA 300.0	
Chloride	1620	25.0	mg/L	50	P7H1208	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	7750	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	8.10		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.10		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	6290	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1720	50.0	mg/L	50	P7H1208	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	483	50.0	mg/L	10	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	187	50.0	mg/L	10	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	19.0	10.0	mg/L	10	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	936	50.0	mg/L	10	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1980	50.0	mg/L	10	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2

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7H12001-02 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
Surrogate: 1-Chlorooctane		119 %	70-130		P7H1201	08/12/17	08/15/17	TX 1005	
Surrogate: o-Terphenyl		140 %	70-130		P7H1201	08/12/17	08/15/17	TX 1005	S-GC
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/15/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	65.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	65.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.757	0.0500	mg/L	1	P7H1208	08/12/17	08/13/17	EPA 300.0	
Chloride	1480	25.0	mg/L	50	P7H1208	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	7580	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	8.14		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.10		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	5480	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1640	50.0	mg/L	50	P7H1208	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	459	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	168	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	17.6	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	847	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1840	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2

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7H12001-03 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1201	08/12/17	08/15/17	TX 1005	
Surrogate: 1-Chlorooctane		127 %	70-130		P7H1201	08/12/17	08/15/17	TX 1005	
Surrogate: o-Terphenyl		145 %	70-130		P7H1201	08/12/17	08/15/17	TX 1005	S-GC
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/15/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	80.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	80.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.389	0.0500	mg/L	1	P7H1208	08/12/17	08/13/17	EPA 300.0	
Chloride	53.6	12.5	mg/L	25	P7H1208	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2410	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.82		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.20		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2330	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1180	25.0	mg/L	25	P7H1208	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	461	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	26.7	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	6.10	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	61.5	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1260	5.00	mg/L	1	P7H1207	08/12/17	08/12/17	EPA 6010B	QAL2

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7A

7H12001-04 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	8.03	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		119 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		130 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	8.03	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	70.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	70.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.254	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	49.0	12.5	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2390	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.61		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.10		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2190	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1110	25.0	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	688	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	29.6	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	8.19	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	62.4	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1840	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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7B

7H12001-05 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		110 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		118 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	62.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	62.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.205	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	46.6	12.5	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2350	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.88		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.40		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2170	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1120	25.0	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	515	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	23.9	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	6.03	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	47.7	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1380	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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Midland TX, 79701

Project: Assault SWD
Project Number: [none]
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7C

7H12001-06 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		107 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		115 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	65.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	65.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.426	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	73.4	12.5	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2390	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.92		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.20		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2190	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1130	25.0	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	583	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	30.3	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	7.37	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	74.7	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1580	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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7D

7H12001-07 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		116 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		125 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	70.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	70.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.466	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	82.7	12.5	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2410	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.88		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.20		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2200	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1130	25.0	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	569	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	31.4	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	7.45	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	77.5	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1550	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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Midland TX, 79701

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

Fax: (432) 571-7832

12

7H12001-08 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		115 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		122 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	65.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	65.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.849	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	1790	25.0	mg/L	50	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	8260	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	8.08		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.20		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	5970	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1890	50.0	mg/L	50	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	575	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	232	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	23.6	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	1120	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	2390	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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

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11

7H12001-09 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		101 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		108 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	75.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	75.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	3.71	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	2570	50.0	mg/L	100	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	9050	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.84		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.20		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	6930	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1780	100	mg/L	100	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	597	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	147	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	23.5	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	1580	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	2100	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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

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DUP-8
7H12001-10 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		103 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		111 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	75.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	75.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.438	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	92.7	12.5	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2400	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.89		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.40		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2260	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1120	25.0	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	560	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	29.7	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	7.38	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	73.7	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1520	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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Project Manager: Christine Alderman

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7H12001-11 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

C6-C12	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: 1-Chlorooctane		106 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Surrogate: o-Terphenyl		115 %	70-130		P7H1407	08/12/17	08/13/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/12/17	08/13/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1210	08/12/17	08/12/17	EPA 310.1M	
Bromide	0.268	0.0500	mg/L	1	P7H1209	08/12/17	08/13/17	EPA 300.0	
Chloride	78.2	12.5	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	
Specific Conductance (EC)	2750	5.00	umhos/cm	1	P7H1217	08/12/17	08/12/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1212	08/12/17	08/12/17	CHEMets	QAL1
pH	7.91		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Temperature	21.50		pH Units	1	P7H1211	08/12/17	08/12/17	EPA 150.1	
Total Dissolved Solids	2510	20.0	mg/L	1	P7H1301	08/13/17	08/13/17	EPA 160.1	
Sulfate	1320	25.0	mg/L	25	P7H1209	08/12/17	08/13/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	683	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Magnesium	41.2	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Potassium	7.86	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Sodium	78.6	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2
Hardness	1880	5.00	mg/L	1	P7H1104	08/12/17	08/12/17	EPA 6010B	QAL2

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Midland TX, 79701

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

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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
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Batch P7H1201 - TX 1005

Blank (P7H1201-BLK1)

Prepared & Analyzed: 08/12/17

C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	10.3		"	9.38		110	70-130			
Surrogate: o-Terphenyl	5.44		"	4.69		116	70-130			

LCS (P7H1201-BS1)

Prepared & Analyzed: 08/12/17

C6-C12	74.4	2.50	mg/L	93.8		79.4	75-125			
>C12-C28	71.1	2.50	"	93.8		75.8	75-125			
Surrogate: 1-Chlorooctane	10.2		"	9.38		109	70-130			
Surrogate: o-Terphenyl	4.82		"	4.69		103	70-130			

LCS Dup (P7H1201-BSD1)

Prepared & Analyzed: 08/12/17

C6-C12	74.2	2.50	mg/L	93.8		79.1	75-125	0.320	20	
>C12-C28	71.5	2.50	"	93.8		76.2	75-125	0.580	20	
Surrogate: 1-Chlorooctane	10.3		"	9.38		110	70-130			
Surrogate: o-Terphenyl	4.85		"	4.69		104	70-130			

Batch P7H1407 - TX 1005

Blank (P7H1407-BLK1)

Prepared: 08/12/17 Analyzed: 08/13/17

C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	10.4		"	9.38		111	70-130			
Surrogate: o-Terphenyl	5.53		"	4.69		118	70-130			

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Midland TX, 79701

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

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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
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Batch P7H1407 - TX 1005

LCS (P7H1407-BS1)

Prepared: 08/12/17 Analyzed: 08/13/17

C6-C12	76.9	2.50	mg/L	93.8		82.1	75-125			
>C12-C28	74.9	2.50	"	93.8		79.9	75-125			
Surrogate: 1-Chlorooctane	10.9		"	9.38		117	70-130			
Surrogate: o-Terphenyl	5.10		"	4.69		109	70-130			

LCS Dup (P7H1407-BSD1)

Prepared: 08/12/17 Analyzed: 08/13/17

C6-C12	76.3	2.50	mg/L	93.8		81.3	75-125	0.870	20	
>C12-C28	74.3	2.50	"	93.8		79.2	75-125	0.851	20	
Surrogate: 1-Chlorooctane	10.5		"	9.38		112	70-130			
Surrogate: o-Terphenyl	4.98		"	4.69		106	70-130			

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

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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
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Batch P7H1208 - * DEFAULT PREP *****

Blank (P7H1208-BLK1)

Prepared: 08/12/17 Analyzed: 08/13/17

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

LCS (P7H1208-BS1)

Prepared: 08/12/17 Analyzed: 08/13/17

Bromide	4.62	0.0500	mg/L	5.00	92.5	80-120
Chloride	43.8	0.500	"	40.0	109	85-115
Sulfate	42.4	1.00	"	40.0	106	85-115

LCS Dup (P7H1208-BSD1)

Prepared: 08/12/17 Analyzed: 08/13/17

Sulfate	41.3	1.00	mg/L	40.0	103	85-115	2.55	20
Chloride	42.8	0.500	"	40.0	107	85-115	2.28	20
Bromide	4.53	0.0500	"	5.00	90.6	80-120	2.10	20

Duplicate (P7H1208-DUP1)

Source: 7H11010-01

Prepared: 08/12/17 Analyzed: 08/13/17

Chloride	29.7	12.5	mg/L	33.2	11.2	20
Bromide	ND	0.0500	"	ND		20
Sulfate	1430	25.0	"	1400	1.95	20

Duplicate (P7H1208-DUP2)

Source: 7H11010-11

Prepared: 08/12/17 Analyzed: 08/13/17

Chloride	24.7	0.500	mg/L	24.5	0.808	20
Bromide	ND	0.0500	"	ND		20
Sulfate	1400	25.0	"	1380	1.43	20

Matrix Spike (P7H1208-MS1)

Source: 7H11010-01

Prepared: 08/12/17 Analyzed: 08/13/17

Chloride	252	12.5	mg/L	200	33.2	109	80-120
Sulfate	1650	25.0	"	200	1400	124	80-120
Bromide	24.9	1.25	"	25.0	ND	99.6	75-125

QM-07

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Midland TX, 79701

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

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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
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Batch P7H1209 - * DEFAULT PREP *****

Blank (P7H1209-BLK1)

Prepared: 08/12/17 Analyzed: 08/13/17

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

LCS (P7H1209-BS1)

Prepared: 08/12/17 Analyzed: 08/13/17

Sulfate	44.3	1.00	mg/L	40.0	111	85-115
Chloride	43.3	0.500	"	40.0	108	85-115
Bromide	5.86	0.0500	"	5.00	117	80-120

LCS Dup (P7H1209-BSD1)

Prepared: 08/12/17 Analyzed: 08/13/17

Chloride	43.3	0.500	mg/L	40.0	108	85-115	0.0416	20
Bromide	5.88	0.0500	"	5.00	118	80-120	0.290	20
Sulfate	41.6	1.00	"	40.0	104	85-115	6.12	20

Duplicate (P7H1209-DUP1)

Source: 7H12001-04

Prepared: 08/12/17 Analyzed: 08/13/17

Sulfate	1110	25.0	mg/L	1110	0.0315	20
Bromide	0.261	0.0500	"	0.254	2.72	20
Chloride	48.8	12.5	"	49.0	0.460	20

Matrix Spike (P7H1209-MS1)

Source: 7H12001-04

Prepared: 08/12/17 Analyzed: 08/13/17

Chloride	261	12.5	mg/L	200	49.0	106	80-120
Sulfate	1300	25.0	"	200	1110	93.3	80-120
Bromide	26.6	1.25	"	25.0	ND	106	75-125

Batch P7H1210 - * DEFAULT PREP *****

Blank (P7H1210-BLK1)

Prepared & Analyzed: 08/12/17

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
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Batch P7H1210 - * DEFAULT PREP *****

Blank (P7H1210-BLK2)

Prepared & Analyzed: 08/12/17

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

Duplicate (P7H1210-DUP1)

Source: 7H11010-01

Prepared & Analyzed: 08/12/17

Total Alkalinity	100	10.0	mg/L	100	0.00	20
Carbonate Alkalinity	ND	10.0	"	ND		20
Bicarbonate Alkalinity	100	10.0	"	100	0.00	20
Hydroxide Alkalinity	ND	10.0	"	ND		20

Duplicate (P7H1210-DUP2)

Source: 7H12001-04

Prepared & Analyzed: 08/12/17

Total Alkalinity	70.0	10.0	mg/L	70.0	0.00	20
Carbonate Alkalinity	ND	10.0	"	ND		20
Bicarbonate Alkalinity	70.0	10.0	"	70.0	0.00	20
Hydroxide Alkalinity	ND	10.0	"	ND		20

Batch P7H1211 - * DEFAULT PREP *****

Duplicate (P7H1211-DUP1)

Source: 7H11010-01

Prepared & Analyzed: 08/12/17

pH	7.77		pH Units	7.80	0.385	20
Temperature	20.50		"	20.50	0.00	200

Duplicate (P7H1211-DUP2)

Source: 7H12001-04

Prepared & Analyzed: 08/12/17

pH	7.61		pH Units	7.61	0.00	20
Temperature	20.80		"	21.10	1.43	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
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Batch P7H1212 - * DEFAULT PREP *****

Duplicate (P7H1212-DUP1)	Source: 7H11010-01		Prepared & Analyzed: 08/12/17							
Dissolved Oxygen	6.00		mg/L		6.00			0.00	200	QAL1

Batch P7H1217 - * DEFAULT PREP *****

Duplicate (P7H1217-DUP1)	Source: 7H10011-01		Prepared & Analyzed: 08/11/17							
Specific Conductance (EC)	2880	5.00	umhos/cm		2820			2.11	20	

Duplicate (P7H1217-DUP2)	Source: 7H11010-01		Prepared & Analyzed: 08/12/17							
Specific Conductance (EC)	2720	5.00	umhos/cm		2650			2.61	20	

Duplicate (P7H1217-DUP3)	Source: 7H12001-11		Prepared & Analyzed: 08/12/17							
Specific Conductance (EC)	2700	5.00	umhos/cm		2750			1.83	20	

Batch P7H1301 - * DEFAULT PREP *****

Blank (P7H1301-BLK1)	Prepared & Analyzed: 08/13/17									
Total Dissolved Solids	40.0	20.0	mg/L							

Blank (P7H1301-BLK2)	Prepared & Analyzed: 08/13/17									
Total Dissolved Solids	30.0	20.0	mg/L							

Duplicate (P7H1301-DUP1)	Source: 7H11010-10		Prepared & Analyzed: 08/13/17							
Total Dissolved Solids	2690	20.0	mg/L		2740			1.84	20	

Duplicate (P7H1301-DUP2)	Source: 7H12001-01		Prepared & Analyzed: 08/13/17							
Total Dissolved Solids	5720	20.0	mg/L		6290			9.49	20	

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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
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Batch P7H1104 - * DEFAULT PREP *****

Blank (P7H1104-BLK1)

Prepared & Analyzed: 08/12/17

Calcium	0.655	5.00	mg/L							QAL2, J
Magnesium	ND	5.00	"							QAL2
Potassium	0.115	5.00	"							QAL2, J
Sodium	ND	5.00	"							QAL2
Hardness	1.66	5.00	"							QAL2, J

LCS (P7H1104-BS1)

Prepared & Analyzed: 08/12/17

Calcium	53.6	5.00	mg/L	50.0		107	80-120			QAL2
Magnesium	54.1	5.00	"	50.0		108	80-120			QAL2
Potassium	57.4	5.00	"	50.0		115	80-120			QAL2
Sodium	58.1	5.00	"	50.0		116	80-120			QAL2

Duplicate (P7H1104-DUP1)

Source: 7H10012-04

Prepared & Analyzed: 08/12/17

Calcium	545	5.00	mg/L		474			14.0	20	QAL2
Magnesium	31.3	5.00	"		28.0			11.0	20	QAL2
Potassium	6.90	5.00	"		6.39			7.70	20	QAL2
Sodium	72.2	5.00	"		64.9			10.6	20	QAL2
Hardness	1490	5.00	"		1300			13.8	20	QAL2

Matrix Spike (P7H1104-MS1)

Source: 7H10012-04

Prepared & Analyzed: 08/12/17

Calcium	577	5.00	mg/L	50.0	474	207	75-125			QAL2, QM-07
Magnesium	104	5.00	"	50.0	28.0	153	75-125			QAL2, QM-07
Potassium	87.1	5.00	"	50.0	6.39	161	75-125			QAL2, QM-07
Sodium	144	5.00	"	50.0	64.9	157	75-125			QAL2, QM-07

Batch P7H1207 - * DEFAULT PREP *****

Blank (P7H1207-BLK1)

Prepared & Analyzed: 08/12/17

Calcium	ND	5.00	mg/L							QAL2
Magnesium	ND	5.00	"							QAL2
Potassium	0.0205	5.00	"							QAL2, J
Sodium	0.0258	5.00	"							QAL2, J
Hardness	ND	5.00	"							QAL2

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
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Batch P7H1207 - * DEFAULT PREP *****

LCS (P7H1207-BS1)

Prepared & Analyzed: 08/12/17

Calcium	54.3	5.00	mg/L	50.0		109	80-120			QAL2
Magnesium	54.1	5.00	"	50.0		108	80-120			QAL2
Potassium	57.9	5.00	"	50.0		116	80-120			QAL2
Sodium	58.9	5.00	"	50.0		118	80-120			QAL2

LCS Dup (P7H1207-BS1)

Prepared & Analyzed: 08/12/17

Calcium	56.1	5.00	mg/L	50.0		112	80-120	3.27	20	QAL2
Magnesium	56.0	5.00	"	50.0		112	80-120	3.36	20	QAL2
Potassium	59.8	5.00	"	50.0		120	80-120	3.30	20	QAL2
Sodium	60.2	5.00	"	50.0		120	80-120	2.11	20	QAL2

Duplicate (P7H1207-DUP1)

Source: 7H11010-01

Prepared & Analyzed: 08/12/17

Calcium	585	5.00	mg/L		615			5.02	20	QAL2
Magnesium	33.0	5.00	"		34.5			4.36	20	QAL2
Potassium	5.43	5.00	"		5.70			4.75	20	QAL2
Sodium	55.3	5.00	"		57.6			4.12	20	QAL2
Hardness	1600	5.00	"		1680			4.96	20	QAL2

Matrix Spike (P7H1207-MS1)

Source: 7H11010-01

Prepared & Analyzed: 08/12/17

Calcium	573	5.00	mg/L	50.0	615	NR	75-125			QAL2, QM-07
Magnesium	77.5	5.00	"	50.0	34.5	86.2	75-125			QAL2
Potassium	59.4	5.00	"	50.0	5.70	107	75-125			QAL2
Sodium	102	5.00	"	50.0	57.6	88.9	75-125			QAL2

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

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

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

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: 8/15/2017

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

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



CHAIN OF CUSTODY RECORD

7H12001

000162

Facility Name				Analytical Laboratory Name				Today's Date												
Assault SWD				Perman				8/11/17												
Address				Address 1400				Page 1												
City				Bakin Hwy Midland, TX				Of 1												
State				TX																
Zip				79709																
Sample Group Identifier				Contact Name and Report to:				Analysis/Analyses												
				Cimarex, Person in Charge																
Site/Project Name or Identifier				Phone																
Assault SWD				432-571-7800																
Special Instructions				Fax																
				432-571-7832																
Carrier Waybill Number																				
Station Name or Sample ID	Sample Date	Time 24 hrs	Matrix	Sample Top	Sample Bot	Size	Containers Type No.	Filtered Y	Preservative N	Comments										
1	9	8/11/17	1015	1135	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
2	10	8/11/17	1135	1135	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
3	8	8/11/17	1135	1135	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
4	7A	8/11/17	1305	1305	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
5	7B	8/11/17	1335	1335	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
6	7C	8/11/17	1355	1355	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
7	7D	8/11/17	1415	1415	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
8	12	8/11/17	1500	1500	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
9	11	8/11/17	0935	0935	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
10	DUE-8	8/11/17	0000	0000	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
11	7	8/11/17	1015	1015	1420	N/A	N/A	500 250	1000 500	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2

Notes: TX/PM, TX time (EST) noted, Sample NIT6 Environmental note in Comments

Potential Hazardous Characteristics	Sample Disposal
☐ Non-Haz ☐ RCRA D001, 263, or 4 ☐ Radioactive ☐ Unknown	☐ Disposal by Lab ☐ Return to Client ☐ Hold pending further instructions

1. Relinquished by	Date	Time	2. Received by	Date	Time
Assault SWD	8/11/17	10:50	Perman	8/11/17	10:50
3. Relinquished by	Date	Time	4. Received by	Date	Time
Assault SWD	8/11/17	15:59	NICE	8/11/17	15:59
5. Relinquished by	Date	Time	6. Received by	Date	Time
Assault SWD	8/11/17	18:34	NICE	8/11/17	18:34

Comments

Send invoice to ESH Department

Original - Send to lab with sample

Yellow - Return to ESH

Pink - Remain in book

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