

**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: 7H16001



NELAP/TCEQ # T104704516-16-7

Report Date: 08/24/17

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
Dup-8/15	7H16001-01	Water	08/15/17 00:00	08-15-2017 18:55
7	7H16001-02	Water	08/15/17 08:35	08-15-2017 18:55
11	7H16001-03	Water	08/15/17 09:20	08-15-2017 18:55
8	7H16001-04	Water	08/15/17 10:20	08-15-2017 18:55
10	7H16001-05	Water	08/15/17 10:35	08-15-2017 18:55
9	7H16001-06	Water	08/15/17 10:45	08-15-2017 18:55
12	7H16001-07	Water	08/15/17 11:10	08-15-2017 18:55
7A	7H16001-08	Water	08/15/17 11:35	08-15-2017 18:55
7B	7H16001-09	Water	08/15/17 12:00	08-15-2017 18:55
7C	7H16001-10	Water	08/15/17 12:10	08-15-2017 18:55
7D	7H16001-11	Water	08/15/17 12:45	08-15-2017 18:55
11	7H16001-12	Water	08/14/17 09:20	08-15-2017 18:55

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

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Fax: (432) 571-7832

Dup-8/15
7H16001-01 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		85.0 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		101 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	97.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	97.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1604	08/16/17	08/17/17	EPA 300.0	
Chloride	1950	25.0	mg/L	50	P7H1604	08/16/17	08/17/17	EPA 300.0	
Specific Conductance (EC)	7810	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	8.03		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.70		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	5560	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	2170	50.0	mg/L	50	P7H1604	08/16/17	08/17/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	538	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	210	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	19.8	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	1040	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	2210	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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

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Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

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7H16001-02 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		90.9 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		108 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	95.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	95.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1604	08/16/17	08/17/17	EPA 300.0	
Chloride	92.8	12.5	mg/L	25	P7H1604	08/16/17	08/17/17	EPA 300.0	
Specific Conductance (EC)	2990	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	8.03		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.70		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	2790	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	1750	25.0	mg/L	25	P7H1604	08/16/17	08/17/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	808	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	46.2	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	7.66	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	90.8	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	2210	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
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Fax: (432) 571-7832

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7H16001-03 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		85.4 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		103 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	80.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	80.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	1.32	0.0500	mg/L	1	P7H1604	08/16/17	08/17/17	EPA 300.0	
Chloride	7580	50.0	mg/L	100	P7H1604	08/16/17	08/17/17	EPA 300.0	
Specific Conductance (EC)	13000	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.73		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.70		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	9910	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	6190	100	mg/L	100	P7H1604	08/16/17	08/17/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	832	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	276	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	30.6	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	2240	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	3210	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	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

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7H16001-04 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		92.7 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		109 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	0.208	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	142	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3050	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.82		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.50		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	2780	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	1660	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	636	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	43.3	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	6.81	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	107	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	1770	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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

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Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

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7H16001-05 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		77.2 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		91.9 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	85.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	85.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	1890	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	7640	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	8.05		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.40		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	5700	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	2130	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	581	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	221	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	17.8	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	1090	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	2360	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
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Fax: (432) 571-7832

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7H16001-06 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		73.2 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		85.3 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	97.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	97.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	1930	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	7630	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	8.08		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.50		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	5920	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	2120	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	601	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	234	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	19.5	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	1150	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	2470	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

Cimarex
600 N. Marinfeld, Ste. 600
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Fax: (432) 571-7832

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7H16001-07 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		76.5 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		90.0 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	95.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	95.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	0.950	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	1860	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	7610	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	8.05		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.40		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	5740	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	2080	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	549	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	211	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	15.1	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	1020	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	2240	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	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

7H16001-08 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		71.0 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: o-Terphenyl		84.4 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	85.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	85.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	0.188	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	120	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3200	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.82		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.40		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	2830	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	1890	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	736	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	50.1	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	5.56	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	102	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	2040	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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Midland TX, 79701

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

Fax: (432) 571-7832

7B

7H16001-09 (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	P7H1711	08/16/17	08/17/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1711	08/16/17	08/17/17	TX 1005	
Surrogate: 1-Chlorooctane		69.8 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	S-GC
Surrogate: o-Terphenyl		85.6 %	70-130		P7H1711	08/16/17	08/17/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/17/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	0.201	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	135	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3280	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.82		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.50		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	2840	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	1990	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	646	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	51.8	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	5.19	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	97.5	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	1830	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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

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

Fax: (432) 571-7832

7C

7H16001-10 (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	P7H1712	08/16/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1712	08/16/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1712	08/16/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		77.2 %	70-130		P7H1712	08/16/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		82.7 %	70-130		P7H1712	08/16/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	92.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	92.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	0.223	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	170	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3330	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.91		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.50		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	2860	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	1890	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	640	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	48.9	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	5.04	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	119	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	1800	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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

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

Fax: (432) 571-7832

7D

7H16001-11 (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	P7H1712	08/16/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1712	08/16/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1712	08/16/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		80.2 %	70-130		P7H1712	08/16/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		87.0 %	70-130		P7H1712	08/16/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	92.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	92.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	0.209	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	158	25.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3090	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.89		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.60		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	2820	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	1840	50.0	mg/L	50	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	617	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	43.9	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	5.03	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	109	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	1720	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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

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

Fax: (432) 571-7832

11

7H16001-12 (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	P7H1712	08/16/17	08/16/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H1712	08/16/17	08/16/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H1712	08/16/17	08/16/17	TX 1005	
Surrogate: 1-Chlorooctane		82.3 %	70-130		P7H1712	08/16/17	08/16/17	TX 1005	
Surrogate: o-Terphenyl		88.5 %	70-130		P7H1712	08/16/17	08/16/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/16/17	08/16/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	72.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bicarbonate Alkalinity	72.0	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1609	08/16/17	08/16/17	EPA 310.1M	
Bromide	1.43	0.0500	mg/L	1	P7H1605	08/16/17	08/23/17	EPA 300.0	
Chloride	3840	50.0	mg/L	100	P7H1605	08/16/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	13000	5.00	umhos/cm	1	P7H1707	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1610	08/16/17	08/16/17	CHEMets	QAL1
pH	7.80		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Temperature	23.70		pH Units	1	P7H1611	08/16/17	08/16/17	EPA 150.1	
Total Dissolved Solids	9430	20.0	mg/L	1	P7H1612	08/16/17	08/16/17	EPA 160.1	
Sulfate	3040	100	mg/L	100	P7H1605	08/16/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	820	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Magnesium	261	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Potassium	27.5	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Sodium	2260	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2
Hardness	3120	5.00	mg/L	1	P7H1702	08/17/17	08/22/17	EPA 6010B	QAL2

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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
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Batch P7H1711 - TX 1005

Blank (P7H1711-BLK1)

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

C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	9.91		"	9.38		106	70-130			
Surrogate: o-Terphenyl	5.79		"	4.69		124	70-130			

LCS (P7H1711-BS1)

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

C6-C12	98.3	2.50	mg/L	93.8		105	75-125			
>C12-C28	98.8	2.50	"	93.8		105	75-125			
Surrogate: 1-Chlorooctane	11.4		"	9.38		121	70-130			
Surrogate: o-Terphenyl	5.38		"	4.69		115	70-130			

LCS Dup (P7H1711-BS1)

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

C6-C12	88.6	2.50	mg/L	93.8		94.5	75-125	10.4	20	
>C12-C28	90.3	2.50	"	93.8		96.4	75-125	8.99	20	
Surrogate: 1-Chlorooctane	11.3		"	9.38		121	70-130			
Surrogate: o-Terphenyl	4.96		"	4.69		106	70-130			

Batch P7H1712 - TX 1005

Blank (P7H1712-BLK1)

Prepared & Analyzed: 08/16/17

C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	9.15		"	9.38		97.6	70-130			
Surrogate: o-Terphenyl	4.83		"	4.69		103	70-130			

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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
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Batch P7H1712 - TX 1005

LCS (P7H1712-BS1)

Prepared & Analyzed: 08/16/17

C6-C12	78.4	2.50	mg/L	93.8		83.6	75-125			
>C12-C28	77.6	2.50	"	93.8		82.8	75-125			
Surrogate: 1-Chlorooctane	8.85		"	9.38		94.4	70-130			
Surrogate: o-Terphenyl	4.41		"	4.69		94.1	70-130			

LCS Dup (P7H1712-BSD1)

Prepared & Analyzed: 08/16/17

C6-C12	80.3	2.50	mg/L	93.8		85.7	75-125	2.45	20	
>C12-C28	77.8	2.50	"	93.8		82.9	75-125	0.233	20	
Surrogate: 1-Chlorooctane	9.50		"	9.38		101	70-130			
Surrogate: o-Terphenyl	4.42		"	4.69		94.3	70-130			

Duplicate (P7H1712-DUP1)

Source: 7H16001-12

Prepared & Analyzed: 08/16/17

C6-C12	1.57	2.50	mg/L		1.58			0.654	20	
>C12-C28	ND	2.50	"		ND				20	
Surrogate: 1-Chlorooctane	7.68		"	9.38		81.9	70-130			
Surrogate: o-Terphenyl	4.13		"	4.69		88.1	70-130			

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

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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 P7H1604 - * DEFAULT PREP *****

Blank (P7H1604-BLK1)

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

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

LCS (P7H1604-BS1)

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

Chloride	42.6	0.500	mg/L	40.0		107	85-115			
Sulfate	43.7	1.00	"	40.0		109	85-115			
Bromide	5.93	0.0500	"	5.00		119	80-120			

LCS Dup (P7H1604-BSD1)

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

Chloride	42.5	0.500	mg/L	40.0		106	85-115	0.294	20	
Sulfate	43.6	1.00	"	40.0		109	85-115	0.0618	20	
Bromide	5.95	0.0500	"	5.00		119	80-120	0.219	20	

Duplicate (P7H1604-DUP1)

Source: 7H15017-01

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

Sulfate	1690	50.0	mg/L		1690			0.331	20	
Chloride	101	25.0	"		102			1.72	20	
Bromide	ND	0.0500	"		ND				20	

Duplicate (P7H1604-DUP2)

Source: 7H15017-11

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

Chloride	80.3	12.5	mg/L		80.0			0.437	20	
Sulfate	1470	25.0	"		1470			0.00	20	
Bromide	ND	0.0500	"		ND				20	

Matrix Spike (P7H1604-MS1)

Source: 7H15017-01

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

Chloride	699	25.0	mg/L	500	102	119	80-120			
Bromide	69.0	2.50	"	62.5	ND	110	75-125			
Sulfate	2230	50.0	"	500	1690	108	80-120			

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Project: Assault SWD
Project Number: [none]
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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 P7H1605 - * DEFAULT PREP *****

Blank (P7H1605-BLK1)

Prepared: 08/16/17 Analyzed: 08/23/17

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

LCS (P7H1605-BS1)

Prepared: 08/16/17 Analyzed: 08/23/17

Sulfate	44.9	1.00	mg/L	40.0	112	85-115
Bromide	6.12	0.0500	"	5.00	122	80-120
Chloride	44.0	0.500	"	40.0	110	85-115

LCS Dup (P7H1605-BSD1)

Prepared: 08/16/17 Analyzed: 08/23/17

Bromide	6.14	0.0500	mg/L	5.00	123	80-120	0.408	20
Sulfate	45.0	1.00	"	40.0	113	85-115	0.372	20
Chloride	44.2	0.500	"	40.0	110	85-115	0.331	20

Duplicate (P7H1605-DUP1)

Source: 7H16001-04

Prepared: 08/16/17 Analyzed: 08/23/17

Sulfate	1650	50.0	mg/L	1660	0.847	20
Chloride	138	25.0	"	142	3.07	20
Bromide	0.216	0.0500	"	0.208	3.77	20

Matrix Spike (P7H1605-MS1)

Source: 7H16001-04

Prepared: 08/16/17 Analyzed: 08/23/17

Sulfate	2160	50.0	mg/L	500	1660	99.6	80-120
Chloride	672	25.0	"	500	142	106	80-120

Batch P7H1609 - * DEFAULT PREP *****

Blank (P7H1609-BLK1)

Prepared & Analyzed: 08/16/17

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

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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 P7H1609 - * DEFAULT PREP *****

Blank (P7H1609-BLK2)

Prepared & Analyzed: 08/16/17

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

Duplicate (P7H1609-DUP1)

Source: 7H15017-01

Prepared & Analyzed: 08/16/17

Total Alkalinity	135	10.0	mg/L	130	3.77	20
Carbonate Alkalinity	ND	10.0	"	ND		20
Bicarbonate Alkalinity	135	10.0	"	130	3.77	20
Hydroxide Alkalinity	ND	10.0	"	ND		20

Duplicate (P7H1609-DUP2)

Source: 7H16001-04

Prepared & Analyzed: 08/16/17

Total Alkalinity	90.0	10.0	mg/L	90.0	0.00	20
Carbonate Alkalinity	ND	10.0	"	ND		20
Bicarbonate Alkalinity	90.0	10.0	"	90.0	0.00	20
Hydroxide Alkalinity	ND	10.0	"	ND		20

Batch P7H1610 - * DEFAULT PREP *****

Duplicate (P7H1610-DUP1)

Source: 7H15017-01

Prepared & Analyzed: 08/16/17

Dissolved Oxygen	6.00		mg/L	6.00	0.00	200	QAL1
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Batch P7H1611 - * DEFAULT PREP *****

Duplicate (P7H1611-DUP1)

Source: 7H15017-01

Prepared & Analyzed: 08/16/17

pH	7.97		pH Units	7.98	0.125	20
Temperature	23.90		"	23.90	0.00	200

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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 P7H1611 - * DEFAULT PREP *****

Duplicate (P7H1611-DUP2)	Source: 7H16001-04		Prepared & Analyzed: 08/16/17							
pH	7.82		pH Units		7.82			0.00	20	
Temperature	23.70		"		23.50			0.847	200	

Batch P7H1612 - * DEFAULT PREP *****

Blank (P7H1612-BLK1)	Prepared & Analyzed: 08/16/17									
Total Dissolved Solids	50.0	20.0	mg/L							

Blank (P7H1612-BLK2)	Prepared & Analyzed: 08/16/17									
Total Dissolved Solids	ND	20.0	mg/L							

Duplicate (P7H1612-DUP1)	Source: 7H15017-01		Prepared & Analyzed: 08/16/17							
Total Dissolved Solids	2930	20.0	mg/L		2900			1.03	20	

Duplicate (P7H1612-DUP2)	Source: 7H16001-04		Prepared & Analyzed: 08/16/17							
Total Dissolved Solids	2780	20.0	mg/L		2780			0.00	20	

Batch P7H1707 - * DEFAULT PREP *****

Duplicate (P7H1707-DUP1)	Source: 7H15017-01		Prepared & Analyzed: 08/17/17							
Specific Conductance (EC)	3100	5.00	umhos/cm		3090			0.323	20	

Duplicate (P7H1707-DUP2)	Source: 7H15017-07		Prepared & Analyzed: 08/17/17							
Specific Conductance (EC)	3110	5.00	umhos/cm		3080			0.969	20	

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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 P7H1702 - * DEFAULT PREP *****

Blank (P7H1702-BLK1)

Prepared: 08/17/17 Analyzed: 08/22/17

Calcium	0.0289	5.00	mg/L							J, QAL2
Magnesium	0.0538	5.00	"							QAL2, J
Potassium	0.0128	5.00	"							QAL2, J
Sodium	ND	5.00	"							QAL2
Hardness	ND	5.00	"							QAL2

LCS (P7H1702-BS1)

Prepared: 08/17/17 Analyzed: 08/22/17

Calcium	51.4	5.00	mg/L	50.0		103	80-120			QAL2
Magnesium	51.1	5.00	"	50.0		102	80-120			QAL2
Potassium	52.3	5.00	"	50.0		105	80-120			QAL2
Sodium	55.6	5.00	"	50.0		111	80-120			QAL2

Matrix Spike (P7H1702-MS1)

Source: 7H16001-02

Prepared: 08/17/17 Analyzed: 08/22/17

Calcium	832	5.00	mg/L	50.0	808	47.9	75-125			QAL2, QM-07
Magnesium	152	5.00	"	50.0	46.2	212	75-125			QAL2, QM-07
Potassium	119	5.00	"	50.0	7.66	223	75-125			QAL2, QM-07
Sodium	203	5.00	"	50.0	90.8	224	75-125			QAL2, QM-07

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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:

8/24/2017

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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