

**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: 7H16008



NELAP/TCEQ # T104704516-16-7

Report Date: 08/25/17

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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
12	7H16008-01	Water	08/16/17 11:10	08-16-2017 15:25
7A	7H16008-02	Water	08/16/17 11:30	08-16-2017 15:25
7B	7H16008-03	Water	08/16/17 11:50	08-16-2017 15:25
7C	7H16008-04	Water	08/16/17 12:00	08-16-2017 15:25
7D	7H16008-05	Water	08/16/17 12:15	08-16-2017 15:25
9	7H16008-06	Water	08/16/17 10:50	08-16-2017 15:25
7	7H16008-07	Water	08/16/17 08:45	08-16-2017 15:25
10	7H16008-08	Water	08/16/17 10:40	08-16-2017 15:25
8	7H16008-09	Water	08/16/17 10:25	08-16-2017 15:25
11	7H16008-10	Water	08/16/17 09:15	08-16-2017 15:25
DUP-8/16	7H16008-11	Water	08/16/17 00:00	08-16-2017 15:25

12
7H16008-01 (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	P7H2307	08/21/17	08/21/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2307	08/21/17	08/21/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2307	08/21/17	08/21/17	TX 1005	
<i>Surrogate: 1-Chlorooctane</i>		90.1 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
<i>Surrogate: o-Terphenyl</i>		111 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/21/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	105	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	105	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	1.22	0.0500	mg/L	1	P7H1719	08/17/17	08/21/17	EPA 300.0	
Chloride	1770	25.0	mg/L	50	P7H1719	08/17/17	08/21/17	EPA 300.0	
Specific Conductance (EC)	7760	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	8.05		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.00		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	5340	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1990	50.0	mg/L	50	P7H1719	08/17/17	08/21/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	659	50.0	mg/L	10	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	250	50.0	mg/L	10	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	18.7	10.0	mg/L	10	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	1110	50.0	mg/L	10	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2680	50.0	mg/L	10	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7A
7H16008-02 (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	P7H2307	08/21/17	08/21/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2307	08/21/17	08/21/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2307	08/21/17	08/21/17	TX 1005	
Surrogate: 1-Chlorooctane		96.7 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
Surrogate: o-Terphenyl		117 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/21/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1719	08/17/17	08/21/17	EPA 300.0	
Chloride	119	25.0	mg/L	50	P7H1719	08/17/17	08/21/17	EPA 300.0	
Specific Conductance (EC)	3160	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.80		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.10		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	2840	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1900	50.0	mg/L	50	P7H1719	08/17/17	08/21/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	796	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	48.0	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	8.40	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	107	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2190	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7B
7H16008-03 (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	P7H2307	08/21/17	08/21/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2307	08/21/17	08/21/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2307	08/21/17	08/21/17	TX 1005	
Surrogate: 1-Chlorooctane		94.9 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
Surrogate: o-Terphenyl		116 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/21/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	97.0	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	97.0	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	ND	0.0500	mg/L	1	P7H1719	08/17/17	08/21/17	EPA 300.0	
Chloride	143	25.0	mg/L	50	P7H1719	08/17/17	08/21/17	EPA 300.0	
Specific Conductance (EC)	3330	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.78		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.20		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	3130	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1920	50.0	mg/L	50	P7H1719	08/17/17	08/21/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	887	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	69.0	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	9.24	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	141	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2500	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7C
7H16008-04 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		91.9 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		114 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	105	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	105	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.519	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	168	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3480	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.91		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.50		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	3020	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1790	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	723	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	58.1	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	8.32	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	143	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2050	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7D
7H16008-05 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		94.2 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		115 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	115	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	115	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.565	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	188	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3430	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.86		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.50		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	2990	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1860	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	760	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	59.1	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	8.51	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	147	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2140	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7H16008-06 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		102 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		126 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	110	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	110	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.376	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	1840	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	8150	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	8.07		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.40		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	5750	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	2010	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	712	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	276	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	23.4	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	1240	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2910	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7

7H16008-07 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		103 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		126 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	90.0	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	90.0	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.300	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	95.7	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3160	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.66		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.30		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	2720	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1800	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	849	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	46.2	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	9.30	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	100	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2310	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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Midland TX, 79701

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

Fax: (432) 571-7832

10
7H16008-08 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		109 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		134 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	S-GC
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	100	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	100	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.652	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	1810	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	8180	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	8.10		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.30		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	5780	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	2010	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	637	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	243	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	20.8	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	1110	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2590	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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7H16008-09 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		91.5 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		114 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	100	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	100	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.475	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	186	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3300	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.86		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.40		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	2820	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1780	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	755	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	55.6	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	8.40	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	137	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	2110	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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11
7H16008-10 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		91.1 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		112 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	110	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	110	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	1.58	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	3600	50.0	mg/L	100	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	14000	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.73		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.20		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	9830	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	2800	100	mg/L	100	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	1070	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	361	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	37.8	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	2750	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	4170	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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DUP-8/16
7H16008-11 (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	P7H2308	08/21/17	08/22/17	TX 1005	
>C12-C28	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
>C28-C35	ND	2.50	mg/L	1	P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: 1-Chlorooctane		93.3 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Surrogate: o-Terphenyl		114 %	70-130		P7H2308	08/21/17	08/22/17	TX 1005	
Total Hydrocarbon nC6-nC35	ND	2.50	mg/L	1	[CALC]	08/21/17	08/22/17	[CALC]	

General Chemistry Parameters by EPA / Standard Methods

Total Alkalinity	100	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Carbonate Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bicarbonate Alkalinity	100	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Hydroxide Alkalinity	ND	10.0	mg/L	1	P7H1716	08/17/17	08/22/17	EPA 310.1M	
Bromide	0.575	0.0500	mg/L	1	P7H1720	08/17/17	08/23/17	EPA 300.0	
Chloride	161	25.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	
Specific Conductance (EC)	3480	5.00	umhos/cm	1	P7H1708	08/17/17	08/17/17	EPA 120.1	
Dissolved Oxygen	6.00		mg/L	1	P7H1715	08/17/17	08/22/17	CHEMets	QAL1
pH	7.93		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Temperature	22.30		pH Units	1	P7H1717	08/17/17	08/17/17	EPA 150.1	
Total Dissolved Solids	2970	20.0	mg/L	1	P7H1718	08/17/17	08/17/17	EPA 160.1	
Sulfate	1810	50.0	mg/L	50	P7H1720	08/17/17	08/23/17	EPA 300.0	

Total Metals by EPA / Standard Methods

Calcium	695	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Magnesium	50.5	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Potassium	7.34	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Sodium	126	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2
Hardness	1940	5.00	mg/L	1	P7H1705	08/17/17	08/17/17	EPA 6010B	QAL2

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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 P7H2307 - TX 1005

Blank (P7H2307-BLK1)										
										Prepared & Analyzed: 08/21/17
C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	11.9		"	9.38		127	70-130			
Surrogate: o-Terphenyl	7.00		"	4.69		149	70-130			S-GC

LCS (P7H2307-BS1)										
										Prepared & Analyzed: 08/21/17
C6-C12	98.1	2.50	mg/L	93.8		105	75-125			
>C12-C28	101	2.50	"	93.8		108	75-125			
Surrogate: 1-Chlorooctane	11.4		"	9.38		121	70-130			
Surrogate: o-Terphenyl	6.50		"	4.69		139	70-130			S-GC

LCS Dup (P7H2307-BSD1)										
										Prepared & Analyzed: 08/21/17
C6-C12	100	2.50	mg/L	93.8		107	75-125	2.19	20	
>C12-C28	104	2.50	"	93.8		111	75-125	2.80	20	
Surrogate: 1-Chlorooctane	11.6		"	9.38		124	70-130			
Surrogate: o-Terphenyl	5.84		"	4.69		125	70-130			

Duplicate (P7H2307-DUP1)										
										Source: 7H16008-03
										Prepared: 08/21/17 Analyzed: 08/22/17
C6-C12	0.968	2.50	mg/L		ND					20
>C12-C28	0.954	2.50	"		ND					20
Surrogate: 1-Chlorooctane	9.57		"	9.38		102	70-130			
Surrogate: o-Terphenyl	5.84		"	4.69		125	70-130			

Batch P7H2308 - TX 1005

Blank (P7H2308-BLK1)										
										Prepared: 08/21/17 Analyzed: 08/22/17
C6-C12	ND	2.50	mg/L							
>C12-C28	ND	2.50	"							
>C28-C35	ND	2.50	"							
Surrogate: 1-Chlorooctane	9.80		"	9.38		105	70-130			
Surrogate: o-Terphenyl	5.89		"	4.69		126	70-130			

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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 P7H2308 - TX 1005

LCS (P7H2308-BS1)

Prepared: 08/21/17 Analyzed: 08/22/17

C6-C12	84.2	2.50	mg/L	93.8		89.8	75-125			
>C12-C28	84.4	2.50	"	93.8		90.0	75-125			
Surrogate: 1-Chlorooctane	11.6		"	9.38		124	70-130			
Surrogate: o-Terphenyl	5.38		"	4.69		115	70-130			

LCS Dup (P7H2308-BS1)

Prepared: 08/21/17 Analyzed: 08/22/17

C6-C12	84.2	2.50	mg/L	93.8		89.8	75-125	0.00111	20	
>C12-C28	84.0	2.50	"	93.8		89.6	75-125	0.467	20	
Surrogate: 1-Chlorooctane	11.4		"	9.38		122	70-130			
Surrogate: o-Terphenyl	5.30		"	4.69		113	70-130			

Matrix Spike (P7H2308-MS1)

Source: 7H16008-05

Prepared: 08/21/17 Analyzed: 08/22/17

C6-C12	81.1	2.50	mg/L	93.8	ND	86.5	75-125			
>C12-C28	83.3	2.50	"	93.8	ND	88.8	75-125			
Surrogate: 1-Chlorooctane	10.7		"	9.38		114	70-130			
Surrogate: o-Terphenyl	5.49		"	4.69		117	70-130			

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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 P7H1708 - * DEFAULT PREP *****

Duplicate (P7H1708-DUP1)	Source: 7H16007-01		Prepared & Analyzed: 08/17/17							
Specific Conductance (EC)	3360	5.00	umhos/cm		3390			0.889	20	

Duplicate (P7H1708-DUP2)	Source: 7H16008-11		Prepared & Analyzed: 08/17/17							
Specific Conductance (EC)	3450	5.00	umhos/cm		3480			0.866	20	

Batch P7H1715 - * DEFAULT PREP *****

Duplicate (P7H1715-DUP1)	Source: 7H16007-01		Prepared: 08/17/17 Analyzed: 08/22/17							
Dissolved Oxygen	6.00		mg/L		6.00			0.00	200	QAL1

Batch P7H1716 - * DEFAULT PREP *****

Blank (P7H1716-BLK1)	Prepared: 08/17/17 Analyzed: 08/22/17									
Total Alkalinity	ND	10.0	mg/L							
Carbonate Alkalinity	ND	10.0	"							
Bicarbonate Alkalinity	ND	10.0	"							
Hydroxide Alkalinity	ND	10.0	"							

Blank (P7H1716-BLK2)	Prepared: 08/17/17 Analyzed: 08/22/17									
Total Alkalinity	ND	10.0	mg/L							
Carbonate Alkalinity	ND	10.0	"							
Bicarbonate Alkalinity	ND	10.0	"							
Hydroxide Alkalinity	ND	10.0	"							

Duplicate (P7H1716-DUP1)	Source: 7H16007-01		Prepared: 08/17/17 Analyzed: 08/22/17							
Total Alkalinity	127	10.0	mg/L		130			2.33	20	
Carbonate Alkalinity	ND	10.0	"		ND				20	
Bicarbonate Alkalinity	127	10.0	"		130			2.33	20	
Hydroxide Alkalinity	ND	10.0	"		ND				20	

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Project: Assault SWD
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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 P7H1716 - * DEFAULT PREP *****

Duplicate (P7H1716-DUP2)		Source: 7H16008-04			Prepared: 08/17/17		Analyzed: 08/22/17	
Total Alkalinity	107	10.0	mg/L		105		1.89	20
Carbonate Alkalinity	ND	10.0	"		ND			20
Bicarbonate Alkalinity	107	10.0	"		105		1.89	20
Hydroxide Alkalinity	ND	10.0	"		ND			20

Batch P7H1717 - * DEFAULT PREP *****

Duplicate (P7H1717-DUP1)		Source: 7H16007-01			Prepared & Analyzed: 08/17/17			
pH	7.90		pH Units		7.92		0.253	20
Temperature	22.10		"		22.10		0.00	200

Duplicate (P7H1717-DUP2)		Source: 7H16008-04			Prepared & Analyzed: 08/17/17			
pH	7.91		pH Units		7.91		0.00	20
Temperature	22.60		"		22.50		0.443	200

Batch P7H1718 - * DEFAULT PREP *****

Blank (P7H1718-BLK1)					Prepared & Analyzed: 08/17/17			
Total Dissolved Solids	ND	20.0	mg/L					

Blank (P7H1718-BLK2)					Prepared & Analyzed: 08/17/17			
Total Dissolved Solids	ND	20.0	mg/L					

Duplicate (P7H1718-DUP1)		Source: 7H16007-01			Prepared & Analyzed: 08/17/17			
Total Dissolved Solids	2910	20.0	mg/L		2890		0.690	20

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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

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 P7H1718 - * DEFAULT PREP *****

Duplicate (P7H1718-DUP2)	Source: 7H16008-04			Prepared & Analyzed: 08/17/17						
Total Dissolved Solids	2990	20.0	mg/L		3020			0.998	20	

Batch P7H1719 - * DEFAULT PREP *****

Blank (P7H1719-BLK1)	Prepared: 08/17/17 Analyzed: 08/21/17									
Bromide	ND	0.0500	mg/L							
Sulfate	ND	1.00	"							
Chloride	ND	0.500	"							

LCS (P7H1719-BS1)	Prepared: 08/17/17 Analyzed: 08/21/17									
Chloride	42.5	0.500	mg/L	40.0		106	85-115			
Bromide	6.29	0.0500	"	5.00		126	80-120			
Sulfate	43.6	1.00	"	40.0		109	85-115			

LCS Dup (P7H1719-BSD1)	Prepared: 08/17/17 Analyzed: 08/21/17									
Chloride	42.7	0.500	mg/L	40.0		107	85-115	0.425	20	
Bromide	6.30	0.0500	"	5.00		126	80-120	0.127	20	
Sulfate	43.7	1.00	"	40.0		109	85-115	0.254	20	

Duplicate (P7H1719-DUP1)	Source: 7H16007-01			Prepared: 08/17/17 Analyzed: 08/21/17						
Sulfate	1770	50.0	mg/L		1800			1.72	20	
Chloride	102	25.0	"		110			7.22	20	
Bromide	0.305	0.0500	"		0.305			0.00	20	

Duplicate (P7H1719-DUP2)	Source: 7H16007-11			Prepared: 08/17/17 Analyzed: 08/21/17						
Chloride	88.8	12.5	mg/L		90.8			2.28	20	
Bromide	ND	0.0500	"		ND				20	
Sulfate	1550	25.0	"		1560			0.514	20	

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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 P7H1719 - * DEFAULT PREP *****

Matrix Spike (P7H1719-MS1)	Source: 7H16007-01			Prepared: 08/17/17		Analyzed: 08/21/17	
Sulfate	2270	50.0	mg/L	500	1800	93.5	80-120
Chloride	626	25.0	"	500	110	103	80-120
Bromide	76.8	2.50	"	62.5	ND	123	75-125

Batch P7H1720 - * DEFAULT PREP *****

Blank (P7H1720-BLK1)				Prepared: 08/17/17		Analyzed: 08/23/17	
Chloride	ND	0.500	mg/L				
Sulfate	ND	1.00	"				
Bromide	ND	0.0500	"				

LCS (P7H1720-BS1)				Prepared: 08/17/17		Analyzed: 08/23/17	
Sulfate	44.2	1.00	mg/L	40.0		110	85-115
Bromide	6.33	0.0500	"	5.00		127	80-120
Chloride	43.4	0.500	"	40.0		108	85-115

LCS Dup (P7H1720-BSD1)				Prepared: 08/17/17		Analyzed: 08/23/17			
Bromide	6.29	0.0500	mg/L	5.00		126	80-120	0.555	20
Sulfate	44.3	1.00	"	40.0		111	85-115	0.303	20
Chloride	43.5	0.500	"	40.0		109	85-115	0.265	20

Duplicate (P7H1720-DUP1)	Source: 7H16008-04			Prepared: 08/17/17		Analyzed: 08/23/17		
Chloride	164	25.0	mg/L		168		2.08	20
Bromide	0.581	0.0500	"		0.519		11.3	20
Sulfate	1770	50.0	"		1790		1.26	20

Matrix Spike (P7H1720-MS1)	Source: 7H16008-04			Prepared: 08/17/17		Analyzed: 08/23/17	
Sulfate	2260	50.0	mg/L	500	1790	93.9	80-120
Chloride	697	25.0	"	500	168	106	80-120
Bromide	78.0	2.50	"	62.5	ND	125	75-125

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

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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 P7H1705 - * DEFAULT PREP *****

Blank (P7H1705-BLK1)

Prepared & Analyzed: 08/17/17

Calcium	ND	5.00	mg/L							QAL2
Magnesium	ND	5.00	"							QAL2
Potassium	0.166	5.00	"							J, QAL2
Sodium	ND	5.00	"							QAL2
Hardness	ND	5.00	"							QAL2

LCS (P7H1705-BS1)

Prepared & Analyzed: 08/17/17

Calcium	52.6	5.00	mg/L	50.0		105	80-120			QAL2
Magnesium	52.7	5.00	"	50.0		105	80-120			QAL2
Potassium	54.4	5.00	"	50.0		109	80-120			QAL2
Sodium	56.2	5.00	"	50.0		112	80-120			QAL2

LCS Dup (P7H1705-BSD1)

Prepared & Analyzed: 08/17/17

Calcium	53.1	5.00	mg/L	50.0		106	80-120	1.00	20	QAL2
Magnesium	52.9	5.00	"	50.0		106	80-120	0.374	20	QAL2
Potassium	54.4	5.00	"	50.0		109	80-120	0.150	20	QAL2
Sodium	56.0	5.00	"	50.0		112	80-120	0.209	20	QAL2

Duplicate (P7H1705-DUP1)

Source: 7H16007-09

Prepared & Analyzed: 08/17/17

Calcium	707	5.00	mg/L		589			18.3	20	QAL2
Magnesium	58.0	5.00	"		47.4			19.9	20	QAL2
Potassium	6.98	5.00	"		5.88			17.1	20	QAL2
Sodium	111	5.00	"		92.1			18.4	20	QAL2
Hardness	2010	5.00	"		1670			18.5	20	QAL2

Matrix Spike (P7H1705-MS1)

Source: 7H16007-09

Prepared & Analyzed: 08/17/17

Calcium	696	5.00	mg/L	50.0	589	215	75-125			QAL2, QM-07
Magnesium	113	5.00	"	50.0	47.4	131	75-125			QAL2, QM-07
Potassium	72.5	5.00	"	50.0	5.88	133	75-125			QAL2, QM-07
Sodium	159	5.00	"	50.0	92.1	135	75-125			QAL2, QM-07

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:

8/25/2017

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

7/16/08

000168

Facility Name: **Assault SWD** Analytical Laboratory Name: **Permian Basin Environmental Lab**

Address: **1400 Rankin** City: **Midland Tx** Zip: **79701**

City: **Midland Tx** Contract Name and Report to: **Cinacel** Person in charge

Sample Group Identifier: **NM 17x** Zip: **79701**

Phone: **432-571-7806** Fax: **432-571-7832**

Site/Project Name or Identifier: **ASSAULT SWD** Carrier Waybill Number

Special Instructions

Station Name or Sample ID	Sample Date	Time 24 hrs	Matrix	Sample Top	Sample Btm	Size	Containers Type No.	Filtered Y/N	Preservative	Comments									
12	8/16/17	11:10	Water	N/A	N/A	301/350 40 ml	Preservative 5/1		NONE	MC/SN									
7A																			
7B		11:50																	
7C		12:00																	
7D		12:15																	
9		10:50																	
7		10:45																	
10		10:40																	
9		10:25																	
11		09:15																	
DUP - 8/16	8/16/17	0000																	

Notes: 7x Midland times; samples NTE Environmental

Manual Cdn: Son Medary Beaudou Beau

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. Relinquished by: **Son Medary** Date: **8/16/17** Time: **13:00** Received by: **[Signature]** Date: **8/16/17** Time: **13:00**

3. Relinquished by: **Manuel Castro** Date: **8/16/17** Time: **15:25** Received by: **[Signature]** Date: **8/16/17** Time: **15:25**

5. Relinquished by: **[Signature]** Date: **8/16/17** Time: **15:25** Received by: **Krissa Padua** Date: **8/16/17** Time: **15:25**

Comments: **Send invoice to ESH Department**

Original - Send to lab with sample

Yellow - Return to ESH

Pink - Remain in book

3.0 NCP 4.1 Version 1: 4/21/2015