

**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

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**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	
Surrogate: 1-Chlorooctane		90.1 %	70-130		P7H2307	08/21/17	08/21/17	TX 1005	
Surrogate: o-Terphenyl		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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**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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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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**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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**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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**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 \*\*\***

<b>Duplicate (P7H1708-DUP1)</b>	<b>Source: 7H16007-01</b>			Prepared & Analyzed: 08/17/17						
Specific Conductance (EC)	3360	5.00	umhos/cm		3390			0.889	20	
<b>Duplicate (P7H1708-DUP2)</b>	<b>Source: 7H16008-11</b>			Prepared & Analyzed: 08/17/17						
Specific Conductance (EC)	3450	5.00	umhos/cm		3480			0.866	20	

**Batch P7H1715 - \*\*\* DEFAULT PREP \*\*\***

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

**Batch P7H1716 - \*\*\* DEFAULT PREP \*\*\***

<b>Blank (P7H1716-BLK1)</b>	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	"							

<b>Blank (P7H1716-BLK2)</b>	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	"							

<b>Duplicate (P7H1716-DUP1)</b>	<b>Source: 7H16007-01</b>			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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**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	
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**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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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 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

Cimarex  
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Midland TX, 79701

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

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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:

8/25/2017

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

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



## CHAIN OF CUSTODY RECORD

7/16/068

000168

Facility Name		Assault SMD		Analytical Laboratory Name		Perman Basin Environmental Lab		Today's Date		8/16/2017	
Address				Address		400 Rankin N City Midland Tx Zip 79701		Page		1	
City		State NM Tx Zip		Contact Name and Report to:		Cinacel person in charge		Analysis/Analytes			
Sample Group Identifier				Phone		432-571-7806		Fax		432-571-7832	
Site/Project Name or Identifier		ASSAULT SMD		Carrier Waybill Number							
Special Instructions											
Station Name or Sample ID		Sample Date		Time 24 hrs		Matrix		Sample Top		Sample Bottom	
12		8/16/17		11:10		Water		N/A		N/A	
7A				11:50							
7B				11:50							
7C				12:00							
7D				12:15							
9				10:50							
7				10:45							
10				10:40							
8				10:35							
11				10:15							
DUP - 8/16		8/16/17		0000							
Notes:											
TX Midland times; Samples NTL Environmental											
Manuel Castro; John Meloy											
Brenda Brown											
Potential Hazardous Characteristics											
<input type="checkbox"/> Non-Haz <input type="checkbox"/> RCRA D001, 2&3, or 4 <input type="checkbox"/> RCRA Listed <input type="checkbox"/> Radioactive <input type="checkbox"/> Unknown											
Sample Disposal											
<input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Return to Client <input type="checkbox"/> Hold pending further instructions											
1. Relinquished by		John Meloy		Date 8/16/17		Time 13:00		Received by		Date 8/16/17	
3. Relinquished by		Manuel Castro		Date 8/16/17		Time		Received by		Date 8/16/17	
5. Relinquished by		Brenda Brown		Date 8/16/17		Time 15:25		Received by		Date 8/16/17	
Comments											
Send invoice to ESH Department											

Original - Send to lab with sample

Yellow - Return to ESH

Pink - Remain in book