

Cimarex

600 N. Marinfeld, Ste. 600

Midland TX, 79701

SAMPLED: 08/11/17

RECEIVED: 08-11-201

Project: Assault SWD

Project Number: [none]

Project Manager: Christine Alderman

REPORTED: 08/13/17 22:50

LAB #		7H11010-01	7H11010-02	7H11010-03	7H11010-04	7H11010-05	7H11010-06
MATRIX	Minimum	Water	Water	Water	Water	Water	Water
SAMPLE ID	Reporting Limit	S-1	S-2	S-3	S-3A	S-3B	S-4

General Chemistry Parameters by EPA / Standard Methods (Water)

Total Alkalinity	10.0 mg/L	100	100	90.0	80.0	72.0	60.0
Carbonate Alkalinity	10.0 mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bicarbonate Alkalinity	10.0 mg/L	100	100	90.0	80.0	72.0	60.0
Hydroxide Alkalinity	10.0 mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bromide	0.0500 mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chloride	0.500 mg/L	33.2	26.8	47.4	31.8	31.6	22.3
Specific Conductance (EC)	5.00 umhos/cm	2650	2790	2750	2580	2640	2540
Dissolved Oxygen	mg/L	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]
pH	pH Units	7.80	7.78	7.74	7.63	7.75	7.65
Temperature	pH Units	20.50	20.70	20.50	20.60	20.50	20.70
Total Dissolved Solids	20.0 mg/L	2660	2700	2580	2440	2740	2530
Sulfate	1.00 mg/L	1400	1480	1480	1410	1440	1420

Total Metals by EPA / Standard Methods (Water)

Calcium	0.0810 mg/L	615 [3]	595 [3]	537 [3]	532 [3]	600 [3]	645 [3]
Magnesium	0.0360 mg/L	34.5 [3]	28.5 [3]	24.3 [3]	17.8 [3]	19.4 [3]	16.9 [3]
Potassium	0.0600 mg/L	5.70 [3]	6.15 [3]	5.29 [3]	5.63 [3]	5.99 [3]	6.39 [3]
Sodium	0.0430 mg/L	57.6 [3]	48.9 [3]	43.4 [3]	30.4 [3]	33.0 [3]	26.8 [3]
Hardness	10.0 mg/L	1680 [3]	1600 [3]	1440 [3]	1400 [3]	1580 [3]	1680 [3]

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LAB #		7H11010-07	7H11010-08	7H11010-09	7H11010-10	7H11010-11	7H11010-12
MATRIX	Minimum	Water	Water	Water	Water	Water	Water
SAMPLE ID	Reporting Limit	S-4A	S-4B	S-4C	S-5	S-5A	S-5B

General Chemistry Parameters by EPA / Standard Methods (Water)

Total Alkalinity	10.0 mg/L	65.0	65.0	62.0	70.0	57.0	60.0
Carbonate Alkalinity	10.0 mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bicarbonate Alkalinity	10.0 mg/L	65.0	65.0	62.0	70.0	57.0	60.0
Hydroxide Alkalinity	10.0 mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bromide	0.0500 mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Chloride	0.500 mg/L	21.7	22.1	21.9	25.3	24.5	28.3
Specific Conductance (EC)	5.00 umhos/cm	2530	2570	2510	2330	2550	2540
Dissolved Oxygen	mg/L	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]
pH	pH Units	7.71	7.79	7.90	7.69	8.02	7.92
Temperature	pH Units	20.60	20.60	20.60	20.70	20.70	20.80
Total Dissolved Solids	20.0 mg/L	2480	2490	2620	2740	2560	2640
Sulfate	1.00 mg/L	1400	1400	1380	1410	1380	1420

Total Metals by EPA / Standard Methods (Water)

Calcium	0.0810 mg/L	537 [3]	522 [3]	527 [3]	501 [3]	536 [3]	605 [3]
Magnesium	0.0360 mg/L	14.1 [3]	13.4 [3]	13.8 [3]	13.7 [3]	13.3 [3]	14.9 [3]
Potassium	0.0600 mg/L	5.44 [3]	5.21 [3]	5.35 [3]	5.22 [3]	5.78 [3]	6.39 [3]
Sodium	0.0430 mg/L	22.0 [3]	21.2 [3]	21.8 [3]	22.6 [3]	22.1 [3]	25.9 [3]
Hardness	10.0 mg/L	1400 [3]	1360 [3]	1370 [3]	1310 [3]	1390 [3]	1570 [3]

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LAB #		7H11010-13	7H11010-14	7H11010-15	7H11010-16	7H11010-17	-
MATRIX	Minimum	Water	Water	Water	Water	Water	-
SAMPLE ID	Reporting Limit	S-6	S-6A	S-6C	DUP-1	DUP-2	-

General Chemistry Parameters by EPA / Standard Methods (Water)

Total Alkalinity	10.0 mg/L	57.0	85.0	95.0	70.0	52.0	-
Carbonate Alkalinity	10.0 mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	-
Bicarbonate Alkalinity	10.0 mg/L	57.0	85.0	95.0	70.0	52.0	-
Hydroxide Alkalinity	10.0 mg/L	<10.0	<10.0	<10.0	<10.0	<10.0	-
Bromide	0.0500 mg/L	<0.0500	0.308	0.328	<0.0500	<0.0500	-
Chloride	0.500 mg/L	27.0	48.0	58.6	22.6	27.0	-
Specific Conductance (EC)	5.00 umhos/cm	2460	2810	2900	2600	2530	-
Dissolved Oxygen	mg/L	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]	6.00 [2]	-
pH	pH Units	7.77	7.84	7.95	7.86	7.79	-
Temperature	pH Units	20.70	20.70	21.10	21.10	21.10	-
Total Dissolved Solids	20.0 mg/L	2670	2850	2740	2540	2650	-
Sulfate	1.00 mg/L	1420	1470	1470	1420	1430	-

Total Metals by EPA / Standard Methods (Water)

Calcium	0.0810 mg/L	673 [3]	579 [3]	602 [3]	566 [3]	464 [3]	-
Magnesium	0.0360 mg/L	16.5 [3]	38.2 [3]	43.1 [3]	14.5 [3]	11.8 [3]	-
Potassium	0.0600 mg/L	7.01 [3]	6.36 [3]	7.01 [3]	5.62 [3]	4.84 [1] [3]	-
Sodium	0.0430 mg/L	27.5 [3]	68.6 [3]	82.2 [3]	22.8 [3]	19.7 [3]	-
Hardness	10.0 mg/L	1750 [3]	1600 [3]	1680 [3]	1470 [3]	1210 [3]	-

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SUMMARY REPORT

1400 Rankin Hwy
Midland, Tx 79701
Phone: 432-686-7235

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Special Notes

- 1 = Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
- 2 = The Laboratory is not NELAC Certified for this analyte or analysis.
- 3 = Certification in process for this analyte.
- 4 = The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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