

1R – 1645

04 / 21 / 2014

2013 GWMR



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2014 APR 29 AM 10:22

April 21, 2014

Mr. Glenn von Gonten
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

**Re: 2013 Groundwater Sampling Report for the Celero Energy II, LP,
Rock Queen Unit Tract 7 Tank Battery, Located in Unit Letter I,
Section 22, Township 13 South, Range 31 East, Chaves County, New
Mexico (NMOCD 1RP#1645).**

Mr. Von Gonten:

This report details the results of the quarterly groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Tract 7 Tank Battery (Site) in 2013. The Site is located approximately 22 miles north of Maljamar, New Mexico. The Site location is shown on Figures 1 and 2.

FACILITY BACKGROUND

Pit Closure

On October 8, 2007, Highlander (Tetra Tech) submitted an Investigation and Characterization work plan (ICP) for an open pit at the Site. The ICP was subsequently approved by the New Mexico Oil Conservation Division (NMOCD).

The Tract 7 Tank Battery pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in October 2007. Removed fluids were placed into an existing SWD system or taken for disposal, while the sludge, tank bottom materials, and liner were disposed of at Gandy-Marley, Inc.'s landfill site in Lovington, New Mexico. Upon completion of the removal of the fluids, sludge, and liner, the underlying soils were visually inspected for signs of impact. Approximately 440 cubic yards of soil were excavated and transported to Gandy-Marley, Inc. for disposal. The pit was excavated to a point where the subsoil would support a soil boring rig.

On October 12, 2009, a report entitled *Assessment and Closure Report for*

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the Pit located at the Rock Queen Unit Track 7 Tank Battery was submitted to the NMOCD. The report detailed the closure of the former pit at the facility.

Groundwater Investigation

Between November 2009 and December 2010, Celero installed four 2-inch monitor wells (MW-1 through MW-4) and one 5-inch recovery well (RW-1) to assess the groundwater quality at the Site. The lithology at the Site was relatively consistent with limestone encountered to approximately 15 feet below ground surface (bgs) and very fine grain sands extending to approximately 150 to 160 feet bgs. From approximately 150 to 160 feet to the terminus of the borings (approximately 155 to 180 feet) the soils consisted of gray to red clay.

During the investigation, groundwater was encountered at depths of approximately 149 to 155 feet bgs. Monitor Well MW-1 was drilled into the surrounding underlying clay to 170 feet bgs and installed with 60 feet of 0.02 inch slotted screen. The remaining monitor wells were drilled to depths of 175 to 180 feet bgs and installed with 40 feet of 0.02 inch slotted screen. Recovery well RW-1 was drilled to a depth of 155 feet and installed with 20 feet of 0.035 inch slotted screen. From the top of the screens to the surface of the boring, the wells were completed with blank schedule 40 PVC casing.

During the investigation and subsequent sampling, the only constituents of concern detected in the groundwater above New Mexico Water Quality Control Commission (NMWQCC) standards was chlorides, Total Dissolved Solids (TDS), and sulfate (SO₄). No Phase Separated Hydrocarbons (PSH) or dissolved phase separated hydrocarbons have been measured or detected in any of the onsite monitor wells above NMWQCC standards. See Figure 3 detailing the monitor well locations.

Historic Gauging and Monitor Well Sampling

On November 24, 2009, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged, purged and sampled with no PSH measured. Utilizing the water level elevation calculations, groundwater gradient maps were generated for the sampling events with a hydraulic gradient consistently to the west.

Historically, each of the wells has been sampled for BTEX utilizing Method SW8021B, chlorides and sulfates utilizing Method E 300.0, TDS utilizing Method SM2540C and periodically for general chemistry using Methods SM2320B, SW6010B, SM4500-H+. All water samples collected and analyzed were below the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. Chlorides for the sampling period ranged from 87.5 mg/L in up gradient monitor well MW-4



on April 12, 2012, to 57,200 mg/L in down gradient monitor well MW-3 on October 25, 2012. With the exception of MW-4, all additional monitor wells exceeded the NMWQCC standard of 250 mg/L chlorides.

2013 GROUNDWATER SAMPLING RESULTS

Tetra Tech, Inc. (Tetra Tech) was onsite January 30, April 24, July 25, and October 30, 2013 to gauge all monitor/recovery wells. No PSH was measured in any of the monitor/recovery wells. Utilizing the water level elevation calculations, groundwater gradient maps were generated for each of the sampling events showing a hydraulic gradient consistently to the west. Groundwater gradient maps for the sampling events are included as Figures 4 through 7. Gauging data is summarized in Table 1.

On January 30, April 24, July 25, and October 30, 2013, each of the wells were sampled for BTEX utilizing Method SW8021B, chlorides and sulfates utilizing Method E 300.0, TDS utilizing Method SM2540C, and periodically for general chemistry using methods SM2320B, SW6010B, SW6010B, SM4500. The samples were collected and submitted to Trace Analysis Inc. (Trace) of Lubbock, Texas. All samples collected and analyzed were below the detection limit and hence below the NMWQCC standard of 0.01 mg/L of benzene. Chlorides for the sampling period ranged from 89.4 mg/L in monitor well MW-4 on October 30, 2013, to 49,600 mg/L in monitor well MW-2 on April 24, 2013. With the exception of MW-4, all additional monitor wells exceeded the NMWQCC standard of 250 mg/L chlorides. The general chemistry and BTEX analyses are shown in Tables 2 and 3, respectively. Chloride concentration maps for the sampling events are included as Figures 8 through 11. Copies of the laboratory analyses reports are enclosed in Appendix A.

During the purging activities, it was noted that all four monitor wells and one recovery well did not pump dry.

CONCLUSIONS

1. Sampling occurred on January 30, April 24, July 25, and October 30, 2013. During the sampling events all monitor wells were gauged, purged and sampled. The samples were preserved, delivered to Trace of Midland, Texas, and analyzed for BTEX utilizing Method SW8021B, chlorides and sulfates utilizing Method E 300.0, TDS utilizing Method SM2540C and periodically for general chemistry using methods SM2320B, SW6010B, SM4500.
2. The hydraulic gradient is consistent in a westerly direction.



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3. All wells tested below the NMQQCC standards of 0.01 mg/L for benzene throughout 2013.
4. Chloride concentrations exceed the NMWQCC standards of 250 mg/L in all monitor wells with the exception of up gradient MW-4. The chloride concentrations at the site range from 89.4 mg/L in up gradient MW-4 on October 30, 2013, to 49,600 mg/L in monitor well MW-2 on April 24, 2013.

RECOMMENDATIONS

1. Quarterly groundwater monitoring and gauging will be continued throughout the year.
2. Additional monitor wells will be installed in order to further delineate the chloride plume at the site.
3. Perform slug testing on the underlying groundwater to determine if it meets the criteria of an aquifer system. Determination of either pursuing closure or additional remediation on the site will be based on the results of the testing of the underlying groundwater.

If you have any questions or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

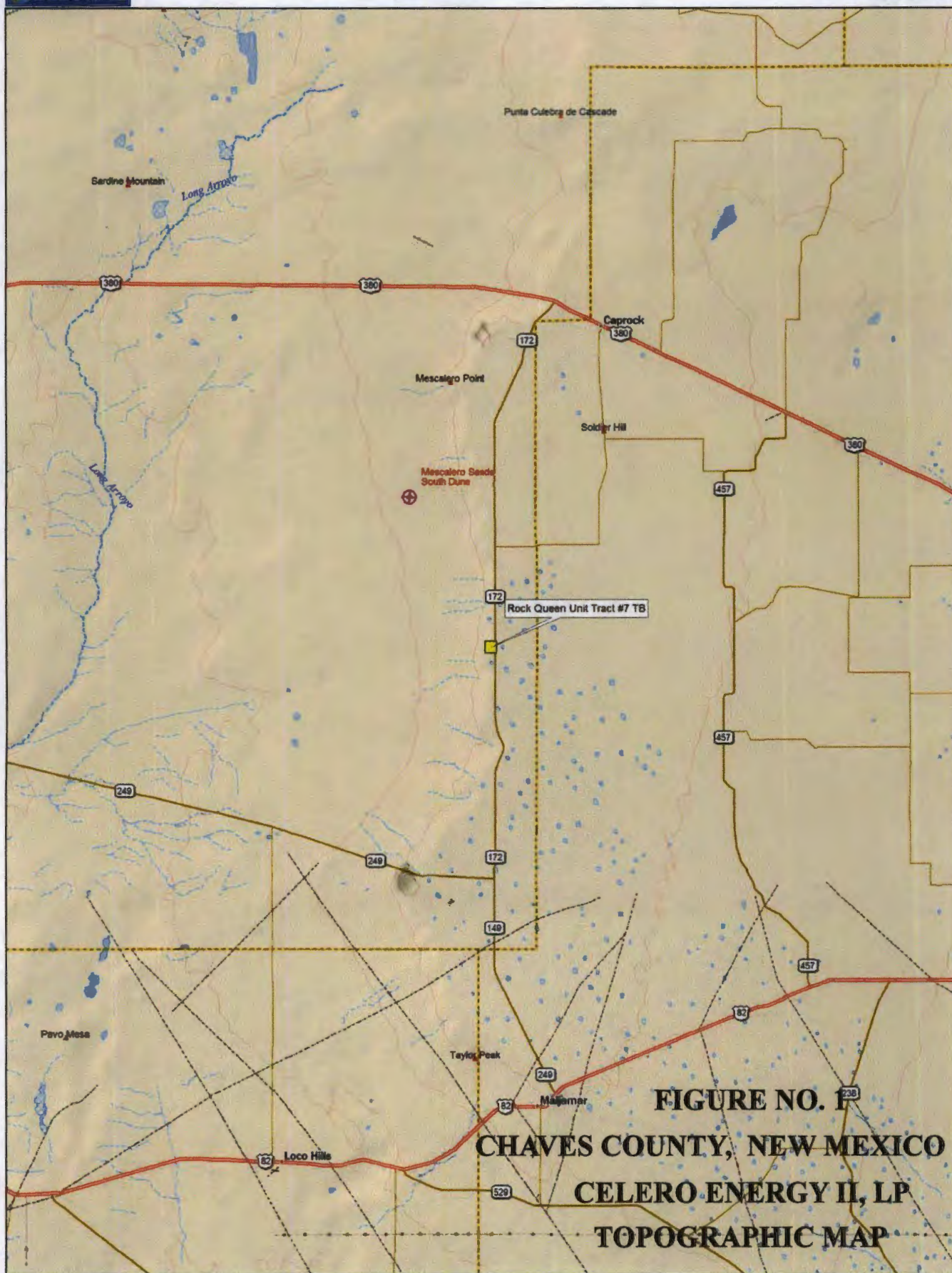


Respectfully submitted,
Tetra Tech, Inc.

Jeffrey Kindley
Jeffrey Kindley, P.G.
Senior Environmental Geologist

cc: Bruce Woodard – Celero Energy II, LP

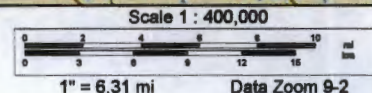
FIGURES

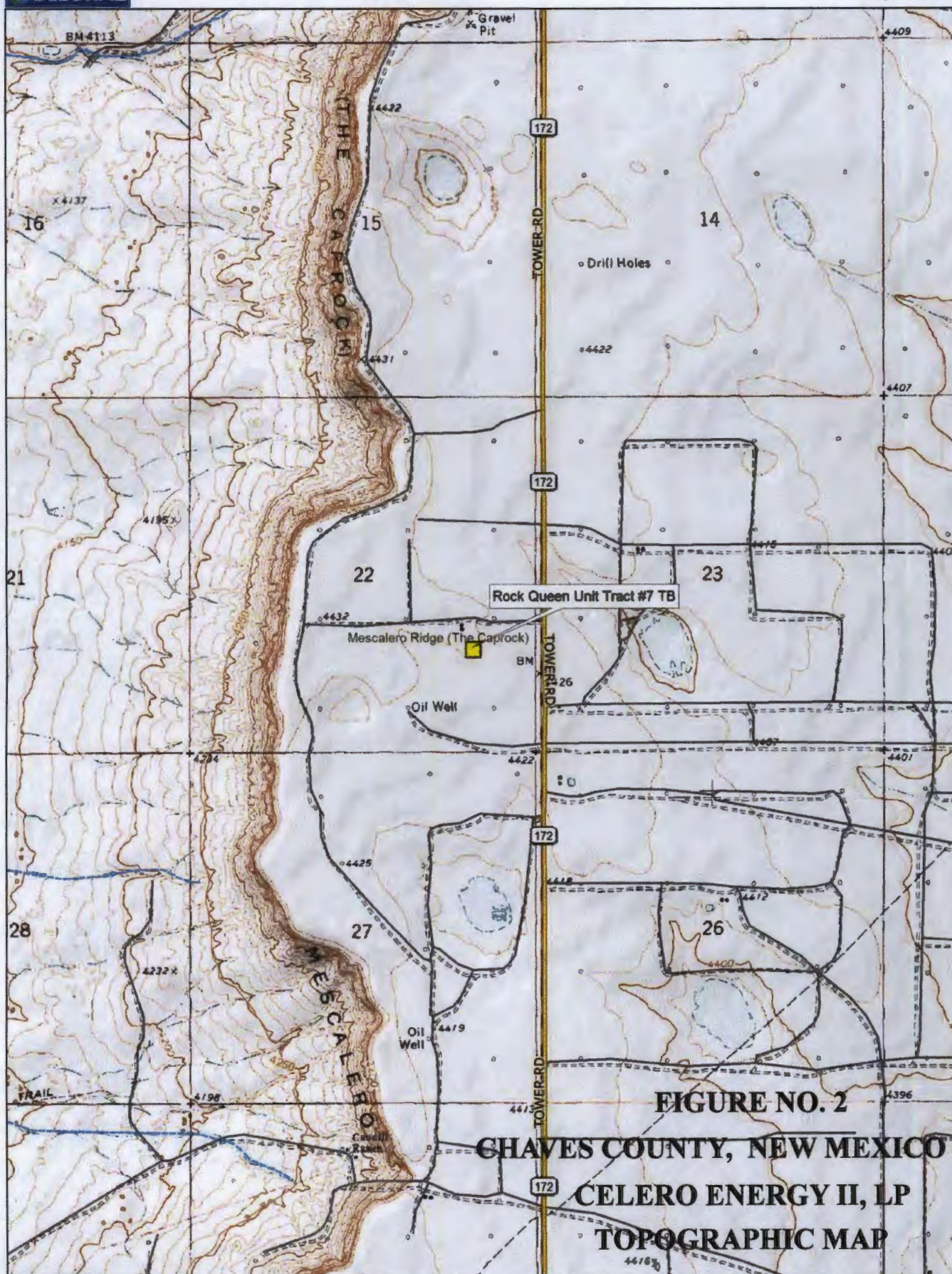


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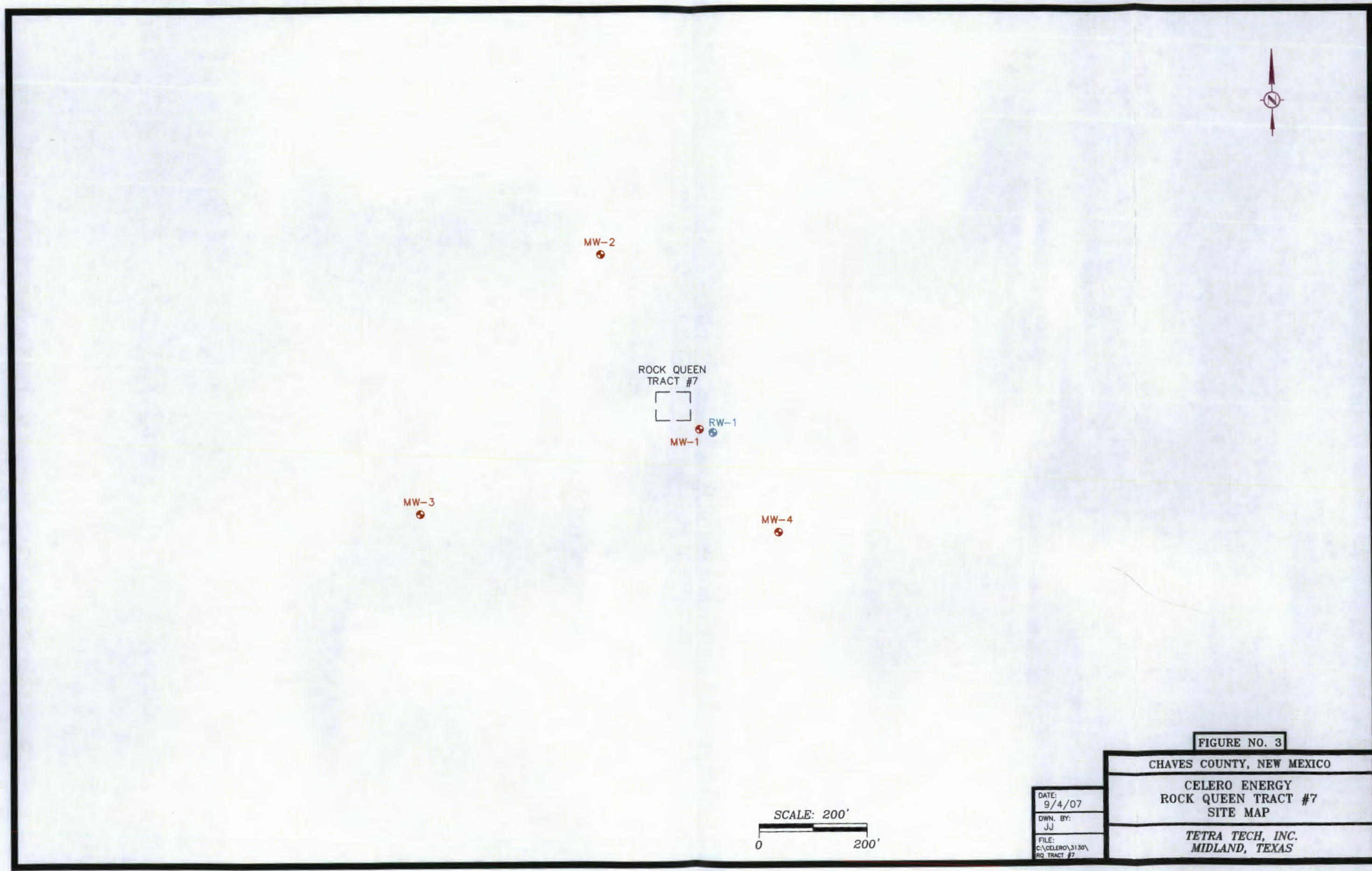


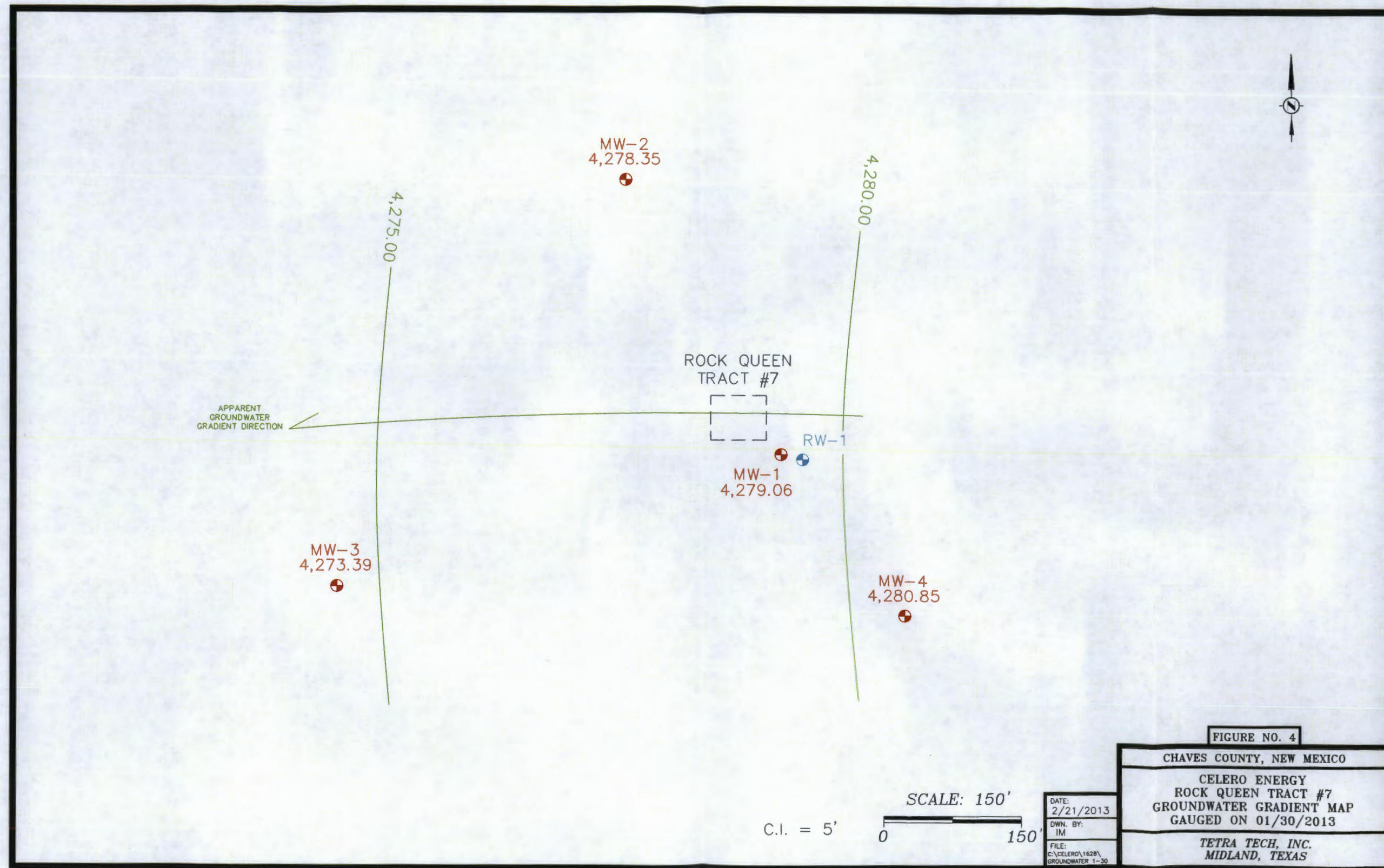
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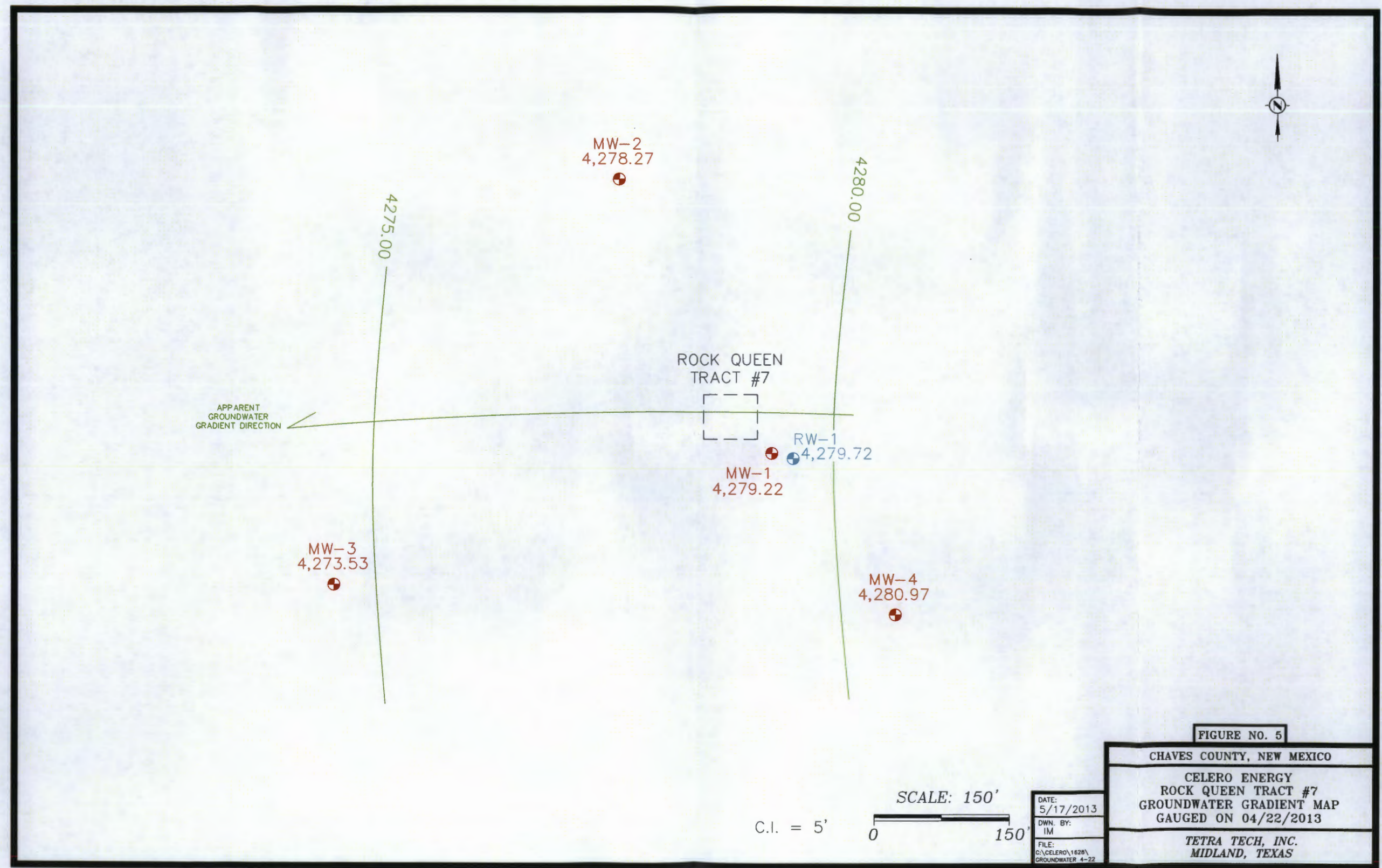
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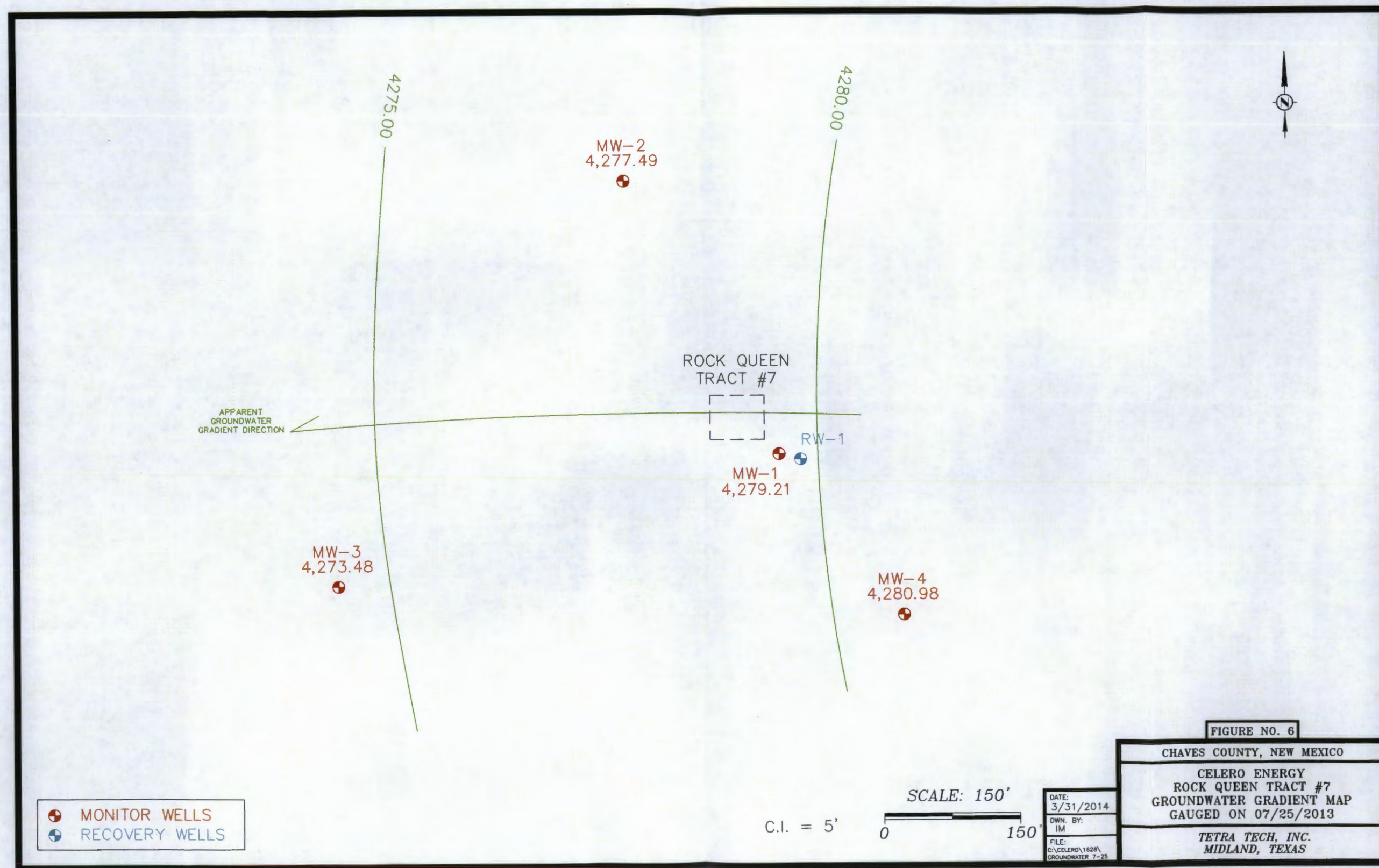
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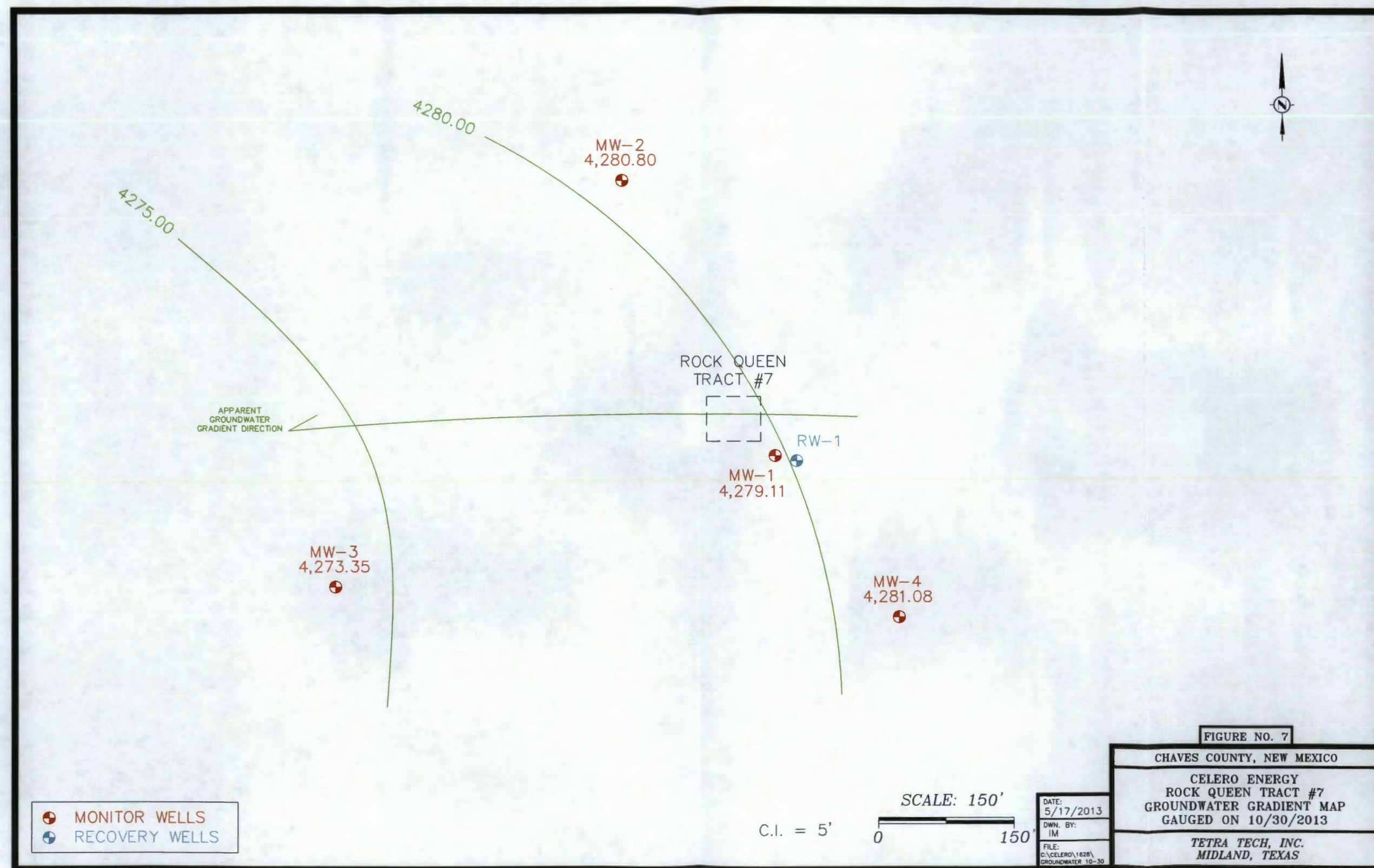


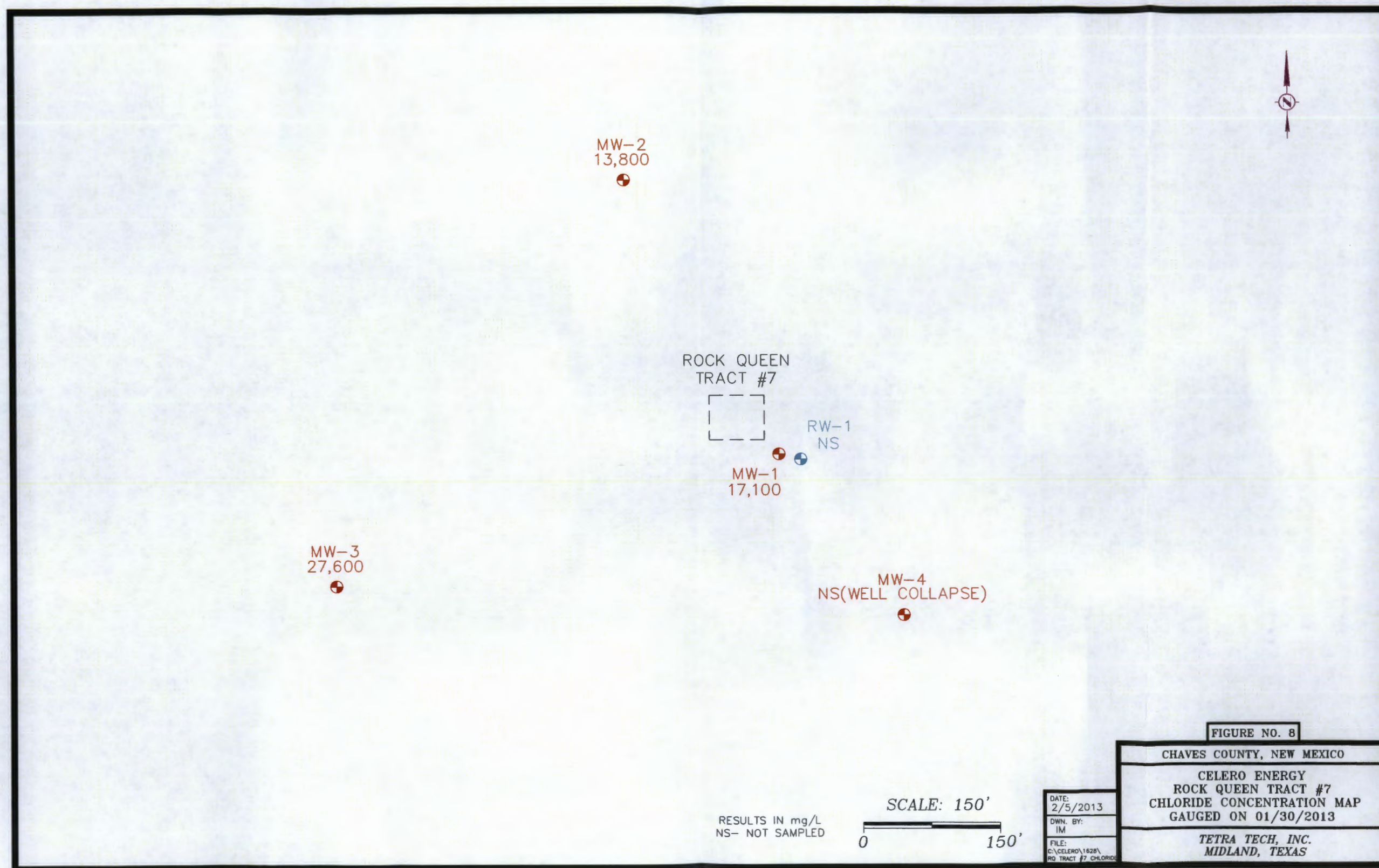


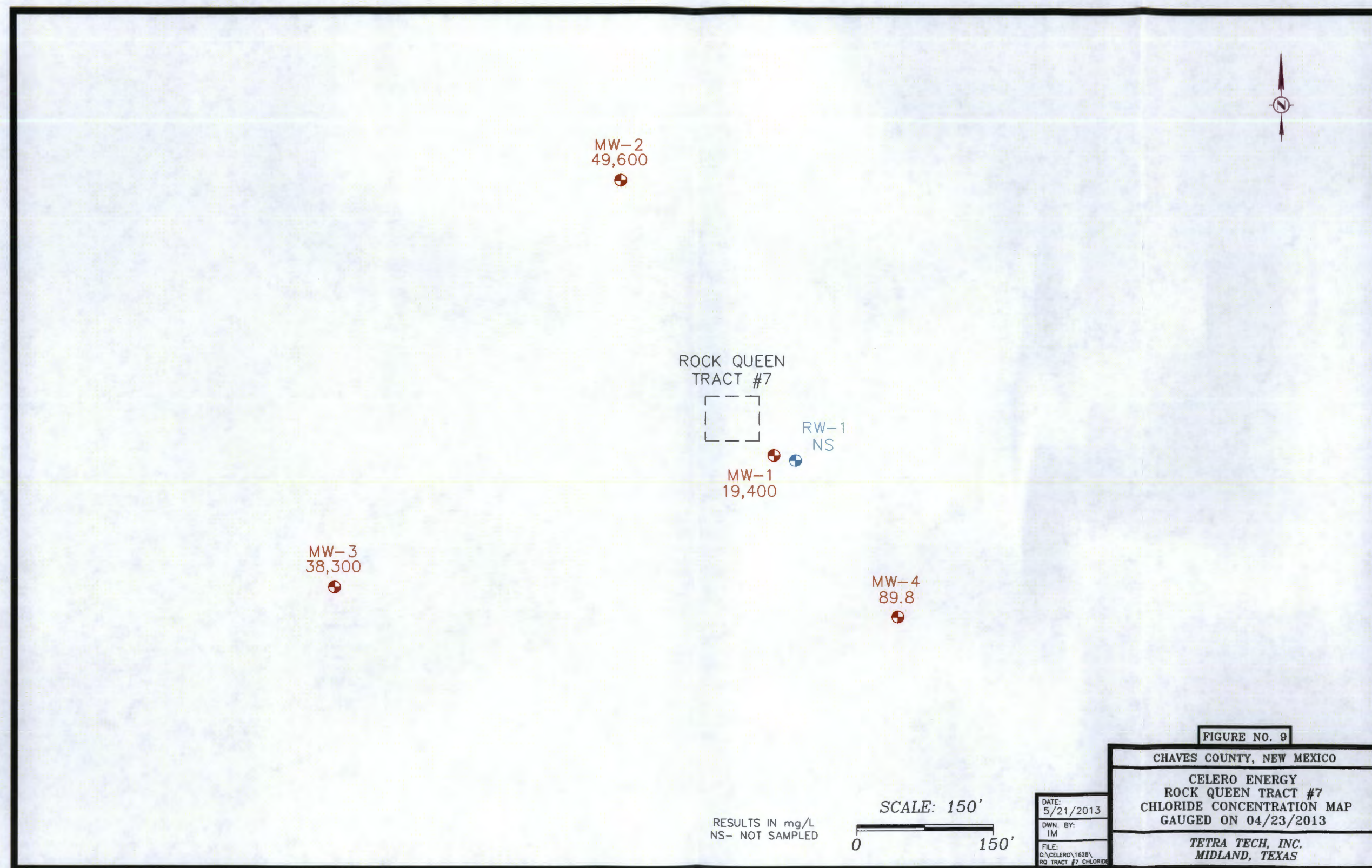


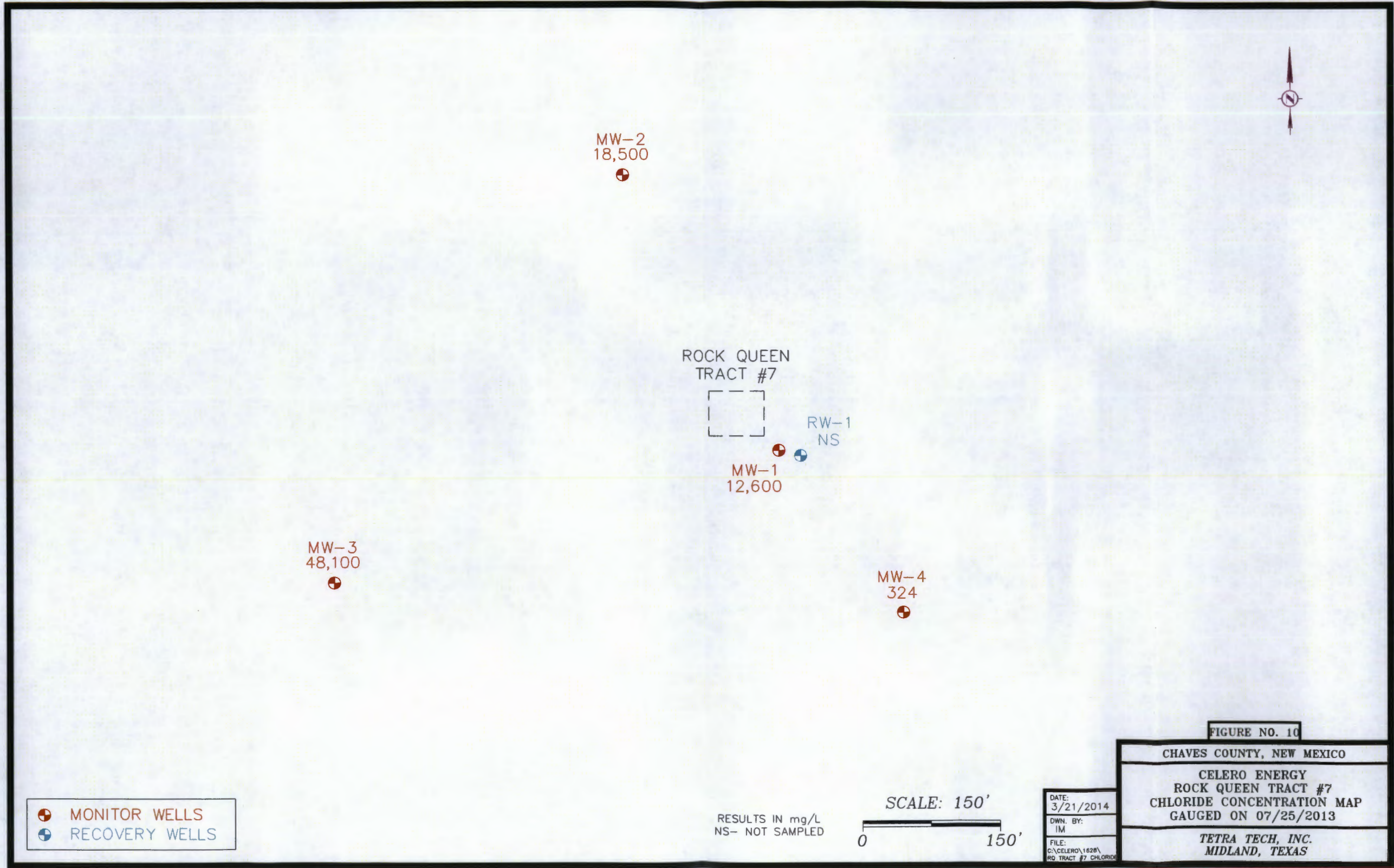


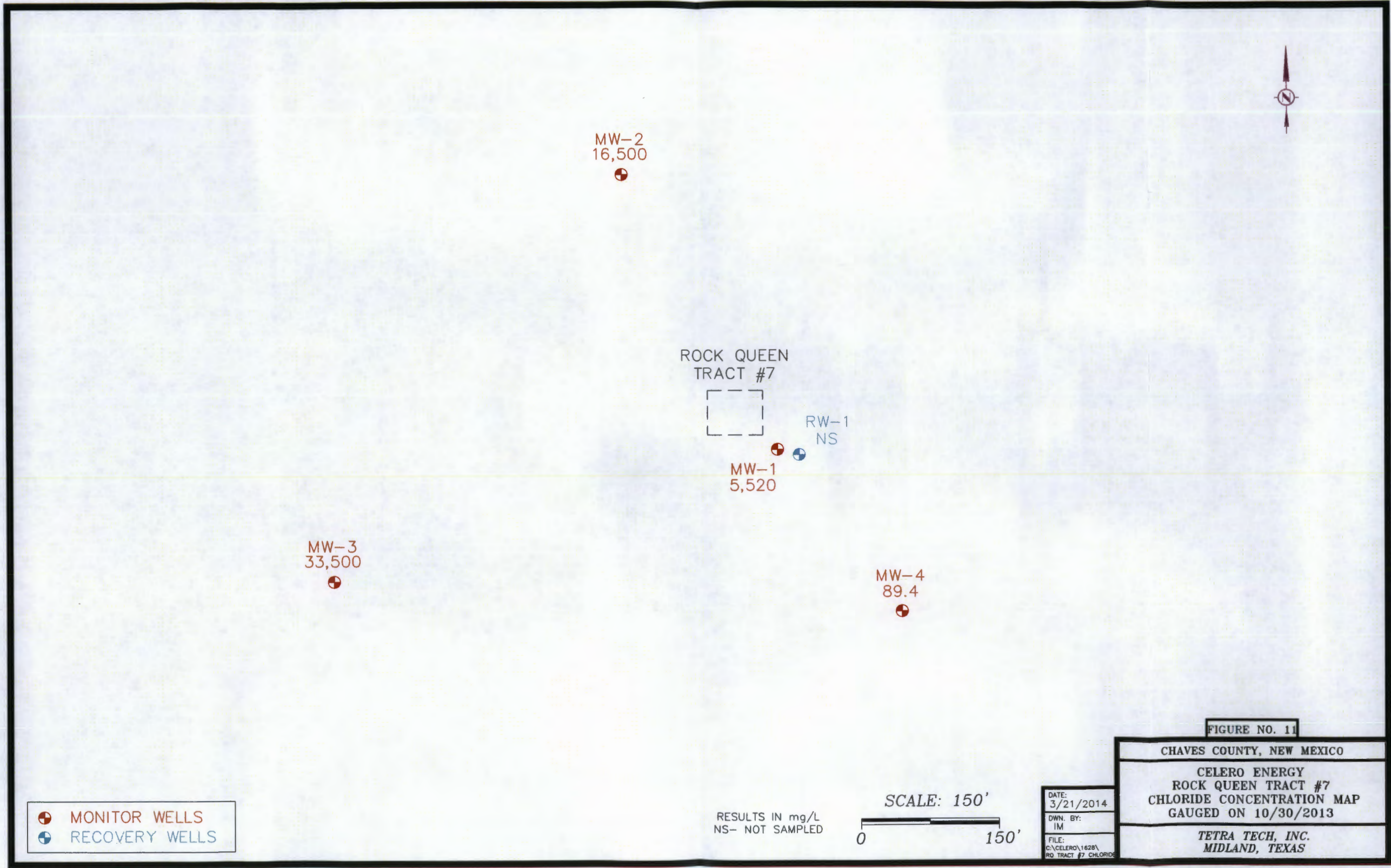












TABLES

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract #7
Chaves County, New Mexico

Monitor Well	Date Gauged	Date Well Installation	TOC Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-1	11/24/09	11/17/09	4,428.76	170.00	149.66	4,279.10
	02/25/10				149.43	4,279.33
	07/12/10				149.46	4,279.30
	10/11/10				149.44	4,279.32
	01/17/11				149.43	4,279.33
	04/11/11				149.51	4,279.25
	07/29/11				150.47	4,278.29
	10/27/11				149.40	4,279.36
	01/03/12				149.53	4,279.23
	04/09/12				149.39	4,279.37
	07/24/12				149.41	4,279.35
	10/24/12				149.60	4,279.16
	01/30/13				149.70	4,279.06
	04/22/13				149.54	4,279.22
	07/25/13				149.56	4,279.20
	10/30/13				149.65	4,279.11
MW-2	01/17/11	11/18/10	4,432.58	178.60	155.17	4,277.41
	04/11/11				155.20	4,277.38
	07/29/11				155.97	4,276.61
	10/27/11				155.11	4,277.47
	01/03/12				155.16	4,277.42
	04/09/12				155.09	4,277.49
	07/24/12				155.08	4,277.50
	10/24/12				155.21	4,277.37
	01/30/13				154.23	4,278.35
	04/22/13				154.31	4,278.27
	07/25/13				155.09	4,277.49
	10/30/13				151.78	4,280.80

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract #7
Chaves County, New Mexico

Monitor Well	Date Gauged	Date Well Installation	TOC Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-3	01/17/11	11/17/10	4,428.37	183.50	154.89	4,273.48
	04/11/11				154.97	4,273.40
	07/29/11				155.76	4,272.61
	10/27/11				154.86	4,273.51
	01/03/12				154.92	4,273.45
MW-3	04/09/12				154.83	4,273.54
	07/24/12				154.81	4,273.56
	10/24/12				154.93	4,273.44
	01/30/13				154.98	4,273.39
	04/22/13				154.84	4,273.53
	07/25/13				154.89	4,273.48
	10/30/13				155.02	4,273.35
MW-4	01/17/11	11/16/10	4,427.28	179.60	146.22	4,281.06
	04/11/11				146.30	4,280.98
	07/29/11				147.26	4,280.02
	10/27/11				146.40	4,280.88
	01/03/12				146.33	4,280.95
	04/09/12				146.32	4,280.96
	07/24/12				146.35	4,280.93
	10/24/12				146.37	4,280.91
	01/30/13				146.43	4,280.85
	04/22/13				146.31	4,280.97
	07/25/13				146.30	4,280.98
	10/30/13				146.20	4,281.08
RW-1	01/17/11	12/07/10	4,428.04	159.45	148.10	4,279.94
	04/11/11				148.29	4,279.75
	07/29/11				149.07	4,278.97
	10/27/11				148.14	4,279.90
	01/03/12				148.28	4,279.76

Table 1
 Celero Energy II, LP
 Groundwater Gauging Data
 Rock Queen Unit Tract #7
 Chaves County, New Mexico

Monitor Well	Date Gauged	Date Well Installation	TOC Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
RW-1	04/09/12				148.14	4,279.90
	07/24/12				148.12	4,279.92
	10/24/12				148.32	4,279.72
	01/30/13				--	--
	04/22/13				148.32	4,279.72
	07/25/13				148.24	4,279.80
	04/22/13				148.14	4,279.90

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #7
Chaves County, New Mexico

Monitor Well	Date Sampled	Dissolved Calcium (mg/L)	Dissolved Magnesium (mg/L)	Dissolved Sodium (mg/L)	Dissolved Potassium (mg/L)	Hydroxide Alkalinity (mg/L)	Carbonate Alkalinity (mg/L)	Bicarbonate Alkalinity (mg/L)	Total Alkalinity (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Hardness (mg/L)	pH
MW-1	11/24/09	1,730	430	585	15.3	<1.00	<1.00	114	114	150	4,690	9,100	6,100	7.55
	02/25/10	8,010	2,250	2,860	80.0	<1.00	<1.00	93	93	463	24,000	38,300	29,300	7.11
	07/12/10	-	-	-	-	-	-	-	-	316	3,060	3,060	-	-
	10/11/10	-	-	-	-	-	-	-	-	960	20,000	48,400	-	-
	01/19/11	-	-	-	-	-	-	-	-	<2500	18,200	38,600	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,020	20,500	32,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,170	20,500	33,700	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,270	13,100	23,200	-	-
	01/06/12	-	-	-	-	-	-	-	-	1,260	18,000	23,200	-	-
	04/12/12	-	-	-	-	-	-	-	-	1,020	9,840	25,600	-	-
	07/25/12	-	-	-	-	-	-	-	-	-	25,700	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	826	22,000	51,500	-	-
	01/30/13	-	-	-	-	-	-	-	-	690	17,100	32,400	-	-
	04/24/13	5,440	1,310	4,700	37.3	<1.00	<1.00	551	551	924	19,400	43,700	19,000	6.70
	07/25/13	1,700	458	4,980	49.8	<20.0	<20.0	179	179	<2500	12,600	22,900	6,130	6.91
	10/30/13	531	184	2,920	38.9	<20.0	<20.0	356	356	609	5,520	11,900	2,080	7.43
MW-2	01/19/11	-	-	-	-	-	-	-	-	1,250	45,100	78,200	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,280	19,100	33,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,570	11,700	25,900	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,010	10,500	19,500	-	-
	01/06/12	-	-	-	-	-	-	-	-	1,840	26,000	35,800	-	-
	04/12/12	-	-	-	-	-	-	-	-	1,800	21,800	36,900	-	-
	07/25/12	-	-	-	-	-	-	-	-	-	27,300	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,490	22,100	37,200	-	-
	01/30/13	-	-	-	-	-	-	-	-	1,140	13,800	24,800	-	-
	04/24/13	6,310	2,510	22,800	102	<1.00	<1.00	160	160	1,610	49,600	88,600	26,100	6.20
	07/25/13	1,030	516	8,400	129	<20.0	<20.0	173	173	<2500	18,500	33,000	4,700	6.86
	10/30/13	1,850	821	33,500	181	<20.0	<20.0	320	320	1,030	33,500	33,700	8,000	7.05
MW-3	01/19/11	-	-	-	-	-	-	-	-	1,750	47,500	81,800	-	-

Table 2
 Celero Energy II, LP
 Groundwater Analytical Results
 Rock Queen Unit Tract #7
 Chaves County, New Mexico

Monitor Well	Date Sampled	Dissolved Calcium (mg/L)	Dissolved Magnesium (mg/L)	Dissolved Sodium (mg/L)	Dissolved Potassium (mg/L)	Hydroxide Alkalinity (mg/L)	Carbonate Alkalinity (mg/L)	Bicarbonate Alkalinity (mg/L)	Total Alkalinity (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Hardness (mg/L)	pH
RW-1	07/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/24/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/25/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/30/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not sampled

(-) Not analyzed

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #7
Chaves County, New Mexico

Monitor Well	Date Sampled	Benzene in (mg/L)	Toluene in (mg/L)	Ethyl- Benzene (mg/L)	Xylene in (mg/L)	Total BTEX (mg/L)
MW-1	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	02/25/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	0.0041
MW-2	07/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	01/30/13	<0.001	<0.001	<0.001	<0.001	<0.001
	04/24/13	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/13	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/13	<0.001	<0.001	<0.001	<0.003	<0.003
	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	0.0068	<0.001	<0.001	<0.001	0.0068
	07/29/11	0.0065	<0.001	<0.001	<0.001	0.0068
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-3	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	01/30/13	<0.001	<0.001	<0.001	<0.001	<0.001
	04/24/13	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/13	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/13	<0.001	<0.001	<0.001	<0.003	<0.003
	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-4	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	01/30/13	<0.001	<0.001	<0.001	<0.001	<0.001
	04/24/13	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/13	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/13	<0.001	<0.001	<0.001	<0.003	<0.003
RW-1	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	01/30/13	NS	NS	NS	NS	NS
	04/24/13	<0.001	<0.001	<0.001	<0.001	<0.001
MW-1	07/25/13	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/13	<0.001	<0.001	<0.001	<0.003	<0.003
	01/19/11	NS	NS	NS	NS	NS
	04/14/11	NS	NS	NS	NS	NS
MW-2	07/29/11	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS
	01/06/12	NS	NS	NS	NS	NS
	04/12/12	NS	NS	NS	NS	NS
MW-3	07/25/12	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS
	01/30/13	NS	NS	NS	NS	NS
	04/24/13	NS	NS	NS	NS	NS
MW-4	07/25/13	NS	NS	NS	NS	NS
	10/30/13	NS	NS	NS	NS	NS
	01/19/11	NS	NS	NS	NS	NS
	04/14/11	NS	NS	NS	NS	NS
RW-1	07/29/11	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS
	01/06/12	NS	NS	NS	NS	NS
	04/12/12	NS	NS	NS	NS	NS

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #7
Chaves County, New Mexico

Monitor Well	Date Sampled	Benzene in (mg/L)	Toluene in (mg/L)	Ethyl- Benzene (mg/L)	Xylene in (mg/L)	Total BTEX (mg/L)
RW-1	01/06/12	NS	NS	NS	NS	NS
	04/12/12	NS	NS	NS	NS	NS
	07/25/12	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS
	01/30/13	NS	NS	NS	NS	NS
	04/24/13	NS	NS	NS	NS	NS
	07/25/13	NS	NS	NS	NS	NS
	10/30/13	NS	NS	NS	NS	NS

NS - Not sampled

APPENDIX A

LABORATORY ANALYSIS



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

(Corrected Report)

Jeff Kindley
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: February 20, 2013

Work Order: 13020134



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #7
Project Number: 114-6401628

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
320185	MW-1	water	2013-01-30	09:30	2013-02-01
320186	MW-2	water	2013-01-30	10:00	2013-02-01
320187	MW-3	water	2013-01-30	09:50	2013-02-01

Report Corrections (Work Order 13020134)

- 2/20/13: Added narrative comment concerning hold time for samples 320186 and 320187.

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 18 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink that reads "Michael Abel". The signature is written in a cursive, flowing style.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

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Case Narrative

Samples for project Celero/Rock Queen #7 were received by TraceAnalysis, Inc. on 2013-02-01 and assigned to work order 13020134. Samples for work order 13020134 were received intact without headspace and at a temperature of -2.1 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	83687	2013-02-07 at 12:00	98757	2013-02-07 at 12:00
Chloride (IC)	E 300.0	83644	2013-02-05 at 09:46	98812	2013-02-05 at 13:31
SO4 (IC)	E 300.0	83644	2013-02-05 at 09:46	98812	2013-02-05 at 13:31
TDS	SM 2540C	83642	2013-02-05 at 09:17	98843	2013-02-05 at 16:06
TDS	SM 2540C	83948	2013-02-18 at 08:43	99086	2013-02-19 at 15:45

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13020134 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 320185 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 98757
Prep Batch: 83687

Analytical Method: S 8021B
Date Analyzed: 2013-02-07
Sample Preparation: 2013-02-07

Prep Method: S 5030B
Analyzed By: YG
Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.00100	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.115	mg/L	1	0.100	115	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0974	mg/L	1	0.100	97	68.1 - 109

Sample: 320185 - MW-1

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98812
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-05
Sample Preparation: 2013-02-05

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q _s	1	17100	mg/L	1000	2.50

Sample: 320185 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98812
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-05
Sample Preparation: 2013-02-05

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	690	mg/L	100	2.50

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Sample: 320185 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 98843
Prep Batch: 83642

Analytical Method: SM 2540C
Date Analyzed: 2013-02-05
Sample Preparation: 2013-02-06

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	32400	mg/L	100	10.0

Sample: 320186 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 98757
Prep Batch: 83687

Analytical Method: S 8021B
Date Analyzed: 2013-02-07
Sample Preparation: 2013-02-07

Prep Method: S 5030B
Analyzed By: YG
Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.00100	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.128	mg/L	1	0.100	128	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0992	mg/L	1	0.100	99	68.1 - 109

Sample: 320186 - MW-2

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98812
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-05
Sample Preparation: 2013-02-05

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	1	13800	mg/L	1000	2.50

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Sample: 320186 - MW-2

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98812
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-05
Sample Preparation: 2013-02-05

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1140	mg/L	100	2.50

Sample: 320186 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 99086
Prep Batch: 83948

Analytical Method: SM 2540C
Date Analyzed: 2013-02-19
Sample Preparation: 2013-02-18

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	1	1	24800	mg/L	100	10.0

Sample: 320187 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 98757
Prep Batch: 83687

Analytical Method: S 8021B
Date Analyzed: 2013-02-07
Sample Preparation: 2013-02-07

Prep Method: S 5030B
Analyzed By: YG
Prepared By: YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.00100	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{ST}	Q _{ST}	0.116	mg/L	1	0.100	116	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0988	mg/L	1	0.100	99	68.1 - 109

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Sample: 320187 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2013-02-05	Analyzed By:	AR
QC Batch:	98812	Sample Preparation:	2013-02-05	Prepared By:	AR
Prep Batch:	83644				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	1	27600	mg/L	1000	2.50

Sample: 320187 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2013-02-05	Analyzed By:	AR
QC Batch:	98812	Sample Preparation:	2013-02-05	Prepared By:	AR
Prep Batch:	83644				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1300	mg/L	100	2.50

Sample: 320187 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2013-02-19	Analyzed By:	AR
QC Batch:	99086	Sample Preparation:	2013-02-18	Prepared By:	AR
Prep Batch:	83948				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	2	1	44800	mg/L	100	10.0

Method Blanks

Method Blank (1) QC Batch: 98757

QC Batch: 98757
Prep Batch: 83687

Date Analyzed: 2013-02-07
QC Preparation: 2013-02-07

Analyzed By: YG
Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000200	mg/L	0.001
Toluene		1	<0.000300	mg/L	0.001
Ethylbenzene		1	<0.000400	mg/L	0.001
Xylene		1	<0.00120	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.118	mg/L	1	0.100	118	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.102	mg/L	1	0.100	102	68.1 - 109

Method Blank (1) QC Batch: 98812

QC Batch: 98812
Prep Batch: 83644

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	<0.265	mg/L	2.5

Method Blank (1) QC Batch: 98812

QC Batch: 98812
Prep Batch: 83644

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.177	mg/L	2.5

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Method Blank (1) QC Batch: 98843

QC Batch: 98843 Date Analyzed: 2013-02-05 Analyzed By: AR
Prep Batch: 83642 QC Preparation: 2013-02-05 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		1	<9.75	mg/L	10

Method Blank (1) QC Batch: 99086

QC Batch: 99086 Date Analyzed: 2013-02-19 Analyzed By: AR
Prep Batch: 83948 QC Preparation: 2013-02-18 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		1	<9.75	mg/L	10

Duplicates (1) Duplicated Sample: 320185

QC Batch: 98843 Date Analyzed: 2013-02-05 Analyzed By: AR
Prep Batch: 83642 QC Preparation: 2013-02-05 Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	35500	32400	mg/L	100	9	10

Duplicates (1) Duplicated Sample: 320187

QC Batch: 99086 Date Analyzed: 2013-02-19 Analyzed By: AR
Prep Batch: 83948 QC Preparation: 2013-02-18 Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	46500	44800	mg/L	100	4	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 98757
Prep Batch: 83687

Date Analyzed: 2013-02-07
QC Preparation: 2013-02-07

Analyzed By: YG
Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.108	mg/L	1	0.100	<0.000200	108	80 - 120
Toluene		1	0.109	mg/L	1	0.100	<0.000300	109	80 - 120
Ethylbenzene		1	0.112	mg/L	1	0.100	<0.000400	112	70.6 - 120
Xylene		1	0.347	mg/L	1	0.300	<0.00120	116	79.2 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.109	mg/L	1	0.100	<0.000200	109	80 - 120	1	20
Toluene		1	0.110	mg/L	1	0.100	<0.000300	110	80 - 120	1	20
Ethylbenzene		1	0.114	mg/L	1	0.100	<0.000400	114	70.6 - 120	2	20
Xylene		1	0.351	mg/L	1	0.300	<0.00120	117	79.2 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate			LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.117	0.117	mg/L	1	0.100	117	117	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.102	0.103	mg/L	1	0.100	102	103	68.1 - 109

Laboratory Control Spike (LCS-1)

QC Batch: 98812
Prep Batch: 83644

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	22.6	mg/L	1	25.0	<0.265	90	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

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control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	22.7	mg/L	1	25.0	<0.265	91	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 98812
Prep Batch: 83644

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	24.1	mg/L	1	25.0	<0.177	96	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	24.3	mg/L	1	25.0	<0.177	97	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 98843
Prep Batch: 83642

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	976	mg/L	1	1000	<9.75	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1	986	mg/L	1	1000	<9.75	99	90 - 110	1	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Laboratory Control Spike (LCS-1)

QC Batch: 99086
Prep Batch: 83948

Date Analyzed: 2013-02-19
QC Preparation: 2013-02-18

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	972	mg/L	1	1000	<9.75	97	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1	963	mg/L	1	1000	<9.75	96	90 - 110	1	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 320185

QC Batch: 98757
Prep Batch: 83687

Date Analyzed: 2013-02-07
QC Preparation: 2013-02-07

Analyzed By: YG
Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0962	mg/L	1	0.100	<0.000200	96	25.7 - 139
Toluene		1	0.0955	mg/L	1	0.100	<0.000300	96	32.7 - 134
Ethylbenzene		1	0.0985	mg/L	1	0.100	<0.000400	98	45.9 - 120
Xylene		1	0.304	mg/L	1	0.300	<0.00120	101	34.9 - 128

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0889	mg/L	1	0.100	<0.000200	89	25.7 - 139	8	20
Toluene		1	0.0893	mg/L	1	0.100	<0.000300	89	32.7 - 134	7	20
Ethylbenzene		1	0.0920	mg/L	1	0.100	<0.000400	92	45.9 - 120	7	20
Xylene		1	0.283	mg/L	1	0.300	<0.00120	94	34.9 - 128	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	Q _{sr}	Q _{sr}	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.119	0.112	mg/L	1	0.1	119	112	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0991	0.0994	mg/L	1	0.1	99	99	68.1 - 109

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Matrix Spike (MS-1) Spiked Sample: 320185

QC Batch: 98812
Prep Batch: 83644

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	52700	mg/L	1000	30000	17100	119	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param			MSD		Dil.	Spike	Matrix	Rec.		RPD		
	F	C	Result	Units		Amount	Result	Rec.	Limit			
Chloride	Qs	Qs	1	53600	mg/L	1000	30000	17100	122	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 320185

QC Batch: 98812
Prep Batch: 83644

Date Analyzed: 2013-02-05
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25900	mg/L	1000	30000	270	85	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26100	mg/L	1000	30000	270	86	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 98757

Date Analyzed: 2013-02-07

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.104	104	80 - 120	2013-02-07
Toluene		1	mg/L	0.100	0.105	105	80 - 120	2013-02-07
Ethylbenzene		1	mg/L	0.100	0.108	108	80 - 120	2013-02-07
Xylene		1	mg/L	0.300	0.325	108	80 - 120	2013-02-07

Standard (CCV-2)

QC Batch: 98757

Date Analyzed: 2013-02-07

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.108	108	80 - 120	2013-02-07
Toluene		1	mg/L	0.100	0.109	109	80 - 120	2013-02-07
Ethylbenzene		1	mg/L	0.100	0.114	114	80 - 120	2013-02-07
Xylene		1	mg/L	0.300	0.353	118	80 - 120	2013-02-07

Standard (CCV-3)

QC Batch: 98757

Date Analyzed: 2013-02-07

Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.109	109	80 - 120	2013-02-07
Toluene		1	mg/L	0.100	0.110	110	80 - 120	2013-02-07
Ethylbenzene		1	mg/L	0.100	0.114	114	80 - 120	2013-02-07
Xylene		1	mg/L	0.300	0.353	118	80 - 120	2013-02-07

Report Date: February 20, 2013
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Celero/Rock Queen #7

Page Number: 16 of 18
Chavez Co., NM

Standard (CCV-1)

QC Batch: 98812

Date Analyzed: 2013-02-05

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	22.6	90	90 - 110	2013-02-05

Standard (CCV-1)

QC Batch: 98812

Date Analyzed: 2013-02-05

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	23.2	93	90 - 110	2013-02-05

Standard (CCV-2)

QC Batch: 98812

Date Analyzed: 2013-02-05

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.4	94	90 - 110	2013-02-05

Standard (CCV-2)

QC Batch: 98812

Date Analyzed: 2013-02-05

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	24.8	99	90 - 110	2013-02-05

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-12-4	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

- 1 special comment: MW-2 (320186) and MW-3 (320187): TDS was prepped/analyzed/confirmed out of hold time 2/18, 2/19.
- 2 special comment: MW-2 (320186) and MW-3 (320187): TDS was prepped/analyzed/confirmed out of hold time 2/18, 2/19.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Jeff Kindley
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: May 9, 2013

Work Order: 13042618



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #7
Project Number: 114-6401628

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
327403	MW-1	water	2013-04-24	14:25	2013-04-25
327404	MW-2	water	2013-04-24	13:25	2013-04-25
327405	MW-3	water	2013-04-24	12:55	2013-04-25
327406	MW-4	water	2013-04-24	14:10	2013-04-25

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 47 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

For inorganic analyses, the term MQL should actually read PQL.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

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Case Narrative

Samples for project Celero/Rock Queen #7 were received by TraceAnalysis, Inc. on 2013-04-25 and assigned to work order 13042618. Samples for work order 13042618 were received intact without headspace and at a temperature of 5.9 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Alkalinity	SM 2320B	85800	2013-05-09 at 09:00	101235	2013-05-09 at 09:15
BTEX	S 8021B	85524	2013-04-30 at 12:53	100911	2013-04-30 at 12:54
BTEX	S 8021B	85587	2013-05-02 at 09:25	100979	2013-05-02 at 09:26
Ca, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101120	2013-05-07 at 08:58
Ca, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101121	2013-05-07 at 09:03
Chloride (IC)	E 300.0	85704	2013-05-03 at 14:00	101124	2013-05-03 at 15:07
Chloride (IC)	E 300.0	85706	2013-05-06 at 14:00	101126	2013-05-06 at 15:55
Hardness	S 6010C	85570	2013-05-01 at 12:00	101120	2013-05-07 at 08:58
Hardness	S 6010C	85572	2013-05-01 at 12:02	101121	2013-05-07 at 09:03
K, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101120	2013-05-07 at 08:58
K, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101121	2013-05-07 at 09:03
Mg, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101120	2013-05-07 at 08:58
Mg, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101121	2013-05-07 at 09:03
Na, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101120	2013-05-07 at 08:58
Na, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101121	2013-05-07 at 09:03
pH	SM 4500-H+	85498	2013-04-26 at 16:03	100884	2013-04-26 at 17:08
SO4 (IC)	E 300.0	85704	2013-05-03 at 14:00	101124	2013-05-03 at 15:07
SO4 (IC)	E 300.0	85706	2013-05-06 at 14:00	101126	2013-05-06 at 15:55
TDS	SM 2540C	85494	2013-04-26 at 11:39	100878	2013-04-27 at 15:41

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13042618 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: May 9, 2013
114-6401628

Work Order: 13042618
Celero/Rock Queen #7

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Chavez Co., NM

Analytical Report

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101235
Prep Batch: 85800

Analytical Method: SM 2320B
Date Analyzed: 2013-05-09
Sample Preparation: 2013-05-09

Prep Method: N/A
Analyzed By: LM
Prepared By: LM

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Hydroxide Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Carbonate Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Bicarbonate Alkalinity		1	551	551	<1.00	mg/L as CaCo3	1	1.00	1	1
Total Alkalinity		1	551	551	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327403 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 100911
Prep Batch: 85524

Analytical Method: S 8021B
Date Analyzed: 2013-04-30
Sample Preparation: 2013-04-29

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Benzene	Qr, Qs, U	2	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	Qr, Qs, U	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	Qr, Qs, U	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	Qr, Qs, U	2	<0.00120	<0.00100	<0.00120	mg/L	1	0.00120	0.001	0.0012

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0895	mg/L	1	0.100	90	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0728	mg/L	1	0.100	73	70 - 130

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: Ca, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Report Date: May 9, 2013
114-6401628

Work Order: 13042618
Celero/Rock Queen #7

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Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Calcium		1	5440	5440	<4.41	mg/L	100	4.41	1	0.0441

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101126
Prep Batch: 85706

Analytical Method: E 300.0
Date Analyzed: 2013-05-06
Sample Preparation: 2013-05-06

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	19400	19400	<169	mg/L	1000	169	2.5	0.169

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: N/A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Hardness (by ICP)			19000	19000	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: K, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Potassium		1	37.3	37.3	<0.443	mg/L	10	0.443	1	0.0443

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: Mg, Dissolved

Analytical Method: S 6010C

Prep Method: S 3005A

Report Date: May 9, 2013
114-6401628

Work Order: 13042618
Celero/Rock Queen #7

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Chavez Co., NM

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Magnesium		1	1310	1310	<2.96	mg/L	100	2.96	1	0.0296

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: Na, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Sodium		1	4700	4700	<17.2	mg/L	100	17.2	1	0.172

Sample: 327403 - MW-1

Laboratory: Midland
Analysis: pH
QC Batch: 100884
Prep Batch: 85498

Analytical Method: SM 4500-H+
Date Analyzed: 2013-04-26
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	6.70	s.u.	1	0

Sample: 327403 - MW-1

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101124
Prep Batch: 85704

Analytical Method: E 300.0
Date Analyzed: 2013-05-03
Sample Preparation: 2013-05-03

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate	J	1	924	<1250	<112	mg/L	500	112	2.5	0.224

Sample: 327403 - MW-1

Report Date: May 9, 2013
114-6401628

Work Order: 13042618
Celero/Rock Queen #7

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Chavez Co., NM

Laboratory: Midland
Analysis: TDS
QC Batch: 100878
Prep Batch: 85494

Analytical Method: SM 2540C
Date Analyzed: 2013-04-27
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		2	43700	43700	<975	mg/L	100	975	10	9.75

Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101235
Prep Batch: 85800

Analytical Method: SM 2320B
Date Analyzed: 2013-05-09
Sample Preparation: 2013-05-09

Prep Method: N/A
Analyzed By: LM
Prepared By: LM

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Hydroxide Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Carbonate Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Bicarbonate Alkalinity		1	160	160	<1.00	mg/L as CaCo3	1	1.00	1	1
Total Alkalinity		1	160	160	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327404 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 100911
Prep Batch: 85524

Analytical Method: S 8021B
Date Analyzed: 2013-04-30
Sample Preparation: 2013-04-29

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	Qr, Qs	2	0.00480	0.00480	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	Qr, Qs, U	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	Qr, Qs, U	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	Qr, Qs, U	2	<0.00120	<0.00100	<0.00120	mg/L	1	0.00120	0.001	0.0012

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0856	mg/L	1	0.100	86	70 - 130
4-Bromofluorobenzene (4-BFB)		Qsr	0.0695	mg/L	1	0.100	70	70 - 130

Report Date: May 9, 2013
114-6401628

Work Order: 13042618
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Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: Ca, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Calcium		1	6310	6310	<4.41	mg/L	100	4.41	1	0.0441

Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101126
Prep Batch: 85706

Analytical Method: E 300.0
Date Analyzed: 2013-05-06
Sample Preparation: 2013-05-06

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	49600	49600	<845	mg/L	5000	845	2.5	0.169

Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: N/A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Hardness (by ICP)			26100	26100	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: K, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

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sample 327404 continued ...

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Potassium		1	102	102	<0.443	mg/L	10	0.443	1	0.0443

Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: Mg, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Magnesium		1	2510	2510	<2.96	mg/L	100	2.96	1	0.0296

Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: Na, Dissolved
QC Batch: 101120
Prep Batch: 85570

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Sodium		1	22800	22800	<172	mg/L	1000	172	1	0.172

Sample: 327404 - MW-2

Laboratory: Midland
Analysis: pH
QC Batch: 100884
Prep Batch: 85498

Analytical Method: SM 4500-H+
Date Analyzed: 2013-04-26
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	6.20	s.u.	1	0

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Sample: 327404 - MW-2

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101124
Prep Batch: 85704

Analytical Method: E 300.0
Date Analyzed: 2013-05-03
Sample Preparation: 2013-05-03

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate	J	1	1610	<2500	<224	mg/L	1000	224	2.5	0.224

Sample: 327404 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 100878
Prep Batch: 85494

Analytical Method: SM 2540C
Date Analyzed: 2013-04-27
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		2	88600	88600	<975	mg/L	100	975	10	9.75

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101235
Prep Batch: 85800

Analytical Method: SM 2320B
Date Analyzed: 2013-05-09
Sample Preparation: 2013-05-09

Prep Method: N/A
Analyzed By: LM
Prepared By: LM

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Hydroxide Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Carbonate Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Bicarbonate Alkalinity		1	152	152	<1.00	mg/L as CaCo3	1	1.00	1	1
Total Alkalinity		1	152	152	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327405 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 100979
Prep Batch: 85587

Analytical Method: S 8021B
Date Analyzed: 2013-05-02
Sample Preparation: 2013-05-01

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

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Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	Q _{s,U}	2	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	Q _{s,U}	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	Q _{s,U}	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	Q _{s,U}	2	<0.00120	<0.00100	<0.00120	mg/L	1	0.00120	0.001	0.0012

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0913	mg/L	1	0.100	91	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0836	mg/L	1	0.100	84	70 - 130

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: Ca, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Calcium		1	3520	3520	<4.41	mg/L	100	4.41	1	0.0441

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101124
Prep Batch: 85704

Analytical Method: E 300.0
Date Analyzed: 2013-05-03
Sample Preparation: 2013-05-03

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	38300	38300	<169	mg/L	1000	169	2.5	0.169

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: N/A
Analyzed By: RR
Prepared By: KV

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Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Hardness (by ICP)			16000	16000	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: K, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Dissolved Potassium		1	196	196	<0.443	mg/L	10	0.443	1	0.0443

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: Mg, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Dissolved Magnesium		1	1740	1740	<2.96	mg/L	100	2.96	1	0.0296

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: Na, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL	MQL	Method	Units	Dilution	SDL	MQL	MDL
			Based Result	Based Result	Blank Result				(Unadjusted)	(Unadjusted)
Dissolved Sodium		1	21400	21400	<172	mg/L	1000	172	1	0.172

Sample: 327405 - MW-3

Laboratory: Midland
Analysis: pH

Analytical Method: SM 4500-H+

Prep Method: N/A

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QC Batch: 100884
Prep Batch: 85498

Date Analyzed: 2013-04-26
Sample Preparation: 2013-04-26

Analyzed By: AR
Prepared By: AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	6.51	s.u.	1	0

Sample: 327405 - MW-3

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101124
Prep Batch: 85704

Analytical Method: E 300.0
Date Analyzed: 2013-05-03
Sample Preparation: 2013-05-03

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate	J	1	1500	<2500	<224	mg/L	1000	224	2.5	0.224

Sample: 327405 - MW-3

Laboratory: Midland
Analysis: TDS
QC Batch: 100878
Prep Batch: 85494

Analytical Method: SM 2540C
Date Analyzed: 2013-04-27
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		2	57100	57100	<975	mg/L	100	975	10	9.75

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101235
Prep Batch: 85800

Analytical Method: SM 2320B
Date Analyzed: 2013-05-09
Sample Preparation: 2013-05-09

Prep Method: N/A
Analyzed By: LM
Prepared By: LM

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Hydroxide Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Carbonate Alkalinity	U	1	<1.00	<1.00	<1.00	mg/L as CaCo3	1	1.00	1	1
Bicarbonate Alkalinity		1	142	142	<1.00	mg/L as CaCo3	1	1.00	1	1

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sample 327406 continued ...

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Alkalinity		1	142	142	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327406 - MW-4

Laboratory: Midland
Analysis: BTEX
QC Batch: 100979
Prep Batch: 85587

Analytical Method: S 8021B
Date Analyzed: 2013-05-02
Sample Preparation: 2013-05-01

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	Q _{N,U}	2	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	Q _{N,U}	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	Q _{N,U}	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	Q _{N,U}	2	<0.00120	<0.00100	<0.00120	mg/L	1	0.00120	0.001	0.0012

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0965	mg/L	1	0.100	96	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0945	mg/L	1	0.100	94	70 - 130

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: Ca, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Calcium		1	86.4	86.4	<0.0441	mg/L	1	0.0441	1	0.0441

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101126
Prep Batch: 85706

Analytical Method: E 300.0
Date Analyzed: 2013-05-06
Sample Preparation: 2013-05-06

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

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Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	89.8	89.8	<0.845	mg/L	5	0.845	2.5	0.169

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: N/A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Hardness (by ICP)			293	293	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: K, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Potassium		1	2.33	2.33	<0.0443	mg/L	1	0.0443	1	0.0443

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: Mg, Dissolved
QC Batch: 101121
Prep Batch: 85572

Analytical Method: S 6010C
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Prep Method: S 3005A
Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Magnesium		1	18.8	18.8	<0.0296	mg/L	1	0.0296	1	0.0296

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: Na, Dissolved

Analytical Method: S 6010C

Prep Method: S 3005A

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QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Sodium		1	61.3	61.3	<0.172	mg/L	1	0.172	1	0.172

Sample: 327406 - MW-4

Laboratory: Midland
Analysis: pH
QC Batch: 100884
Prep Batch: 85498

Analytical Method: SM 4500-H+
Date Analyzed: 2013-04-26
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	7.90	s.u.	1	0

Sample: 327406 - MW-4

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101126
Prep Batch: 85706

Analytical Method: E 300.0
Date Analyzed: 2013-05-06
Sample Preparation: 2013-05-06

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate		1	109	109	<1.12	mg/L	5	1.12	2.5	0.224

Sample: 327406 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 100878
Prep Batch: 85494

Analytical Method: SM 2540C
Date Analyzed: 2013-04-27
Sample Preparation: 2013-04-26

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		2	640	640	<19.5	mg/L	2	19.5	10	9.75

Method Blanks

Method Blank (1)

QC Batch: 100878
Prep Batch: 85494

Date Analyzed: 2013-04-27
QC Preparation: 2013-04-26

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Total Dissolved Solids		2	<9.75	mg/L	9.75

Method Blank (1)

QC Batch: 100911
Prep Batch: 85524

Date Analyzed: 2013-04-30
QC Preparation: 2013-04-30

Analyzed By: AH
Prepared By: AH

Parameter	F	C	Result	Units	Reporting Limits
Benzene		2	<0.000200	mg/L	0.0002
Toluene		2	<0.000300	mg/L	0.0003
Ethylbenzene		2	<0.000400	mg/L	0.0004
Xylene		2	<0.00120	mg/L	0.0012

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0852	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0773	mg/L	1	0.100	77	70 - 130

Method Blank (1)

QC Batch: 100979
Prep Batch: 85587

Date Analyzed: 2013-05-02
QC Preparation: 2013-05-02

Analyzed By: AH
Prepared By: AH

Parameter	F	C	Result	Units	Reporting Limits
Benzene		2	<0.000200	mg/L	0.0002
Toluene		2	<0.000300	mg/L	0.0003
Ethylbenzene		2	<0.000400	mg/L	0.0004
Xylene		2	<0.00120	mg/L	0.0012

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Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0988	mg/L	1	0.100	99	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0962	mg/L	1	0.100	96	70 - 130

Method Blank (1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	Result	Units	Reporting Limits
Dissolved Calcium		1	<0.0441	mg/L	0.0441

Method Blank (1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	Result	Units	Reporting Limits
Dissolved Potassium		1	<0.0443	mg/L	0.0443

Method Blank (1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	Result	Units	Reporting Limits
Dissolved Magnesium		1	<0.0296	mg/L	0.0296

Method Blank (1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

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Parameter	F	C	Result	Units	Reporting Limits
Dissolved Sodium		1	<0.172	mg/L	0.172

Method Blank (1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	Result	Units	Reporting Limits
Dissolved Calcium		1	<0.0441	mg/L	0.0441

Method Blank (1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	Result	Units	Reporting Limits
Dissolved Potassium		1	<0.0443	mg/L	0.0443

Method Blank (1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Parameter	F	C	Result	Units	Reporting Limits
Dissolved Magnesium		1	<0.0296	mg/L	0.0296

Method Blank (1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

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Parameter	F	C	Result	Units	Reporting Limits
Dissolved Sodium		1	<0.172	mg/L	0.172

Method Blank (1)

QC Batch: 101124 Date Analyzed: 2013-05-03 Analyzed By: RL
Prep Batch: 85704 QC Preparation: 2013-05-03 Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	0.223	mg/L	0.169

Method Blank (1)

QC Batch: 101124 Date Analyzed: 2013-05-03 Analyzed By: RL
Prep Batch: 85704 QC Preparation: 2013-05-03 Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Sulfate		1	<0.224	mg/L	0.224

Method Blank (1)

QC Batch: 101126 Date Analyzed: 2013-05-06 Analyzed By: RL
Prep Batch: 85706 QC Preparation: 2013-05-06 Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	0.182	mg/L	0.169

Method Blank (1)

QC Batch: 101126 Date Analyzed: 2013-05-06 Analyzed By: RL
Prep Batch: 85706 QC Preparation: 2013-05-06 Prepared By: RL

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Parameter	F	C	Result	Units	Reporting Limits
Sulfate		1	<0.224	mg/L	0.224

Method Blank (1)

QC Batch: 101235
Prep Batch: 85800

Date Analyzed: 2013-05-09
QC Preparation: 2013-05-09

Analyzed By: LM
Prepared By: LM

Parameter	F	C	Result	Units	Reporting Limits
Hydroxide Alkalinity		1	<1.00	mg/L as CaCo3	1
Carbonate Alkalinity		1	<1.00	mg/L as CaCo3	1
Bicarbonate Alkalinity		1	1.00	mg/L as CaCo3	1
Total Alkalinity		1	<20.0	mg/L as CaCo3	20

Duplicate (2) Duplicated Sample: 327401

QC Batch: 100878
Prep Batch: 85494

Date Analyzed: 2013-04-27
QC Preparation: 2013-04-26

Analyzed By: AR
Prepared By: AR

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2	93100	98000	mg/L	100	5	10

Duplicate (1) Duplicated Sample: 327401

QC Batch: 100884
Prep Batch: 85498

Date Analyzed: 2013-04-26
QC Preparation: 2013-04-26

Analyzed By: AR
Prepared By: AR

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		2	6.38	6.38	s.u.	1	0	10

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Laboratory Control Spikes

Laboratory Control Spike (LCS-2)

QC Batch: 100878
Prep Batch: 85494

Date Analyzed: 2013-04-27
QC Preparation: 2013-04-26

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	987	mg/L	1	1000	<9.75	99	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	1010	mg/L	1	1000	<9.75	101	90 - 110	2	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 100911
Prep Batch: 85524

Date Analyzed: 2013-04-30
QC Preparation: 2013-04-30

Analyzed By: AH
Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0958	mg/L	1	0.100	<0.000200	96	70 - 130
Toluene		2	0.0938	mg/L	1	0.100	<0.000300	94	70 - 130
Ethylbenzene		2	0.0935	mg/L	1	0.100	<0.000400	94	70 - 130
Xylene		2	0.279	mg/L	1	0.300	<0.00120	93	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.0931	mg/L	1	0.100	<0.000200	93	70 - 130	3	20
Toluene		2	0.0916	mg/L	1	0.100	<0.000300	92	70 - 130	2	20
Ethylbenzene		2	0.0909	mg/L	1	0.100	<0.000400	91	70 - 130	3	20
Xylene		2	0.272	mg/L	1	0.300	<0.00120	91	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.0855	0.0851	mg/L	1	0.100	86	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0787	0.0795	mg/L	1	0.100	79	80	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 100979
Prep Batch: 85587

Date Analyzed: 2013-05-02
QC Preparation: 2013-05-02

Analyzed By: AH
Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0986	mg/L	1	0.100	<0.000200	99	70 - 130
Toluene		2	0.0969	mg/L	1	0.100	<0.000300	97	70 - 130
Ethylbenzene		2	0.0962	mg/L	1	0.100	<0.000400	96	70 - 130
Xylene		2	0.280	mg/L	1	0.300	<0.00120	93	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.102	mg/L	1	0.100	<0.000200	102	70 - 130	3	20
Toluene		2	0.100	mg/L	1	0.100	<0.000300	100	70 - 130	3	20
Ethylbenzene		2	0.0990	mg/L	1	0.100	<0.000400	99	70 - 130	3	20
Xylene		2	0.287	mg/L	1	0.300	<0.00120	96	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.0972	0.0977	mg/L	1	0.100	97	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0968	0.0976	mg/L	1	0.100	97	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	52.1	mg/L	1	50.0	<0.0441	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	51.8	mg/L	1	50.0	<0.0441	104	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Potassium		1	50.1	mg/L	1	50.0	<0.0443	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Potassium		1	48.1	mg/L	1	50.0	<0.0443	96	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Magnesium		1	49.8	mg/L	1	50.0	<0.0296	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Magnesium		1	49.9	mg/L	1	50.0	<0.0296	100	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Sodium		1	50.7	mg/L	1	50.0	<0.172	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Sodium		1	50.0	mg/L	1	50.0	<0.172	100	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Laboratory Control Spike (LCS-1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	52.9	mg/L	1	50.0	<0.0441	106	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	54.5	mg/L	1	50.0	<0.0441	109	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Potassium		1	50.1	mg/L	1	50.0	<0.0443	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Potassium		1	52.5	mg/L	1	50.0	<0.0443	105	85 - 115	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Magnesium		1	50.1	mg/L	1	50.0	<0.0296	100	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Magnesium		1	52.2	mg/L	1	50.0	<0.0296	104	85 - 115	4	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Sodium		1	51.1	mg/L	1	50.0	<0.172	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Sodium		1	53.0	mg/L	1	50.0	<0.172	106	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101124
Prep Batch: 85704

Date Analyzed: 2013-05-03
QC Preparation: 2013-05-03

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.4	mg/L	1	25.0	<0.169	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	24.7	mg/L	1	25.0	<0.169	99	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101124
Prep Batch: 85704

Date Analyzed: 2013-05-03
QC Preparation: 2013-05-03

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.3	mg/L	1	25.0	<0.224	101	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Param	F	C	LCSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Sulfate		1	25.2	mg/L	1	25.0	<0.224	101	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101126
Prep Batch: 85706

Date Analyzed: 2013-05-06
QC Preparation: 2013-05-06

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
			Result	Units					
Chloride		1	24.9	mg/L	1	25.0	<0.169	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Chloride		1	24.8	mg/L	1	25.0	<0.169	99	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 101126
Prep Batch: 85706

Date Analyzed: 2013-05-06
QC Preparation: 2013-05-06

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
			Result	Units					
Sulfate		1	26.2	mg/L	1	25.0	<0.224	105	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Sulfate		1	25.7	mg/L	1	25.0	<0.224	103	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327126

QC Batch: 100911
Prep Batch: 85524

Date Analyzed: 2013-04-30
QC Preparation: 2013-04-30

Analyzed By: AH
Prepared By: AH

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Q _s	2	0.00590	mg/L	1	0.100	<0.000200	6	70 - 130
Toluene	Q _s	2	0.0216	mg/L	1	0.100	<0.000300	22	70 - 130
Ethylbenzene	Q _s	2	0.00700	mg/L	1	0.100	<0.000400	7	70 - 130
Xylene	Q _s	2	0.0338	mg/L	1	0.300	<0.00120	11	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	Q _r , Q _s	2	0.00950	mg/L	1	0.100	<0.000200	10	70 - 130	47	20
Toluene	Q _r , Q _s	2	0.0346	mg/L	1	0.100	<0.000300	35	70 - 130	46	20
Ethylbenzene	Q _r , Q _s	2	0.0109	mg/L	1	0.100	<0.000400	11	70 - 130	44	20
Xylene	Q _r , Q _s	2	0.0506	mg/L	1	0.300	<0.00120	17	70 - 130	40	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.0898	0.0899	mg/L	1	0.1	90	90	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0787	0.0785	mg/L	1	0.1	79	78	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 100979
Prep Batch: 85587

Date Analyzed: 2013-05-02
QC Preparation: 2013-05-02

Analyzed By: AH
Prepared By: AH

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Q _s	2	0.179	mg/L	1	0.100	<0.000200	179	70 - 130
Toluene	Q _s	2	0.174	mg/L	1	0.100	<0.000300	174	70 - 130
Ethylbenzene	Q _s	2	0.171	mg/L	1	0.100	<0.000400	171	70 - 130
Xylene	Q _s	2	0.495	mg/L	1	0.300	<0.00120	165	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	Q _s	2	0.147	mg/L	1	0.100	<0.000200	147	70 - 130	20	20
Toluene	Q _s	2	0.143	mg/L	1	0.100	<0.000300	143	70 - 130	20	20
Ethylbenzene	Q _s	2	0.140	mg/L	1	0.100	<0.000400	140	70 - 130	20	20
Xylene	Q _s	2	0.405	mg/L	1	0.300	<0.00120	135	70 - 130	20	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.0974	0.0968	mg/L	1	0.1	97	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0981	0.0960	mg/L	1	0.1	98	96	70 - 130

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Matrix Spike (MS-1) Spiked Sample: 327393

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	2940	mg/L	1	500	2490	90	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	2970	mg/L	1	500	2490	96	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327393

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Potassium		1	539	mg/L	1	500	22.6	103	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Potassium		1	535	mg/L	1	500	22.6	102	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327393

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Magnesium		1	1020	mg/L	1	500	575	89	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Magnesium		1	1050	mg/L	1	500	575	95	75 - 125	3	20

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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327393

QC Batch: 101120
Prep Batch: 85570

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Sodium		1	2750	mg/L	1	500	2240	102	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Sodium		1	2740	mg/L	1	500	2240	100	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	610	mg/L	1	500	86.4	105	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	619	mg/L	1	500	86.4	106	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Potassium		1	510	mg/L	1	500	2.33	102	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Param	F	C	MSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Dissolved Potassium		1	518	mg/L	1	500	2.33	103	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
			Result	Units					
Dissolved Magnesium		1	524	mg/L	1	500	18.8	101	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Dissolved Magnesium		1	531	mg/L	1	500	18.8	102	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101121
Prep Batch: 85572

Date Analyzed: 2013-05-07
QC Preparation: 2013-05-01

Analyzed By: RR
Prepared By: KV

Param	F	C	MS		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
			Result	Units					
Dissolved Sodium		1	571	mg/L	1	500	61.3	102	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			Result	Units							
Dissolved Sodium		1	579	mg/L	1	500	61.3	104	75 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327396

QC Batch: 101124
Prep Batch: 85704

Date Analyzed: 2013-05-03
QC Preparation: 2013-05-03

Analyzed By: RL
Prepared By: RL

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	205	mg/L	5	125	66.2	111	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	204	mg/L	5	125	66.2	110	80 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327396

QC Batch: 101124
Prep Batch: 85704

Date Analyzed: 2013-05-03
QC Preparation: 2013-05-03

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	282	mg/L	5	125	133	119	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	281	mg/L	5	125	133	118	80 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101126
Prep Batch: 85706

Date Analyzed: 2013-05-06
QC Preparation: 2013-05-06

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	231	mg/L	5	125	89.8	113	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	231	mg/L	5	125	89.8	113	80 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101126
Prep Batch: 85706

Date Analyzed: 2013-05-06
QC Preparation: 2013-05-06

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	252	mg/L	5	125	109	114	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	254	mg/L	5	125	109	116	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 100884

Date Analyzed: 2013-04-26

Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	7.08	101	98 - 102	2013-04-26

Standard (CCV-1)

QC Batch: 100884

Date Analyzed: 2013-04-26

Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	7.09	101	98 - 102	2013-04-26

Standard (CCV-1)

QC Batch: 100911

Date Analyzed: 2013-04-30

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0872	87	80 - 120	2013-04-30
Toluene		2	mg/L	0.100	0.0855	86	80 - 120	2013-04-30
Ethylbenzene		2	mg/L	0.100	0.0850	85	80 - 120	2013-04-30
Xylene		2	mg/L	0.300	0.253	84	80 - 120	2013-04-30

Standard (CCV-2)

QC Batch: 100911

Date Analyzed: 2013-04-30

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0953	95	80 - 120	2013-04-30
Toluene		2	mg/L	0.100	0.0930	93	80 - 120	2013-04-30

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standard continued ...

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		2	mg/L	0.100	0.0928	93	80 - 120	2013-04-30
Xylene		2	mg/L	0.300	0.276	92	80 - 120	2013-04-30

Standard (CCV-3)

QC Batch: 100911

Date Analyzed: 2013-04-30

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0962	96	80 - 120	2013-04-30
Toluene		2	mg/L	0.100	0.0945	94	80 - 120	2013-04-30
Ethylbenzene		2	mg/L	0.100	0.0941	94	80 - 120	2013-04-30
Xylene		2	mg/L	0.300	0.280	93	80 - 120	2013-04-30

Standard (CCV-1)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0943	94	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.0918	92	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0901	90	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.261	87	80 - 120	2013-05-02

Standard (CCV-2)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.100	100	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.0981	98	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0966	97	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.280	93	80 - 120	2013-05-02

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Standard (CCV-3)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0993	99	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.0969	97	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0953	95	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.276	92	80 - 120	2013-05-02

Standard (CCV-4)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.101	101	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.0994	99	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0985	98	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.286	95	80 - 120	2013-05-02

Standard (CCV-5)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.102	102	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.101	101	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0997	100	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.289	96	80 - 120	2013-05-02

Standard (ICV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	52.1	102	90 - 110	2013-05-07

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Standard (ICV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Potassium		1	mg/L	55.0	55.7	101	90 - 110	2013-05-07

Standard (ICV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Magnesium		1	mg/L	51.0	51.3	100	90 - 110	2013-05-07

Standard (ICV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		1	mg/L	51.0	51.8	102	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	53.8	105	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

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Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Potassium		1	mg/L	55.0	57.1	104	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Magnesium		1	mg/L	51.0	52.6	103	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101120

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		1	mg/L	51.0	53.1	104	90 - 110	2013-05-07

Standard (ICV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	52.1	102	90 - 110	2013-05-07

Standard (ICV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Potassium		1	mg/L	55.0	55.7	101	90 - 110	2013-05-07

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Standard (ICV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Magnesium		1	mg/L	51.0	51.3	100	90 - 110	2013-05-07

Standard (ICV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		1	mg/L	51.0	51.8	102	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	54.4	107	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Potassium		1	mg/L	55.0	56.5	103	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101121

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Analyzed By: RR

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Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Magnesium		1	mg/L	51.0	52.6	103	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101121

Date Analyzed: 2013-05-07

Analyzed By: RR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Sodium		1	mg/L	51.0	52.2	102	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101124

Date Analyzed: 2013-05-03

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.6	98	90 - 110	2013-05-03

Standard (CCV-1)

QC Batch: 101124

Date Analyzed: 2013-05-03

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.9	104	90 - 110	2013-05-03

Standard (CCV-2)

QC Batch: 101124

Date Analyzed: 2013-05-03

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.5	98	90 - 110	2013-05-03

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Standard (CCV-2)

QC Batch: 101124

Date Analyzed: 2013-05-03

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.1	100	90 - 110	2013-05-03

Standard (CCV-1)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.8	99	90 - 110	2013-05-06

Standard (CCV-1)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.9	104	90 - 110	2013-05-06

Standard (CCV-2)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.7	99	90 - 110	2013-05-06

Standard (CCV-2)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

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Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.7	103	90 - 110	2013-05-06

Standard (ICV-1)

QC Batch: 101235

Date Analyzed: 2013-05-09

Analyzed By: LM

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-09
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	238		-	2013-05-09
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-09
Total Alkalinity		1	mg/L as CaCo3	250	244	98	90 - 110	2013-05-09

Standard (CCV-1)

QC Batch: 101235

Date Analyzed: 2013-05-09

Analyzed By: LM

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-09
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	220		-	2013-05-09
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	24.0		-	2013-05-09
Total Alkalinity		1	mg/L as CaCo3	250	244	98	90 - 110	2013-05-09

Limits of Detection (LOD)

Test	Method	Matrix	Instrument	Analyte	Spike Amount	Pass
Alkalinity	SM 2320B	water	N/A	Hydroxide Alkalinity	0.00	-
Alkalinity	SM 2320B	water	N/A	Carbonate Alkalinity	0.00	-
Alkalinity	SM 2320B	water	N/A	Bicarbonate Alkalinity	0.00	-
Alkalinity	SM 2320B	water	N/A	Total Alkalinity	0.00	-
BTEX	S 8021B	water	BTEX-2	Benzene	0.00100	Pass
BTEX	S 8021B	water	BTEX-2	Toluene	0.00100	Pass
BTEX	S 8021B	water	BTEX-2	Ethylbenzene	0.00100	Pass
BTEX	S 8021B	water	BTEX-2	Xylene	0.00100	Pass
Ca, Dissolved	S 6010C	water	PE 8300	Dissolved Calcium	0.250	Pass
Chloride (IC)	E 300.0	water	Dionex IC	Chloride	0.400	Pass
Hardness	S 6010C	water	PE 8300	Hardness (by ICP)	0.00	-
K, Dissolved	S 6010C	water	PE 8300	Dissolved Potassium	0.250	Pass
Mg, Dissolved	S 6010C	water	PE 8300	Dissolved Magnesium	0.200	Pass
Na, Dissolved	S 6010C	water	PE 8300	Dissolved Sodium	0.250	Pass
pH	SM 4500-H+	water	pH Meter	pH	0.00	-
SO4 (IC)	E 300.0	water	Dionex IC	Sulfate	0.600	Pass
TDS	SM 2540C	water	N/A	Total Dissolved Solids	0.00	-

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock
2	NELAP	T104704392-12-4	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

- 1 RPD for LCS/LCSD is within limits.

Report Date: May 9, 2013
114-6401628

Work Order: 13042618
Celero/Rock Queen #7

Page Number: 47 of 47
Chavez Co., NM

Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE: 1 OF 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Celero Energy

SITE MANAGER: Jeff Kindley

PROJECT NO.: 114-6401628

PROJECT NAME: Celero / Rock Quarry # 7

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF FILTERED (Y)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015	PAH 8270	RCRA Metals	TCLP Metals	TCLP Volatile	TCLP Semi V	RCI	GC/MS Vol. &	GC/MS Semi	PCB's 8080/60	Pest. 808/60	Chloride	Gamma Spec	Alpha Beta (	PLM (Asbest	Major Anions	TDS, pH	
327403	4/24	1425	W		X	mw-1	4	N	X		X	X												X						
327404		1325				mw-2																								
327405		1255				mw-3																								
327406		1410				mw-4																								

RELINQUISHED BY: (Signature) [Signature] Date: 4-25-13

Time: 16:15

RECEIVED BY: (Signature) [Signature] Date: 4/25/13

Time: 16:45

SAMPLED BY: (Print & Initial) RRD

Date: 4-25-13

Time: 16:45

RELINQUISHED BY: (Signature) [Signature] Date: 4/29/13

Time: 15:30

RECEIVED BY: (Signature) [Signature] Date: 4/29/13

Time: 15:30

SAMPLE SHIPPED BY: (Circle)

FEDEX ☒ BUS ☐

AIRBILL #:

HAND DELIVERED ☒ UPS ☐

OTHER:

RECEIVING LABORATORY: Tetra

ADDRESS:

CITY: Midland STATE: ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature) [Signature]

Date: 4/30/13

Time: 9:05

TETRA TECH CONTACT PERSON:

Jeff Kindley

Results by:

RUSH Charges

Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED:

590

REMARKS:

LS ZP 896047 3.2/3.5

Please fill out all copies Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Midland - BTEX, pH + TDS
Lubbock - all other tests

AK

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE: 1 OF 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Celero Energy

SITE MANAGER: Jeff Kindley

PROJECT NO.: 114-6401628

PROJECT NAME: Celero / Rock Queen #7

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF FILTERED (Y)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015	PAH 8270	RCRA Metal	TCLP Metal	TCLP Volatil	TCLP Semi V	RCI	GC-MS Vol. i	GC-MS Semi	PCB's 8080/	Pest. 808/60	Chloride	Gamma Spe	Alpha Beta (	PLM (Asbest	Major Anion	TDS, pH, Cl, SO4, Sulfides, Hardness
327403	4/24	1425	W		X	mw-1	4	W	X	X		X												X					
327404		1325				mw-2																							
327405		1255				mw-3																							
327406		1410				mw-4																							

RELINQUISHED BY: (Signature) [Signature] Date: 4-25-13
Time: 16:45

RECEIVED BY: (Signature) [Signature] Date: 4/25/13
Time: 16:45

SAMPLED BY: (Print & Initial) AR/RO Date: 4-25-13
Time: 1645

RECEIVING LABORATORY: Tetra
ADDRESS: Midland STATE: TX ZIP:
CITY: Midland PHONE:

RECEIVED BY: (Signature) [Signature] Date: 4/30/13
Time: 9:05

SAMPLE SHIPPED BY: (Circle)
FEDEX ☒ BUS ☐
HAND DELIVERED ☐ UPS ☐
TETRA TECH CONTACT PERSON: Jeff Kindley

SAMPLE CONDITION WHEN RECEIVED: 590

REMARKS: LS ZP 896047 3.2/3.5

Results by:
RUSH Charges Authorized: Yes No

Please fill out all copies Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Midland - BTEX, pH + TDS
Labbook - all other tests

AR

Cation-Anion Balance Sheet

DATE: 5/9/2013

Sample #	Calcium ppm	Magnesium ppm	Sodium ppm	Potassium ppm	Alkalinity ppm	Sulfate ppm	Chloride ppm	Nitrate-N ppm	Fluoride ppm	Bromide ppm	TDS ppm	EC μMHOS/cm
327403	5440	1310	4700	37.3	551.00	924	19400				43700	
327404	6310	2510	22800	102	160.00	1610	49600				88600	
327405	3520	1740	21400	196	152.00	1500	38300				57100	
327406	86.4	18.8	61.3	2.33	142.00	109	89.8				640	

Sample #	Calcium in meq/L	Magnesium in meq/L	Sodium in meq/L	Potassium in meq/L	Alkalinity in meq/L	Sulfate in meq/L	Chloride in meq/L	Nitrate-N in meq/L	Fluoride in meq/L	Bromide in meq/L	Total Cations in meq/L	Total Anions in meq/L	% Difference*
327403	271.46	107.80	204.45	0.95	11.02	19.24	547.27	0.00	0.00	0.00	584.66	577.53	0.613354399
327404	314.87	206.55	991.80	2.61	3.20	33.52	1399.22	0.00	0.00	0.00	1515.83	1435.94	2.70651404
327405	175.65	143.18	930.90	5.01	3.04	31.23	1080.44	0.00	0.00	0.00	1254.75	1114.71	5.909925576
327406	4.31	1.55	2.67	0.06	2.84	2.27	2.53	0.00	0.00	0.00	8.58	7.64	5.804607811

	EC/Cation	EC/Anion
327403	58466.0034	57753.168
327404	151582.606	143593.62
327405	125474.628	111471.3
327406	858.45634	764.2638

range	0	to	0
range	0	to	0
range	0	to	0
range	0	to	0

TDS/EC	TDS/Cat		TDS/Anion
#DIV/0!	0.75		0.76
#DIV/0!	0.58		0.62
#DIV/0!	0.46		0.51
#DIV/0!	0.75		0.84

needs to be 0.55-0.77
needs to be 0.55-0.77
needs to be 0.55-0.77
needs to be 0.55-0.77



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

(Corrected Report)

Greg Pope
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: August 20, 2013

Work Order: 13072615



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #7
Project Number: 114-6401628

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
336642	MW-1	water	2013-07-25	09:45	2013-07-26
336643	MW-2	water	2013-07-25	10:40	2013-07-26
336644	MW-3	water	2013-07-25	10:05	2013-07-26
336645	MW-4	water	2013-07-25	10:20	2013-07-26

Report Corrections (Work Order 13072615)

- 8/20/13: Re-ran Salts for sample 336642.
- 8/20/13: Re-ran Salts, SO4 Cl, and TDS for sample 336645.

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 33 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink that reads "Michael Abel". The signature is written in a cursive style with a large, stylized 'M' and 'A'.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

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QC Batch 103654 - CCV (1)	28
QC Batch 103740 - CCV (1)	29

QC Batch 103740 - CCV (1)	29
QC Batch 103740 - CCV (2)	29
QC Batch 103740 - CCV (2)	29
QC Batch 103950 - ICV (1)	30
QC Batch 103950 - CCV (1)	30
QC Batch 104141 - CCV (1)	30
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Case Narrative

Samples for project Celero/Rock Queen #7 were received by TraceAnalysis, Inc. on 2013-07-26 and assigned to work order 13072615. Samples for work order 13072615 were received damaged without headspace and at a temperature of 3.3 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Alkalinity	SM 2320B	87699	2013-07-29 at 15:01	103654	2013-07-30 at 14:50
BTEX	S 8021B	87705	2013-07-29 at 15:10	103610	2013-08-01 at 10:18
Ca, Dissolved	S 6010C	87738	2013-07-30 at 16:21	103950	2013-08-12 at 16:30
Chloride (IC)	E 300.0	87895	2013-08-05 at 09:00	103740	2013-08-05 at 09:51
Chloride (IC)	E 300.0	88241	2013-08-16 at 08:30	104141	2013-08-16 at 09:05
Hardness	S 6010C	87738	2013-07-30 at 16:21	103950	2013-08-12 at 16:30
K, Dissolved	S 6010C	87738	2013-07-30 at 16:21	103950	2013-08-12 at 16:30
Mg, Dissolved	S 6010C	87738	2013-07-30 at 16:21	103950	2013-08-12 at 16:30
Na, Dissolved	S 6010C	87738	2013-07-30 at 16:21	103950	2013-08-12 at 16:30
pH	SM 4500-H+	87639	2013-07-26 at 10:44	103499	2013-07-26 at 15:31
SO4 (IC)	E 300.0	87895	2013-08-05 at 09:00	103740	2013-08-05 at 09:51
SO4 (IC)	E 300.0	88241	2013-08-16 at 08:30	104141	2013-08-16 at 09:05
TDS	SM 2540C	87794	2013-07-25 at 11:48	103618	2013-07-26 at 16:50
TDS	SM 2540C	88264	2013-08-15 at 10:38	104170	2013-08-16 at 16:38

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13072615 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

Page Number: 6 of 33
Chavez Co., NM

Analytical Report

Sample: 336642 - MW-1

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103654
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-29

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	179	mg/L as CaCo3	1	20.0
Total Alkalinity		2	179	mg/L as CaCo3	1	20.0

Sample: 336642 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 103610
Prep Batch: 87705

Analytical Method: S 8021B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0905	mg/L	1	0.100	90	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0843	mg/L	1	0.100	84	70 - 130

Sample: 336642 - MW-1

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103950
Prep Batch: 87738

Analytical Method: S 6010C
Date Analyzed: 2013-08-12
Sample Preparation: 2013-07-30

Prep Method: S 3005A
Analyzed By: RR
Prepared By: PM

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

Page Number: 7 of 33
Chavez Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	1700	mg/L	100	1.00
Dissolved Potassium		1	49.8	mg/L	1	1.00
Dissolved Magnesium		1	458	mg/L	1	1.00
Dissolved Sodium		1	4980	mg/L	100	1.00

Sample: 336642 - MW-1

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2013-08-05	Analyzed By:	RL
QC Batch:	103740	Sample Preparation:	2013-08-05	Prepared By:	RL
Prep Batch:	87895				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	12600	mg/L	1000	2.50

Sample: 336642 - MW-1

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	N/A
Analysis:	Hardness	Date Analyzed:	2013-08-12	Analyzed By:	RR
QC Batch:	103950	Sample Preparation:	2013-07-30	Prepared By:	PM
Prep Batch:	87738				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			6130	mg eq CaCO3/L	1	0.00

Sample: 336642 - MW-1

Laboratory:	Midland	Analytical Method:	SM 4500-H+	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2013-07-26	Analyzed By:	AR
QC Batch:	103499	Sample Preparation:	2013-07-26	Prepared By:	AR
Prep Batch:	87639				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.91	s.u.	1	0.00

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

Page Number: 8 of 33
Chavez Co., NM

Sample: 336642 - MW-1

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2013-08-05	Analyzed By:	RL
QC Batch:	103740	Sample Preparation:	2013-08-05	Prepared By:	RL
Prep Batch:	87895				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<2500	mg/L	1000	2.50

Sample: 336642 - MW-1

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2013-07-26	Analyzed By:	AR
QC Batch:	103618	Sample Preparation:	2013-07-25	Prepared By:	AR
Prep Batch:	87794				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	22900	mg/L	50	2.50

Sample: 336643 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2320B	Prep Method:	N/A
Analysis:	Alkalinity	Date Analyzed:	2013-07-30	Analyzed By:	AR
QC Batch:	103654	Sample Preparation:	2013-07-29	Prepared By:	AR
Prep Batch:	87699				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	173	mg/L as CaCo3	1	20.0
Total Alkalinity		2	173	mg/L as CaCo3	1	20.0

Sample: 336643 - MW-2

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2013-08-01	Analyzed By:	AH
QC Batch:	103610	Sample Preparation:	2013-07-29	Prepared By:	AH
Prep Batch:	87705				

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

Page Number: 9 of 33
Chavez Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.114	mg/L	1	0.100	114	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0890	mg/L	1	0.100	89	70 - 130

Sample: 336643 - MW-2

Laboratory: Lubbock

Analysis: Cations

QC Batch: 103950

Prep Batch: 87738

Analytical Method: S 6010C

Date Analyzed: 2013-08-12

Sample Preparation: 2013-07-30

Prep Method: S 3005A

Analyzed By: RR

Prepared By: PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	1030	mg/L	1	1.00
Dissolved Potassium		1	129	mg/L	1	1.00
Dissolved Magnesium		1	516	mg/L	1	1.00
Dissolved Sodium		1	8400	mg/L	100	1.00

Sample: 336643 - MW-2

Laboratory: Lubbock

Analysis: Chloride (IC)

QC Batch: 103740

Prep Batch: 87895

Analytical Method: E 300.0

Date Analyzed: 2013-08-05

Sample Preparation: 2013-08-05

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	18500	mg/L	1000	2.50

Sample: 336643 - MW-2

Laboratory: Lubbock

Analysis: Hardness

QC Batch: 103950

Prep Batch: 87738

Analytical Method: S 6010C

Date Analyzed: 2013-08-12

Sample Preparation: 2013-07-30

Prep Method: N/A

Analyzed By: RR

Prepared By: PM

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

Page Number: 10 of 33
Chavez Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			4700	mg eq CaCO3/L	1	0.00

Sample: 336643 - MW-2

Laboratory: Midland

Analysis: pH

QC Batch: 103499

Prep Batch: 87639

Analytical Method: SM 4500-H+

Date Analyzed: 2013-07-26

Sample Preparation: 2013-07-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.86	s.u.	1	0.00

Sample: 336643 - MW-2

Laboratory: Lubbock

Analysis: SO4 (IC)

QC Batch: 103740

Prep Batch: 87895

Analytical Method: E 300.0

Date Analyzed: 2013-08-05

Sample Preparation: 2013-08-05

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<2500	mg/L	1000	2.50

Sample: 336643 - MW-2

Laboratory: Midland

Analysis: TDS

QC Batch: 103618

Prep Batch: 87794

Analytical Method: SM 2540C

Date Analyzed: 2013-07-26

Sample Preparation: 2013-07-25

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	33000	mg/L	100	2.50

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

Page Number: 11 of 33
Chavez Co., NM

Sample: 336644 - MW-3

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103654
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-29

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	139	mg/L as CaCo3	1	20.0
Total Alkalinity		2	139	mg/L as CaCo3	1	20.0

Sample: 336644 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 103610
Prep Batch: 87705

Analytical Method: S 8021B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0919	mg/L	1	0.100	92	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0871	mg/L	1	0.100	87	70 - 130

Sample: 336644 - MW-3

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103950
Prep Batch: 87738

Analytical Method: S 6010C
Date Analyzed: 2013-08-12
Sample Preparation: 2013-07-30

Prep Method: S 3005A
Analyzed By: RR
Prepared By: PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	132	mg/L	1	1.00
Dissolved Potassium		1	6.47	mg/L	1	1.00
Dissolved Magnesium		1	27.4	mg/L	1	1.00

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sample 336644 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	122	mg/L	1	1.00

Sample: 336644 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103740	Date Analyzed:	2013-08-05	Analyzed By:	RL
Prep Batch:	87895	Sample Preparation:	2013-08-05	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	324	mg/L	10	2.50

Sample: 336644 - MW-3

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	103950	Date Analyzed:	2013-08-12	Analyzed By:	RR
Prep Batch:	87738	Sample Preparation:	2013-07-30	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			443	mg eq CaCO3/L	1	0.00

Sample: 336644 - MW-3

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	103499	Date Analyzed:	2013-07-26	Analyzed By:	AR
Prep Batch:	87639	Sample Preparation:	2013-07-26	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.66	s.u.	1	0.00

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Sample: 336644 - MW-3

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 103740
Prep Batch: 87895

Analytical Method: E 300.0
Date Analyzed: 2013-08-05
Sample Preparation: 2013-08-05

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	97.9	mg/L	10	2.50

Sample: 336644 - MW-3

Laboratory: Midland
Analysis: TDS
QC Batch: 103618
Prep Batch: 87794

Analytical Method: SM 2540C
Date Analyzed: 2013-07-26
Sample Preparation: 2013-07-25

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	990	mg/L	2	2.50

Sample: 336645 - MW-4

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103654
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-29

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	156	mg/L as CaCo3	1	20.0
Total Alkalinity		2	156	mg/L as CaCo3	1	20.0

Sample: 336645 - MW-4

Laboratory: Midland
Analysis: BTEX
QC Batch: 103610
Prep Batch: 87705

Analytical Method: S 8021B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

Prep Method: S 5030B
Analyzed By: AH
Prepared By: AH

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0979	mg/L	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0916	mg/L	1	0.100	92	70 - 130

Sample: 336645 - MW-4

Laboratory: Lubbock

Analysis: Cations

QC Batch: 103950

Prep Batch: 87738

Analytical Method: S 6010C

Date Analyzed: 2013-08-12

Sample Preparation: 2013-07-30

Prep Method: S 3005A

Analyzed By: RR

Prepared By: PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	4490	mg/L	100	1.00
Dissolved Potassium		1	265	mg/L	1	1.00
Dissolved Magnesium		1	2140	mg/L	100	1.00
Dissolved Sodium		1	25100	mg/L	1000	1.00

Sample: 336645 - MW-4

Laboratory: Lubbock

Analysis: Chloride (IC)

QC Batch: 104141

Prep Batch: 88241

Analytical Method: E 300.0

Date Analyzed: 2013-08-16

Sample Preparation: 2013-08-16

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	48100	mg/L	5000	2.50

Sample: 336645 - MW-4

Laboratory: Lubbock

Analysis: Hardness

QC Batch: 103950

Prep Batch: 87738

Analytical Method: S 6010C

Date Analyzed: 2013-08-12

Sample Preparation: 2013-07-30

Prep Method: N/A

Analyzed By: RR

Prepared By: PM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			20000	mg eq CaCO3/L	1	0.00

Sample: 336645 - MW-4

Laboratory: Midland

Analysis: pH

QC Batch: 103499

Prep Batch: 87639

Analytical Method: SM 4500-H+

Date Analyzed: 2013-07-26

Sample Preparation: 2013-07-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.58	s.u.	1	0.00

Sample: 336645 - MW-4

Laboratory: Lubbock

Analysis: SO4 (IC)

QC Batch: 104141

Prep Batch: 88241

Analytical Method: E 300.0

Date Analyzed: 2013-08-16

Sample Preparation: 2013-08-16

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<12500	mg/L	5000	2.50

Sample: 336645 - MW-4

Laboratory: Midland

Analysis: TDS

QC Batch: 104170

Prep Batch: 88264

Analytical Method: SM 2540C

Date Analyzed: 2013-08-16

Sample Preparation: 2013-08-15

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	49200	mg/L	100	2.50

Method Blanks

Method Blank (1) QC Batch: 103610

QC Batch: 103610
Prep Batch: 87705

Date Analyzed: 2013-08-01
QC Preparation: 2013-07-29

Analyzed By: AH
Prepared By: AH

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.000200	mg/L	0.001
Toluene		2	<0.000300	mg/L	0.001
Ethylbenzene		2	<0.000400	mg/L	0.001
Xylene		2	<0.00120	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.101	mg/L	1	0.100	101	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0956	mg/L	1	0.100	96	70 - 130

Method Blank (1) QC Batch: 103618

QC Batch: 103618
Prep Batch: 87794

Date Analyzed: 2013-07-26
QC Preparation: 2013-07-25

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	<2.50	mg/L	2.5

Method Blank (1) QC Batch: 103654

QC Batch: 103654
Prep Batch: 87699

Date Analyzed: 2013-07-30
QC Preparation: 2013-07-29

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Hydroxide Alkalinity		2	<20.0	mg/L as CaCo3	20
Carbonate Alkalinity		2	<20.0	mg/L as CaCo3	20
Bicarbonate Alkalinity		2	<20.0	mg/L as CaCo3	20

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Parameter	Flag	Cert	MDL Result	Units	RL
Total Alkalinity		2	<20.0	mg/L as CaCo3	20

Method Blank (1) QC Batch: 103740

QC Batch: 103740 Date Analyzed: 2013-08-05 Analyzed By: RL
Prep Batch: 87895 QC Preparation: 2013-08-05 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	<0.169	mg/L	2.5

Method Blank (1) QC Batch: 103740

QC Batch: 103740 Date Analyzed: 2013-08-05 Analyzed By: RL
Prep Batch: 87895 QC Preparation: 2013-08-05 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.224	mg/L	2.5

Method Blank (1) QC Batch: 103950

QC Batch: 103950 Date Analyzed: 2013-08-12 Analyzed By: RR
Prep Batch: 87738 QC Preparation: 2013-07-30 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Dissolved Calcium		1	<0.0441	mg/L	1
Dissolved Potassium		1	<0.0443	mg/L	1
Dissolved Magnesium		1	<0.0296	mg/L	1
Dissolved Sodium		1	<0.172	mg/L	1

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Method Blank (1) QC Batch: 104141

QC Batch: 104141 Date Analyzed: 2013-08-16 Analyzed By: RL
Prep Batch: 88241 QC Preparation: 2013-08-16 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.175	mg/L	2.5

Method Blank (1) QC Batch: 104141

QC Batch: 104141 Date Analyzed: 2013-08-16 Analyzed By: RL
Prep Batch: 88241 QC Preparation: 2013-08-16 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.224	mg/L	2.5

Method Blank (1) QC Batch: 104170

QC Batch: 104170 Date Analyzed: 2013-08-16 Analyzed By: AR
Prep Batch: 88264 QC Preparation: 2013-08-15 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	<2.50	mg/L	2.5

Duplicates (2) Duplicated Sample: 336649

QC Batch: 103618 Date Analyzed: 2013-07-26 Analyzed By: AR
Prep Batch: 87794 QC Preparation: 2013-07-25 Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	137000	124000	mg/L	100	10	10

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Duplicates (1) Duplicated Sample: 336633

QC Batch: 104170
Prep Batch: 88264

Date Analyzed: 2013-08-16
QC Preparation: 2013-08-15

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	3720	3900	mg/L	5	5	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 103610
Prep Batch: 87705

Date Analyzed: 2013-08-01
QC Preparation: 2013-07-29

Analyzed By: AH
Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.101	mg/L	1	0.100	<0.000200	101	70 - 130
Toluene		2	0.100	mg/L	1	0.100	<0.000300	100	70 - 130
Ethylbenzene		2	0.101	mg/L	1	0.100	<0.000400	101	70 - 130
Xylene		2	0.300	mg/L	1	0.300	<0.00120	100	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.105	mg/L	1	0.100	<0.000200	105	70 - 130	4	20
Toluene		2	0.104	mg/L	1	0.100	<0.000300	104	70 - 130	4	20
Ethylbenzene		2	0.104	mg/L	1	0.100	<0.000400	104	70 - 130	3	20
Xylene		2	0.312	mg/L	1	0.300	<0.00120	104	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0991	0.0936	mg/L	1	0.100	99	94	70 - 130
4-Bromofluorobenzene (4-BFB)	0.102	0.0971	mg/L	1	0.100	102	97	70 - 130

Laboratory Control Spike (LCS-2)

QC Batch: 103618
Prep Batch: 87794

Date Analyzed: 2013-07-26
QC Preparation: 2013-07-25

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1030	mg/L	1	1000	<2.50	103	87.8 - 109.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	1010	mg/L	1	1000	<2.50	101	87.8 - 109.1	2	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 103740
Prep Batch: 87895

Date Analyzed: 2013-08-05
QC Preparation: 2013-08-05

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.0	mg/L	1	25.0	<0.169	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.0	mg/L	1	25.0	<0.169	100	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 103740
Prep Batch: 87895

Date Analyzed: 2013-08-05
QC Preparation: 2013-08-05

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.7	mg/L	1	25.0	<0.224	103	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	25.5	mg/L	1	25.0	<0.224	102	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Laboratory Control Spike (LCS-1)

QC Batch: 103950
Prep Batch: 87738

Date Analyzed: 2013-08-12
QC Preparation: 2013-07-30

Analyzed By: RR
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	52.1	mg/L	1	50.0	<0.0441	104	85 - 115
Dissolved Potassium		1	51.6	mg/L	1	50.0	<0.0443	103	85 - 115
Dissolved Magnesium		1	53.3	mg/L	1	50.0	<0.0296	107	85 - 115
Dissolved Sodium		1	53.1	mg/L	1	50.0	<0.172	106	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	52.2	mg/L	1	50.0	<0.0441	104	85 - 115	0	20
Dissolved Potassium		1	51.9	mg/L	1	50.0	<0.0443	104	85 - 115	1	20
Dissolved Magnesium		1	51.7	mg/L	1	50.0	<0.0296	103	85 - 115	3	20
Dissolved Sodium		1	52.9	mg/L	1	50.0	<0.172	106	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 104141
Prep Batch: 88241

Date Analyzed: 2013-08-16
QC Preparation: 2013-08-16

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.0	mg/L	1	25.0	<0.169	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.8	mg/L	1	25.0	<0.169	103	90 - 110	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 104141
Prep Batch: 88241

Date Analyzed: 2013-08-16
QC Preparation: 2013-08-16

Analyzed By: RL
Prepared By: RL

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.1	mg/L	1	25.0	<0.224	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26.3	mg/L	1	25.0	<0.224	105	90 - 110	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 104170
Prep Batch: 88264

Date Analyzed: 2013-08-16
QC Preparation: 2013-08-15

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1010	mg/L	1	1000	<2.50	101	87.8 - 109.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	1020	mg/L	1	1000	<2.50	102	87.8 - 109.1	1	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 336651

QC Batch: 103610
Prep Batch: 87705

Date Analyzed: 2013-08-01
QC Preparation: 2013-07-29

Analyzed By: AH
Prepared By: AH

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.101	mg/L	1	0.100	<0.000200	101	70 - 130
Toluene		2	0.0997	mg/L	1	0.100	<0.000300	100	70 - 130
Ethylbenzene		2	0.0981	mg/L	1	0.100	<0.000400	98	70 - 130
Xylene		2	0.291	mg/L	1	0.300	<0.00120	97	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.105	mg/L	1	0.100	<0.000200	105	70 - 130	4	20
Toluene		2	0.104	mg/L	1	0.100	<0.000300	104	70 - 130	4	20
Ethylbenzene		2	0.102	mg/L	1	0.100	<0.000400	102	70 - 130	4	20
Xylene		2	0.304	mg/L	1	0.300	<0.00120	101	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0958	0.0981	mg/L	1	0.1	96	98	70 - 130
4-Bromofluorobenzene (4-BFB)	0.100	0.101	mg/L	1	0.1	100	101	70 - 130

Matrix Spike (MS-1) Spiked Sample: 336650

QC Batch: 103740
Prep Batch: 87895

Date Analyzed: 2013-08-05
QC Preparation: 2013-08-05

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	54000	mg/L	1000	25000	23900	120	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	54000	mg/L	1000	25000	23900	120	80 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 336650

QC Batch: 103740
Prep Batch: 87895

Date Analyzed: 2013-08-05
QC Preparation: 2013-08-05

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	27500	mg/L	1000	25000	365	108	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	27200	mg/L	1000	25000	365	107	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 336637

QC Batch: 103950
Prep Batch: 87738

Date Analyzed: 2013-08-12
QC Preparation: 2013-07-30

Analyzed By: RR
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	664	mg/L	1	500	133	106	75 - 125
Dissolved Potassium		1	540	mg/L	1	500	5.37	107	75 - 125
Dissolved Magnesium		1	560	mg/L	1	500	4.61	111	75 - 125
Dissolved Sodium		1	554	mg/L	1	500	58.5	99	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	721	mg/L	1	500	133	118	75 - 125	8	20
Dissolved Potassium		1	585	mg/L	1	500	5.37	116	75 - 125	8	20
Dissolved Magnesium		1	585	mg/L	1	500	4.61	116	75 - 125	4	20
Dissolved Sodium		1	631	mg/L	1	500	58.5	114	75 - 125	13	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 336633

QC Batch: 104141
Prep Batch: 88241

Date Analyzed: 2013-08-16
QC Preparation: 2013-08-16

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	4330	mg/L	100	2500	1520	112	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	4320	mg/L	100	2500	1520	112	80 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

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Matrix Spike (MS-1) Spiked Sample: 336633

QC Batch: 104141
Prep Batch: 88241

Date Analyzed: 2013-08-16
QC Preparation: 2013-08-16

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2690	mg/L	100	2500	82.7	104	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	2630	mg/L	100	2500	82.7	102	80 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 103499

Date Analyzed: 2013-07-26

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	7.10	101	98 - 102	2013-07-26

Standard (CCV-1)

QC Batch: 103499

Date Analyzed: 2013-07-26

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	7.04	100	98 - 102	2013-07-26

Standard (CCV-1)

QC Batch: 103610

Date Analyzed: 2013-08-01

Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.107	107	80 - 120	2013-08-01
Toluene		2	mg/L	0.100	0.107	107	80 - 120	2013-08-01
Ethylbenzene		2	mg/L	0.100	0.108	108	80 - 120	2013-08-01
Xylene		2	mg/L	0.300	0.320	107	80 - 120	2013-08-01

Standard (CCV-2)

QC Batch: 103610

Date Analyzed: 2013-08-01

Analyzed By: AH

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.105	105	80 - 120	2013-08-01
Toluene		2	mg/L	0.100	0.104	104	80 - 120	2013-08-01
Ethylbenzene		2	mg/L	0.100	0.104	104	80 - 120	2013-08-01
Xylene		2	mg/L	0.300	0.311	104	80 - 120	2013-08-01

Standard (CCV-3)

QC Batch: 103610

Date Analyzed: 2013-08-01

Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.104	104	80 - 120	2013-08-01
Toluene		2	mg/L	0.100	0.105	105	80 - 120	2013-08-01
Ethylbenzene		2	mg/L	0.100	0.106	106	80 - 120	2013-08-01
Xylene		2	mg/L	0.300	0.315	105	80 - 120	2013-08-01

Standard (ICV-1)

QC Batch: 103654

Date Analyzed: 2013-07-30

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-07-30
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	242		-	2013-07-30
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-07-30
Total Alkalinity		2	mg/L as CaCo3	250	244	98	90 - 110	2013-07-30

Standard (CCV-1)

QC Batch: 103654

Date Analyzed: 2013-07-30

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	39.0		-	2013-07-30

continued ...

Report Date: August 20, 2013
114-6401628

Work Order: 13072615
Celero/Rock Queen #7

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standard continued . . .

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	190		-	2013-07-30
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<4.00		-	2013-07-30
Total Alkalinity		2	mg/L as CaCo3	250	229	92	90 - 110	2013-07-30

Standard (CCV-1)

QC Batch: 103740

Date Analyzed: 2013-08-05

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.1	100	90 - 110	2013-08-05

Standard (CCV-1)

QC Batch: 103740

Date Analyzed: 2013-08-05

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.9	104	90 - 110	2013-08-05

Standard (CCV-2)

QC Batch: 103740

Date Analyzed: 2013-08-05

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.8	99	90 - 110	2013-08-05

Standard (CCV-2)

QC Batch: 103740

Date Analyzed: 2013-08-05

Analyzed By: RL

Report Date: August 20, 2013
114-6401628

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.6	102	90 - 110	2013-08-05

Standard (ICV-1)

QC Batch: 103950

Date Analyzed: 2013-08-12

Analyzed By: RR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	48.3	95	90 - 110	2013-08-12
Dissolved Potassium		1	mg/L	55.0	52.4	95	90 - 110	2013-08-12
Dissolved Magnesium		1	mg/L	51.0	51.5	101	90 - 110	2013-08-12
Dissolved Sodium		1	mg/L	51.0	50.1	98	90 - 110	2013-08-12

Standard (CCV-1)

QC Batch: 103950

Date Analyzed: 2013-08-12

Analyzed By: RR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	54.1	106	90 - 110	2013-08-12
Dissolved Potassium		1	mg/L	55.0	57.2	104	90 - 110	2013-08-12
Dissolved Magnesium		1	mg/L	51.0	52.8	104	90 - 110	2013-08-12
Dissolved Sodium		1	mg/L	51.0	53.0	104	90 - 110	2013-08-12

Standard (CCV-1)

QC Batch: 104141

Date Analyzed: 2013-08-16

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.7	103	90 - 110	2013-08-16

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Celero/Rock Queen #7

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Standard (CCV-1)

QC Batch: 104141

Date Analyzed: 2013-08-16

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-08-16

Standard (CCV-2)

QC Batch: 104141

Date Analyzed: 2013-08-16

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.9	104	90 - 110	2013-08-16

Standard (CCV-2)

QC Batch: 104141

Date Analyzed: 2013-08-16

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.1	104	90 - 110	2013-08-16

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock
2	NELAP	T104704392-12-4	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

13072615

PAGE: 1 OF:



**1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946**

ANALYSIS REQUEST
(Circle or Specify Method No.)

SITE MANAGER: Greg Pope

PROJECT NAME: Rock Queen Tract #7

[illegible]

SAMPLED BY: (Print & Initial) *EF/RD* Date: _____
Time: _____

SAMPLE SHIPPED BY: (Circle)		AIRBILL #: _____
FEDEX	BUS	

HAND DELIVERED UPS OTHER: _____	
TETRA TECH CONTACT PERSON: _____	Results by: _____

AA

RUSH Charges
Authorized:

Yes No

REMARKS: 11W-1 - one broken VOA

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE: 1 OF: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Celero Energy

SITE MANAGER: Greg Pope

PROJECT NO.:
114-6401628

PROJECT NAME:
Rock Queen Tract #7

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF FILTERED (Y)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015	PAH 8270	RCRA Metal	TCLP Metal	TCLP Volatiles	TCLP Semi V	RCI	GC-MS Vol. i	GC-MS Semi	PCB's 8080/	Pest. 808/60	Chloride	Gamma Spec	Alpha Beta (i	PLM (Asbest	Major Anions	PH	TDS	
336642	7/25/13	0945	W		X	MW-1	5	M	X	X		X													X						
643		1040				MW-2																									
644		1005				MW-3																									
645		1020				MW-4																									

RELINQUISHED BY: (Signature) [Signature] Date: 7-26-13 Time: 8:30

RELINQUISHED BY: (Signature) [Signature] Date: 7-26-13 Time: 8:30

RELINQUISHED BY: (Signature) [Signature] Date: 7-26-13 Time: 15:30

RECEIVED BY: (Signature) [Signature] Date: 7-26-13 Time: 8:30

RECEIVED BY: (Signature) [Signature] Date: 7-26-13 Time: 8:30

RECEIVED BY: (Signature) [Signature] Date: 7-26-13 Time: 15:30

SAMPLED BY: (Print & Initial) ES/RD Date: 7-26-13 Time: 8:30

SAMPLE SHIPPED BY: (Circle) BUS AIRBILL #:

HAND DELIVERED UPS OTHER:

TETRA TECH CONTACT PERSON: LS ZQ 198885 AH

Results by: 3.6/39

RECEIVING LABORATORY:

ADDRESS: CITY: STATE: ZIP:

CONTACT: PHONE:

SAMPLE CONDITION WHEN RECEIVED: 330

RECEIVED BY: (Signature) [Signature] Date: 7/30/13 Time: 8:45

REMARKS: MW-1 - one broken VOA

RUSH Charges Authorized: Yes No

REMARKS: Midland-HTEX/PCR TDS Lubbock - all other

Cation-Anion Balance Sheet

DATE: 8/20/2013

Sample #	Calcium ppm	Magnesium ppm	Sodium ppm	Potassium ppm	Alkalinity ppm	Sulfate ppm	Chloride ppm	Nitrate-N ppm	Fluoride ppm	Bromide ppm	TDS ppm	EC µMHOS/cm
336642	1700	458	4980	49.8	179.00	1010	12600				22900	
336643	1030	516	8400	129	173.00	1340	18500				33000	
336644	132	27.4	122	6.47	139.00	97.9	324				990	
336645	4490	2140	25100	265	156.00	1650	48100				49200	

Sample #	Calcium in meq/L	Magnesium in meq/L	Sodium in meq/L	Potassium in meq/L	Alkalinity in meq/L	Sulfate in meq/L	Chloride in meq/L	Nitrate-N in meq/L	Fluoride in meq/L	Bromide in meq/L	Total Cations in meq/L	Total Anions in meq/L	% Difference*
336642	84.83	37.69	216.63	1.27	3.58	21.03	355.45	0.00	0.00	0.00	340.42	380.05	5.500730944
336643	51.40	42.46	365.40	3.30	3.46	27.90	521.89	0.00	0.00	0.00	462.56	553.24	8.927459957
336644	6.59	2.25	5.31	0.17	2.78	2.04	9.14	0.00	0.00	0.00	14.31	13.96	1.258227176
336645	224.05	176.10	1091.85	6.78	3.12	34.35	1356.90	0.00	0.00	0.00	1498.78	1394.37	3.608735974

	EC/Cation	EC/Anion
336642	34042.2704	38005.42
336643	46255.846	55324.38
336644	1431.40486	1395.8318
336645	149878.03	139437.4

range	0	to	0
range	0	to	0
range	0	to	0
range	0	to	0

TDS/EC	TDS/Cat		TDS/Anion
#DIV/0!	0.67		0.60
#DIV/0!	0.71		0.60
#DIV/0!	0.69		0.71
#DIV/0!	0.33		0.35

needs to be 0.55-0.77
needs to be 0.55-0.77
needs to be 0.55-0.77
needs to be 0.55-0.77



6701 Aberdeen Avenue, Suite 9
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(BioAquatic) 2501 Mayes Rd., Suite 100

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FAX 432-689-6313

972-242-7750

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Greg Pope
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: November 19, 2013

Work Order: 13103131



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #7
Project Number: 114-6401628

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
345372	MW-1	water	2013-10-30	17:15	2013-10-31
345373	MW-2	water	2013-10-30	17:40	2013-10-31
345374	MW-3	water	2013-10-30	17:50	2013-10-31
345375	MW-4	water	2013-10-30	17:30	2013-10-31

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 31 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

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Case Narrative

Samples for project Celero/Rock Queen #7 were received by TraceAnalysis, Inc. on 2013-10-31 and assigned to work order 13103131. Samples for work order 13103131 were received intact without headspace and at a temperature of 1.8 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Alkalinity	SM 2320B	90171	2013-11-01 at 10:25	106461	2013-11-01 at 16:26
BTEX	S 8021B	90156	2013-11-01 at 12:38	106459	2013-11-01 at 15:39
Ca, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
Chloride (IC)	E 300.0	90366	2013-11-08 at 10:30	106706	2013-11-08 at 11:32
Hardness	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
K, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
Mg, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
Na, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
pH	SM 4500-H+	90131	2013-10-31 at 13:47	106464	2013-10-31 at 16:42
SO4 (IC)	E 300.0	90366	2013-11-08 at 10:30	106706	2013-11-08 at 11:32
SO4 (IC)	E 300.0	90395	2013-11-12 at 15:00	106738	2013-11-12 at 16:20
TDS	SM 2540C	90164	2013-11-01 at 09:10	106604	2013-11-02 at 18:13

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13103131 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

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Analytical Report

Sample: 345372 - MW-1

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 106461
Prep Batch: 90171

Analytical Method: SM 2320B
Date Analyzed: 2013-11-01
Sample Preparation: 2013-11-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	356	mg/L as CaCo3	1	20.0
Total Alkalinity		2	356	mg/L as CaCo3	1	20.0

Sample: 345372 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 106459
Prep Batch: 90156

Analytical Method: S 8021B
Date Analyzed: 2013-11-01
Sample Preparation: 2013-11-01

Prep Method: S 5030B
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Qs,U	2	<0.00100	mg/L	1	0.00100
Xylene	Qs,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0849	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0765	mg/L	1	0.100	76	70 - 130

Sample: 345372 - MW-1

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106734
Prep Batch: 90268

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-09

Prep Method: S 3005A
Analyzed By: RR
Prepared By: PM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	531	mg/L	10	1.00
Dissolved Potassium		1	38.9	mg/L	10	1.00
Dissolved Magnesium		1	184	mg/L	10	1.00
Dissolved Sodium		1	2920	mg/L	100	1.00

Sample: 345372 - MW-1

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2013-11-08	Analyzed By:	RL
QC Batch:	106706	Sample Preparation:	2013-11-08	Prepared By:	RL
Prep Batch:	90366				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	5520	mg/L	500	2.50

Sample: 345372 - MW-1

Laboratory:	Lubbock	Analytical Method:	S 6010C	Prep Method:	N/A
Analysis:	Hardness	Date Analyzed:	2013-11-13	Analyzed By:	RR
QC Batch:	106734	Sample Preparation:	2013-11-06	Prepared By:	PM
Prep Batch:	90268				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			2080	mg eq CaCO3/L	1	0.00

Sample: 345372 - MW-1

Laboratory:	Midland	Analytical Method:	SM 4500-H+	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2013-10-31	Analyzed By:	AR
QC Batch:	106464	Sample Preparation:	2013-10-31	Prepared By:	AR
Prep Batch:	90131				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.43	s.u.	1	0.00

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Sample: 345372 - MW-1

Laboratory:	Lubbock		
Analysis:	SO4 (IC)	Analytical Method:	E 300.0
QC Batch:	106738	Date Analyzed:	2013-11-12
Prep Batch:	90395	Sample Preparation:	2013-11-12
		Prep Method:	N/A
		Analyzed By:	RL
		Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	609	mg/L	100	2.50

Sample: 345372 - MW-1

Laboratory:	Midland		
Analysis:	TDS	Analytical Method:	SM 2540C
QC Batch:	106604	Date Analyzed:	2013-11-02
Prep Batch:	90164	Sample Preparation:	2013-11-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	11900	mg/L	20	2.50

Sample: 345373 - MW-2

Laboratory:	Midland		
Analysis:	Alkalinity	Analytical Method:	SM 2320B
QC Batch:	106461	Date Analyzed:	2013-11-01
Prep Batch:	90171	Sample Preparation:	2013-11-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	160	mg/L as CaCo3	1	20.0
Total Alkalinity		2	160	mg/L as CaCo3	1	20.0

Sample: 345373 - MW-2

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	106459	Date Analyzed:	2013-11-01
Prep Batch:	90156	Sample Preparation:	2013-11-01
		Prep Method:	S 5030B
		Analyzed By:	AK
		Prepared By:	AK

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Qs,U	2	<0.00100	mg/L	1	0.00100
Xylene	Qs,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0840	mg/L	1	0.100	84	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0733	mg/L	1	0.100	73	70 - 130

Sample: 345373 - MW-2

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106734
Prep Batch: 90268

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-09

Prep Method: S 3005A
Analyzed By: RR
Prepared By: PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	782	mg/L	10	1.00
Dissolved Potassium		1	405	mg/L	10	1.00
Dissolved Magnesium		1	410	mg/L	10	1.00
Dissolved Sodium		1	7000	mg/L	1000	1.00

Sample: 345373 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 106706
Prep Batch: 90366

Analytical Method: E 300.0
Date Analyzed: 2013-11-08
Sample Preparation: 2013-11-08

Prep Method: N/A
Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	16500	mg/L	500	2.50

Sample: 345373 - MW-2

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 106734
Prep Batch: 90268

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-06

Prep Method: N/A
Analyzed By: RR
Prepared By: PM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			3640	mg eq CaCO3/L	1	0.00

Sample: 345373 - MW-2

Laboratory: Midland
Analysis: pH Analytical Method: SM 4500-H+ Prep Method: N/A
QC Batch: 106464 Date Analyzed: 2013-10-31 Analyzed By: AR
Prep Batch: 90131 Sample Preparation: 2013-10-31 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.67	s.u.	1	0.00

Sample: 345373 - MW-2

Laboratory: Lubbock
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL
Prep Batch: 90366 Sample Preparation: 2013-11-08 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1250	mg/L	500	2.50

Sample: 345373 - MW-2

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 106604 Date Analyzed: 2013-11-02 Analyzed By: AR
Prep Batch: 90164 Sample Preparation: 2013-11-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	84200	mg/L	100	2.50

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Sample: 345374 - MW-3

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 106461
Prep Batch: 90171

Analytical Method: SM 2320B
Date Analyzed: 2013-11-01
Sample Preparation: 2013-11-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	320	mg/L as CaCo3	1	20.0
Total Alkalinity		2	320	mg/L as CaCo3	1	20.0

Sample: 345374 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 106459
Prep Batch: 90156

Analytical Method: S 8021B
Date Analyzed: 2013-11-01
Sample Preparation: 2013-11-01

Prep Method: S 5030B
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Qs,U	2	<0.00100	mg/L	1	0.00100
Xylene	Qs,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0850	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0770	mg/L	1	0.100	77	70 - 130

Sample: 345374 - MW-3

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106734
Prep Batch: 90268

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-09

Prep Method: S 3005A
Analyzed By: RR
Prepared By: PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	1850	mg/L	100	1.00
Dissolved Potassium		1	181	mg/L	10	1.00
Dissolved Magnesium		1	821	mg/L	10	1.00

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sample 345374 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	10600	mg/L	100	1.00

Sample: 345374 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	33500	mg/L	1000	2.50

Sample: 345374 - MW-3

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-06	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			8000	mg eq CaCO3/L	1	0.00

Sample: 345374 - MW-3

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106464	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90131	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.05	s.u.	1	0.00

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Sample: 345374 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2013-11-12	Analyzed By:	RL
QC Batch:	106738	Sample Preparation:	2013-11-12	Prepared By:	RL
Prep Batch:	90395				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1030	mg/L	100	2.50

Sample: 345374 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2013-11-02	Analyzed By:	AR
QC Batch:	106604	Sample Preparation:	2013-11-01	Prepared By:	AR
Prep Batch:	90164				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	33700	mg/L	50	2.50

Sample: 345375 - MW-4

Laboratory:	Midland	Analytical Method:	SM 2320B	Prep Method:	N/A
Analysis:	Alkalinity	Date Analyzed:	2013-11-01	Analyzed By:	AR
QC Batch:	106461	Sample Preparation:	2013-11-01	Prepared By:	AR
Prep Batch:	90171				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	166	mg/L as CaCo3	1	20.0
Total Alkalinity		2	166	mg/L as CaCo3	1	20.0

Sample: 345375 - MW-4

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2013-11-01	Analyzed By:	AK
QC Batch:	106459	Sample Preparation:	2013-11-01	Prepared By:	AK
Prep Batch:	90156				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Qs,U	2	<0.00100	mg/L	1	0.00100
Xylene	Qs,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0846	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0766	mg/L	1	0.100	77	70 - 130

Sample: 345375 - MW-4

Laboratory: Lubbock

Analysis: Cations

QC Batch: 106734

Prep Batch: 90268

Analytical Method: S 6010C

Date Analyzed: 2013-11-13

Sample Preparation: 2013-11-09

Prep Method: S 3005A

Analyzed By: RR

Prepared By: PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	86.1	mg/L	10	1.00
Dissolved Potassium		1	<10.0	mg/L	10	1.00
Dissolved Magnesium		1	15.4	mg/L	10	1.00
Dissolved Sodium		1	82.2	mg/L	10	1.00

Sample: 345375 - MW-4

Laboratory: Lubbock

Analysis: Chloride (IC)

QC Batch: 106706

Prep Batch: 90366

Analytical Method: E 300.0

Date Analyzed: 2013-11-08

Sample Preparation: 2013-11-08

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	89.4	mg/L	5	2.50

Sample: 345375 - MW-4

Laboratory: Lubbock

Analysis: Hardness

QC Batch: 106734

Prep Batch: 90268

Analytical Method: S 6010C

Date Analyzed: 2013-11-13

Sample Preparation: 2013-11-06

Prep Method: N/A

Analyzed By: RR

Prepared By: PM

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			278	mg eq CaCO ₃ /L	1	0.00

Sample: 345375 - MW-4

Laboratory: Midland
Analysis: pH Analytical Method: SM 4500-H+ Prep Method: N/A
QC Batch: 106464 Date Analyzed: 2013-10-31 Analyzed By: AR
Prep Batch: 90131 Sample Preparation: 2013-10-31 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.85	s.u.	1	0.00

Sample: 345375 - MW-4

Laboratory: Lubbock
Analysis: SO₄ (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL
Prep Batch: 90366 Sample Preparation: 2013-11-08 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	115	mg/L	5	2.50

Sample: 345375 - MW-4

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 106604 Date Analyzed: 2013-11-02 Analyzed By: AR
Prep Batch: 90164 Sample Preparation: 2013-11-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	900	mg/L	20	2.50

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Method Blanks

Method Blank (1) QC Batch: 106459

QC Batch: 106459
Prep Batch: 90156

Date Analyzed: 2013-11-01
QC Preparation: 2013-11-01

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.000600	mg/L	0.001
Toluene		2	<0.000400	mg/L	0.001
Ethylbenzene		2	<0.000600	mg/L	0.001
Xylene		2	<0.00130	mg/L	0.003

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0881	mg/L	1	0.100	88	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0780	mg/L	1	0.100	78	70 - 130

Method Blank (1) QC Batch: 106461

QC Batch: 106461
Prep Batch: 90171

Date Analyzed: 2013-11-01
QC Preparation: 2013-11-01

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Hydroxide Alkalinity		2	<20.0	mg/L as CaCo3	20
Carbonate Alkalinity		2	<20.0	mg/L as CaCo3	20
Bicarbonate Alkalinity		2	<20.0	mg/L as CaCo3	20
Total Alkalinity		2	<20.0	mg/L as CaCo3	20

Method Blank (1) QC Batch: 106604

QC Batch: 106604
Prep Batch: 90164

Date Analyzed: 2013-11-02
QC Preparation: 2013-11-01

Analyzed By: AR
Prepared By: AR

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Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	<2.50	mg/L	2.5

Method Blank (1) QC Batch: 106706

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL
Prep Batch: 90366 QC Preparation: 2013-11-08 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	<0.254	mg/L	2.5

Method Blank (1) QC Batch: 106706

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL
Prep Batch: 90366 QC Preparation: 2013-11-08 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.132	mg/L	2.5

Method Blank (1) QC Batch: 106734

QC Batch: 106734 Date Analyzed: 2013-11-13 Analyzed By: RR
Prep Batch: 90268 QC Preparation: 2013-11-06 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Dissolved Calcium		1	<0.0441	mg/L	1
Dissolved Potassium		1	<0.0443	mg/L	1
Dissolved Magnesium		1	<0.0296	mg/L	1
Dissolved Sodium		1	<0.172	mg/L	1

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Method Blank (1) QC Batch: 106738

QC Batch: 106738
Prep Batch: 90395

Date Analyzed: 2013-11-12
QC Preparation: 2013-11-12

Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.132	mg/L	2.5

Duplicates (1) Duplicated Sample: 345371

QC Batch: 106461
Prep Batch: 90171

Date Analyzed: 2013-11-01
QC Preparation: 2013-11-01

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	2	149	126	mg/L as CaCo3	1	17	20
Total Alkalinity	2	149	126	mg/L as CaCo3	1	17	20

Duplicates (1) Duplicated Sample: 345371

QC Batch: 106464
Prep Batch: 90131

Date Analyzed: 2013-10-31
QC Preparation: 2013-10-31

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	2	6.59	6.56	s.u.	1	0	10

Duplicates (1) Duplicated Sample: 345371

QC Batch: 106604
Prep Batch: 90164

Date Analyzed: 2013-11-02
QC Preparation: 2013-11-01

Analyzed By: AR
Prepared By: AR

continued ...

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<i>duplicate continued . . .</i>						
Param		Duplicate Result	Sample Result	Units	Dilution	RPD Limit
Param		Duplicate Result	Sample Result	Units	Dilution	RPD Limit
Total Dissolved Solids	2	121000	113000	mg/L	100	7 10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 106459
Prep Batch: 90156

Date Analyzed: 2013-11-01
QC Preparation: 2013-11-01

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0900	mg/L	1	0.100	<0.000600	90	70 - 130
Toluene		2	0.0892	mg/L	1	0.100	<0.000400	89	70 - 130
Ethylbenzene		2	0.0872	mg/L	1	0.100	<0.000600	87	70 - 130
Xylene		2	0.266	mg/L	1	0.300	<0.00130	89	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.0895	mg/L	1	0.100	<0.000600	90	70 - 130	1	20
Toluene		2	0.0892	mg/L	1	0.100	<0.000400	89	70 - 130	0	20
Ethylbenzene		2	0.0868	mg/L	1	0.100	<0.000600	87	70 - 130	0	20
Xylene		2	0.265	mg/L	1	0.300	<0.00130	88	70 - 130	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0899	0.0914	mg/L	1	0.100	90	91	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0936	0.0945	mg/L	1	0.100	94	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 106604
Prep Batch: 90164

Date Analyzed: 2013-11-02
QC Preparation: 2013-11-01

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1010	mg/L	1	1000	<2.50	101	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

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control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	981	mg/L	1	1000	<2.50	98	90 - 110	3	10

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 106706
Prep Batch: 90366

Date Analyzed: 2013-11-08
QC Preparation: 2013-11-08

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.5	mg/L	1	25.0	<0.254	102	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.4	mg/L	1	25.0	<0.254	102	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 106706
Prep Batch: 90366

Date Analyzed: 2013-11-08
QC Preparation: 2013-11-08

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	26.3	mg/L	1	25.0	<0.132	105	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26.6	mg/L	1	25.0	<0.132	106	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Laboratory Control Spike (LCS-1)

QC Batch: 106734
Prep Batch: 90268

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-06

Analyzed By: RR
Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	54.6	mg/L	1	52.5	<0.0441	104	85 - 115
Dissolved Potassium		1	52.3	mg/L	1	52.5	<0.0443	100	85 - 115
Dissolved Magnesium		1	53.7	mg/L	1	52.5	<0.0296	102	85 - 115
Dissolved Sodium		1	53.6	mg/L	1	52.5	<0.172	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	55.6	mg/L	1	52.5	<0.0441	106	85 - 115	2	20
Dissolved Potassium		1	53.3	mg/L	1	52.5	<0.0443	102	85 - 115	2	20
Dissolved Magnesium		1	54.7	mg/L	1	52.5	<0.0296	104	85 - 115	2	20
Dissolved Sodium		1	54.3	mg/L	1	52.5	<0.172	103	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 106738
Prep Batch: 90395

Date Analyzed: 2013-11-12
QC Preparation: 2013-11-12

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	26.6	mg/L	1	25.0	<0.132	106	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26.3	mg/L	1	25.0	<0.132	105	90 - 110	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 345371

QC Batch: 106459
Prep Batch: 90156

Date Analyzed: 2013-11-01
QC Preparation: 2013-11-01

Analyzed By: AK
Prepared By: AK

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0833	mg/L	1	0.100	<0.000600	83	70 - 130
Toluene		2	0.0783	mg/L	1	0.100	<0.000400	78	70 - 130
Ethylbenzene	Q ^s	Q ^s 2	0.0693	mg/L	1	0.100	<0.000600	69	70 - 130
Xylene	Q ^s	Q ^s 2	0.207	mg/L	1	0.300	<0.00130	69	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.0836	mg/L	1	0.100	<0.000600	84	70 - 130	0	20
Toluene		2	0.0793	mg/L	1	0.100	<0.000400	79	70 - 130	1	20
Ethylbenzene	Q ^s	Q ^s 2	0.0696	mg/L	1	0.100	<0.000600	70	70 - 130	0	20
Xylene		2	0.211	mg/L	1	0.300	<0.00130	70	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0833	0.0825	mg/L	1	0.1	83	82	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0863	0.0870	mg/L	1	0.1	86	87	70 - 130

Matrix Spike (MS-1) Spiked Sample: 345377

QC Batch: 106706
Prep Batch: 90366

Date Analyzed: 2013-11-08
QC Preparation: 2013-11-08

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	286000	mg/L	5000	125000	135837	120	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	284000	mg/L	5000	125000	135837	118	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 345377

QC Batch: 106706
Prep Batch: 90366

Date Analyzed: 2013-11-08
QC Preparation: 2013-11-08

Analyzed By: RL
Prepared By: RL

Report Date: November 19, 2013
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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	137000	mg/L	5000	125000	1810	108	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	136000	mg/L	5000	125000	1810	107	80 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 345371

QC Batch: 106734
Prep Batch: 90268

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-06

Analyzed By: RR
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	6650	mg/L	1	500	6210	88	75 - 125
Dissolved Potassium		1	664	mg/L	1	500	147	103	75 - 125
Dissolved Magnesium		1	3470	mg/L	1	500	3000	94	75 - 125
Dissolved Sodium		1	26800	mg/L	1	500	26300	100	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	6700	mg/L	1	500	6210	98	75 - 125	1	20
Dissolved Potassium		1	640	mg/L	1	500	147	99	75 - 125	4	20
Dissolved Magnesium		1	3390	mg/L	1	500	3000	78	75 - 125	2	20
Dissolved Sodium		1	26800	mg/L	1	500	26300	100	75 - 125	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 346002

QC Batch: 106738
Prep Batch: 90395

Date Analyzed: 2013-11-12
QC Preparation: 2013-11-12

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	381	mg/L	10	250	81.9	120	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	358	mg/L	10	250	81.9	110	80 - 120	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-1)

QC Batch: 106459

Date Analyzed: 2013-11-01

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0895	90	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0887	89	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0871	87	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.264	88	80 - 120	2013-11-01

Standard (CCV-2)

QC Batch: 106459

Date Analyzed: 2013-11-01

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0855	86	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0853	85	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0851	85	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.256	85	80 - 120	2013-11-01

Standard (CCV-3)

QC Batch: 106459

Date Analyzed: 2013-11-01

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0898	90	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0877	88	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0871	87	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.263	88	80 - 120	2013-11-01

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Standard (CCV-4)

QC Batch: 106459

Date Analyzed: 2013-11-01

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0905	90	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0889	89	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0872	87	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.263	88	80 - 120	2013-11-01

Standard (ICV-1)

QC Batch: 106461

Date Analyzed: 2013-11-01

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	232		-	2013-11-01
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Total Alkalinity		2	mg/L as CaCo3	250	233	93	90 - 110	2013-11-01

Standard (CCV-1)

QC Batch: 106461

Date Analyzed: 2013-11-01

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	214		-	2013-11-01
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Total Alkalinity		2	mg/L as CaCo3	250	232	93	90 - 110	2013-11-01

Standard (ICV-1)

QC Batch: 106464

Date Analyzed: 2013-10-31

Analyzed By: AR

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114-6401628

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	6.99	100	98 - 102	2013-10-31

Standard (CCV-1)

QC Batch: 106464

Date Analyzed: 2013-10-31

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	7.05	101	98 - 102	2013-10-31

Standard (CCV-1)

QC Batch: 106706

Date Analyzed: 2013-11-08

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.3	101	90 - 110	2013-11-08

Standard (CCV-1)

QC Batch: 106706

Date Analyzed: 2013-11-08

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-11-08

Standard (CCV-2)

QC Batch: 106706

Date Analyzed: 2013-11-08

Analyzed By: RL

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.3	101	90 - 110	2013-11-08

Standard (CCV-2)

QC Batch: 106706

Date Analyzed: 2013-11-08

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.3	105	90 - 110	2013-11-08

Standard (ICV-1)

QC Batch: 106734

Date Analyzed: 2013-11-13

Analyzed By: RR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	52.9	104	90 - 110	2013-11-13
Dissolved Potassium		1	mg/L	55.0	56.3	102	90 - 110	2013-11-13
Dissolved Magnesium		1	mg/L	51.0	52.7	103	90 - 110	2013-11-13
Dissolved Sodium		1	mg/L	51.0	50.8	100	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106734

Date Analyzed: 2013-11-13

Analyzed By: RR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	51.6	101	90 - 110	2013-11-13
Dissolved Potassium		1	mg/L	55.0	54.8	100	90 - 110	2013-11-13
Dissolved Magnesium		1	mg/L	51.0	51.1	100	90 - 110	2013-11-13
Dissolved Sodium		1	mg/L	51.0	50.8	100	90 - 110	2013-11-13

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Standard (CCV-1)

QC Batch: 106738

Date Analyzed: 2013-11-12

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.4	106	90 - 110	2013-11-12

Standard (CCV-2)

QC Batch: 106738

Date Analyzed: 2013-11-12

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-11-12

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock
2	NELAP	T104704392-13-7	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

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ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Celero Energy SITE MANAGER: Greg Pope
PROJECT NO.: 114-640628 PROJECT NAME: Rock Queen #7

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015	PAH 8270	RCRA Metals	TCLP Metals	TCLP Volatiles	TCLP Semi	RCI	GC.MS Vol.	GC.MS Semi	PCB's 8080	Pest. 808/608	Chloride	Gamma Spec	Alpha Beta	PLM (Asbestos)	Major Anion
345372	10/31/13	1715	W		X	MW-1	5	N	X	X		X												X			X	
373		1740				MW-2	5																					
374		1750				MW-3	5																					
375	✓	1730	✓	✓		MW-4	5	✓	✓	✓		✓												✓			✓	

RELINQUISHED BY: (Signature) <u>[Signature]</u> Date: <u>10/31/13</u> Time: <u>12:29</u>	RECEIVED BY: (Signature) <u>[Signature]</u> Date: <u>10/31/13</u> Time: <u>12:29</u>	SAMPLED BY: (Print & Initial) <u>GFRD</u> Date: _____ Time: _____
RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____	RECEIVED BY: (Signature) _____ Date: _____ Time: _____	SAMPLE SHIPPED BY: (Circle) FEDEX ☐ BUS ☐ HAND DELIVERED ☐ UPS ☐
RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____	RECEIVED BY: (Signature) _____ Date: _____ Time: _____	OTHER: _____
RECEIVING LABORATORY: _____ ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ CONTACT: _____ PHONE: _____	RECEIVED BY: (Signature) <u>[Signature]</u> Date: <u>11/1/13</u> Time: <u>9:40</u>	TETRA TECH CONTACT PERSON: _____ Results by: _____ RUSH Charges Authorized: _____ Yes No
SAMPLE CONDITION WHEN RECEIVED: <u>180</u> REMARKS: <u>Midland - BTEX/alt/TPS/pH Subbot - anions/cations AS</u>		

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.