1R – 1664

2013 AGWMR

04 / 21 / 2014

TETRA TECH

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 Annual Groundwater Sampling Report for the Celero Energy II, LP, Rock Queen Unit Tract 33 Tank Battery, Located in Unit Letter F, Section 23, Township 13 South, Range 31 East, Chaves County, New Mexico (NMOCD 1RP#1664).

Mr. Von Gonten:

This report details the results of the groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Tract 33 Tank Battery (Site) for 2013. 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 33 Tank Battery pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in September 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 460 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 the Pit located at the Rock Queen Unit Track 33 Tank Battery* was submitted to

Tetra Tech
1910 North Big Spring, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

the NMOCD. The report detailed the closure of the former pit at the facility.

Groundwater Investigation

Between June 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 to approximately 10 to 15 feet below ground surface (bgs) and with calcareous sand to very fine grain sand to a depth of approximately 110 to 120 feet bgs. From approximately 110 feet bgs to the terminus (approximately 125 to 150 feet bgs) the soils were a gray to red clay.

During the investigation, groundwater was encountered at depths of approximately 111 to 115 feet bgs. Monitor Well MW-1 was drilled into the surrounding underlying clay to 150 feet bgs and installed with 60 feet of 0.02 inch slotted screen. The remaining monitor wells were drilled to depths of 125 feet bgs and installed with 30 feet of 0.02 inch slotted screen. Recovery well RW-1 was drilled to a depth of 120 feet and installed with 20 feet of 0.035 inch slotted screen. From the top of the screen 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 which were detected in the groundwater above New Mexico Water Quality Control Commission (NMWQCC) standards was chlorides, Total Dissolved Solids (TDS), Sulfates (SO4), and in several wells (MW-1 and RW-1), benzene. No Phase Separated Hydrocarbons (PSH) has been measured in any of the onsite monitor wells. See Figure 3 detailing the monitor well locations.

Historic Gauging and Monitor Well Sampling

On December 28, 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 south to southwest.

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+. Of the samples collected, two samples, MW-1 on January 21, 2011 (0.0121 milligrams per liter [mg/L]) and on July 28, 2011 (0.0114 mg/L) and RW-1 on April 14, 2011 (0.0124 mg/L) had results which exceeded the NMWQCC standard of 0.01 mg/L of benzene. The remainder of the samples was below the NMWQCC standards with a majority being at or

below detection limits. Chlorides for the sampling period ranged from 29.7 mg/L in up gradient monitor well MW-2 on October 25, 2012 to 89,400 mg/L in monitor well MW-1 on April 12, 2012. With the exception of MW-2, 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 29, April 22, July 24, 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 the sampling events with a hydraulic gradient consistently to the south to southwest. 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 23, July 24, and October 30, 2012, each of the monitor wells was sampled for BTEX utilizing method (SW8021B), chlorides and sulfates utilizing method E 300.0, total dissolved solids (TDS) utilizing method SM2540C and periodically for general chemistry. The samples were collected and submitted to Trace Analysis, Inc. (Trace) of Midland, Texas. All samples collected and analyzed were below the NMWQCC standard of 0.01 mg/L of benzene. Chlorides ranged for the sampling period ranged from 38.1 mg/L in monitor well MW-2 (April 23, 2013) to 81,100 mg/L in monitor well MW-1 (October 30, 2013). With the exception of monitor well MW-2, 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 period are included as Figures 8 through 11. Copies of the laboratory analyses reports are enclosed in Appendix A.

During purging activities, it was noted that all four monitor wells (MW-1 through MW-4) bail dry, while recovery well RW-1 does not.

CONCLUSIONS

1. Sampling occurred on January 29, April 22, July 24, 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.

2. The hydraulic gradient is consistently in a south to southwesterly direction.

3. All samples for the period were below the NMWQCC standard of 0.01 mg/L of benzene.

4. Chloride concentrations exceed the NMWQCC standards of 250 mg/L in all monitor wells with the exception of monitor well MW-2. For the year, the chloride concentrations at the site ranged from 38.1 mg/L in MW-2 on April 23, 2013, to 81,100 mg/L in MW-1 on October 30, 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 tests on the underlying groundwater to determine if it meets the criteria of an aquifer system. Determination of either pursuing closure or addition of a remediation system 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, P.G.
Senior Environmental Geologist

cc: Bruce Woodard – Celero Energy II, LP

FIGURES

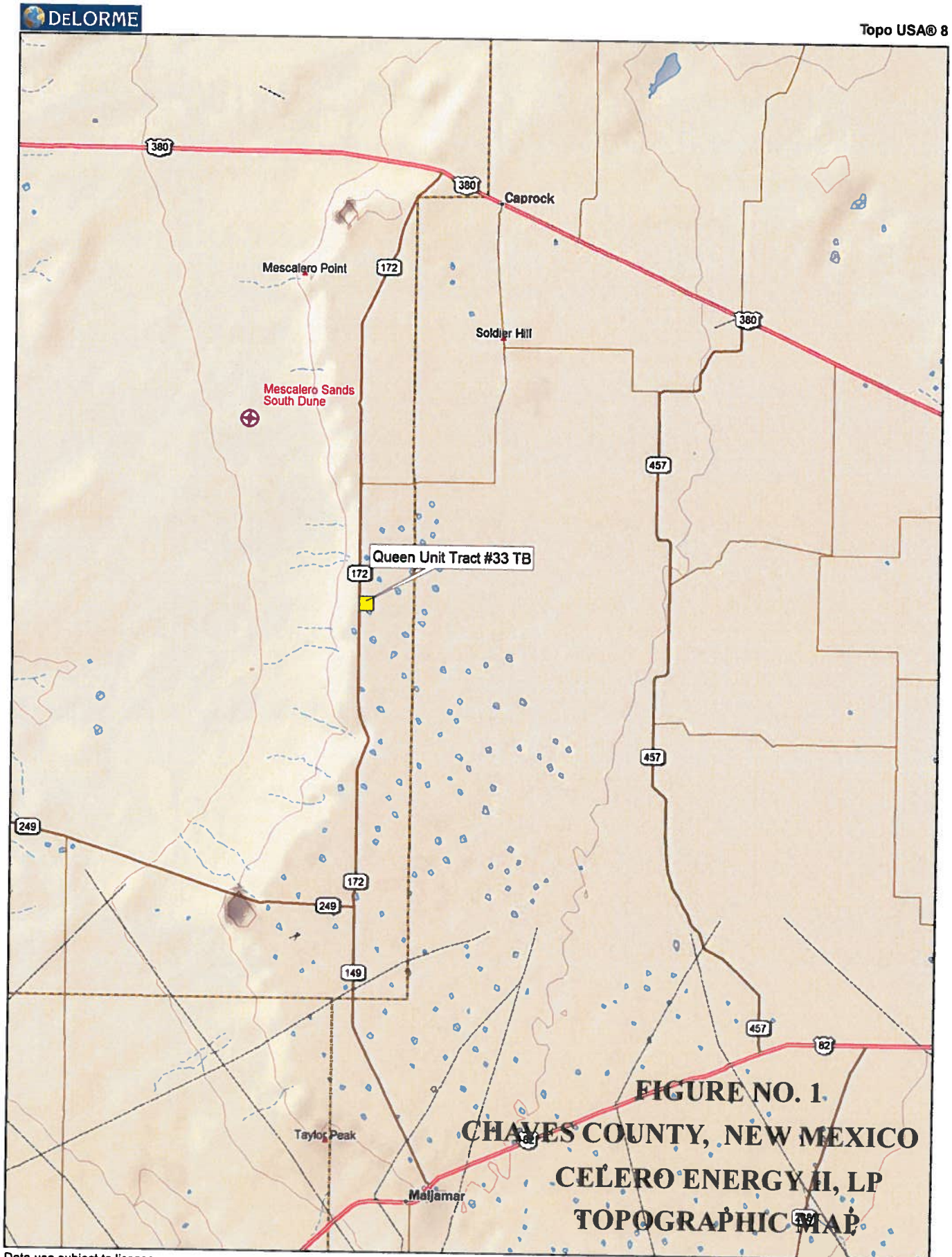

FIGURE NO. 1

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY II, LP

TOPOGRAPHIC MAP

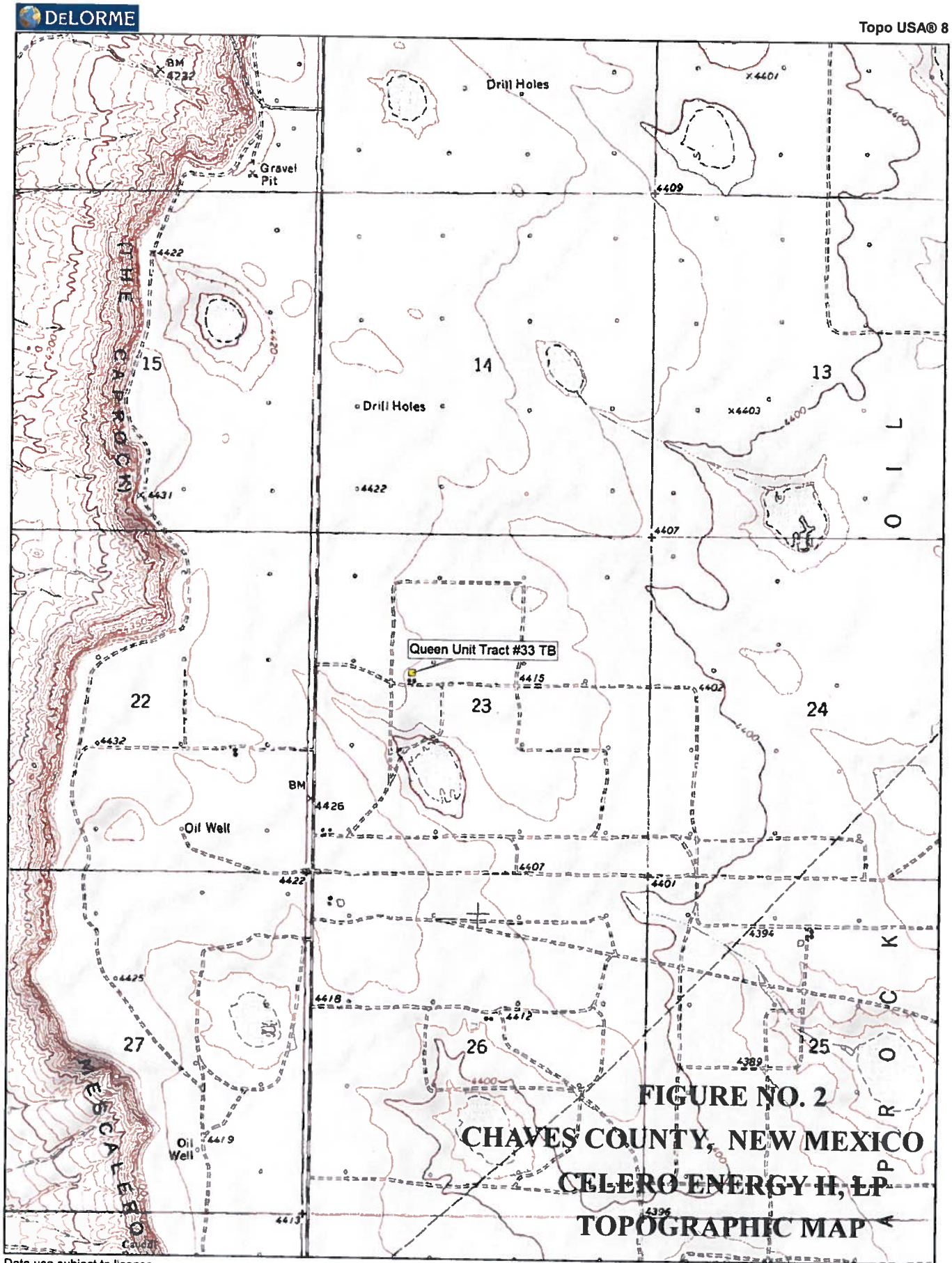

FIGURE NO. 2

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY II, LP

TOPOGRAPHIC MAP

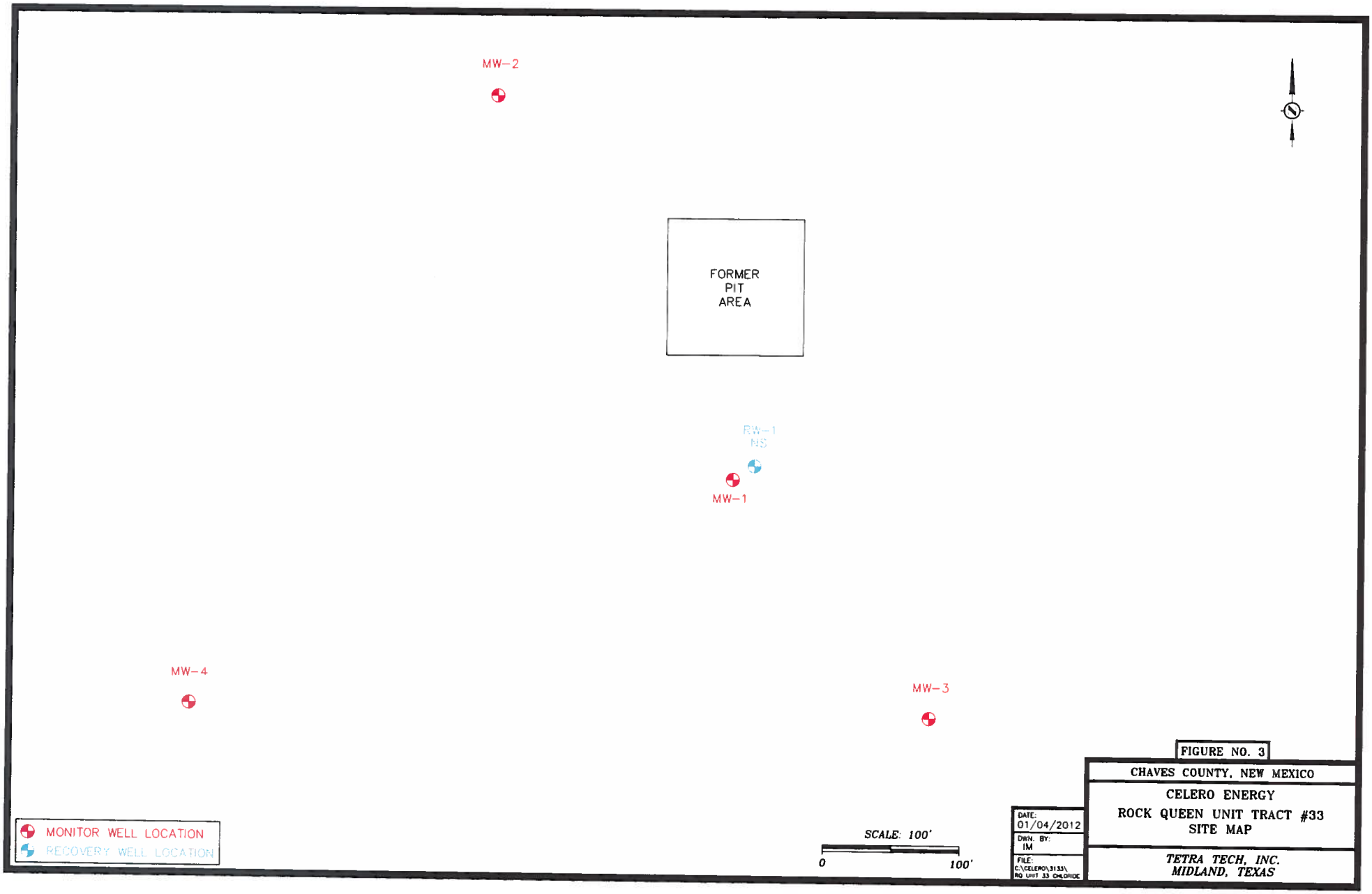

FIGURE NO. 3

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY

ROCK QUEEN UNIT TRACT #33
SITE MAP

TETRA TECH, INC.
MIDLAND, TEXAS

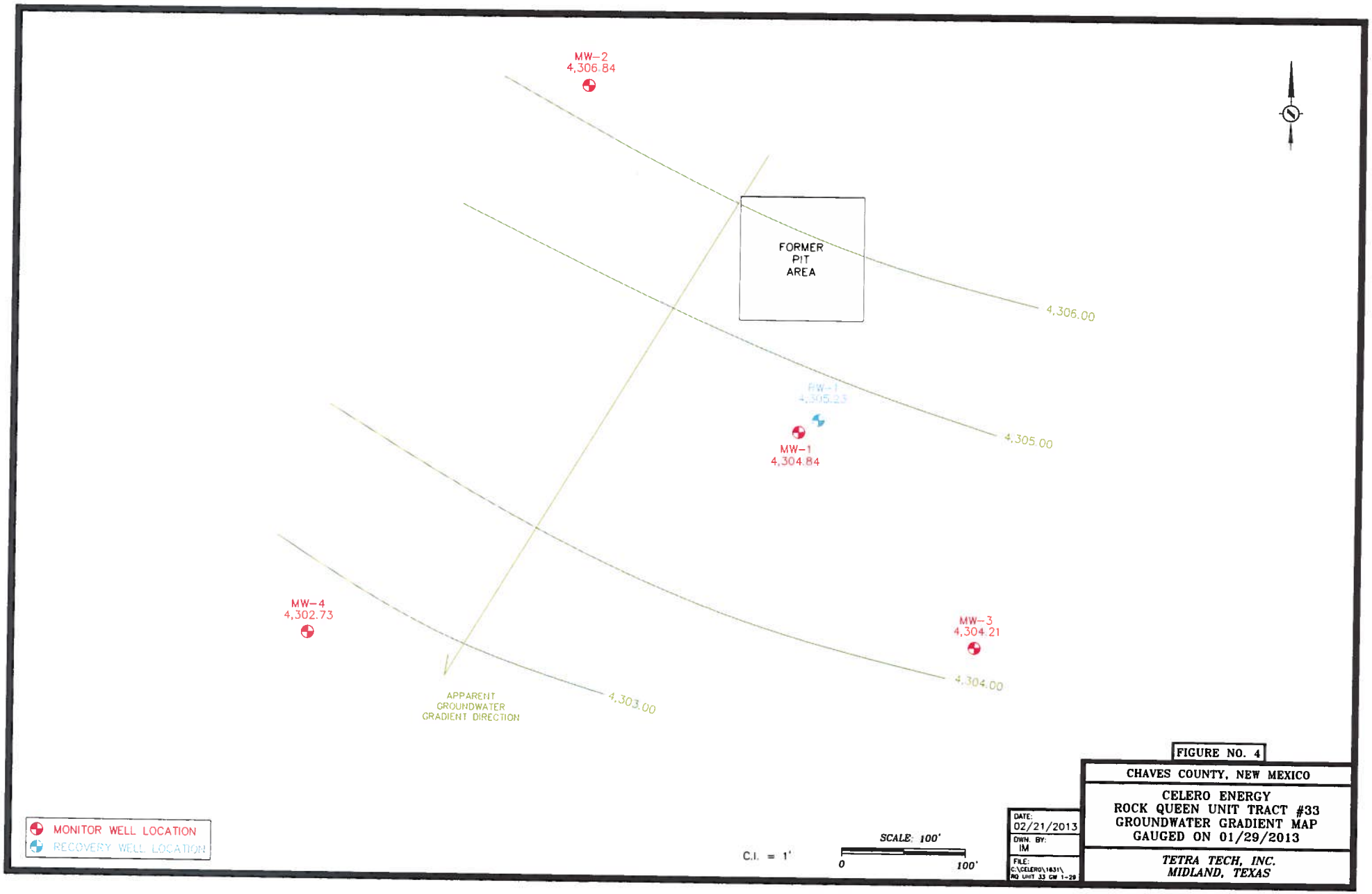

FIGURE NO. 4

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 01/29/2013

TETRA TECH, INC.
MIDLAND, TEXAS

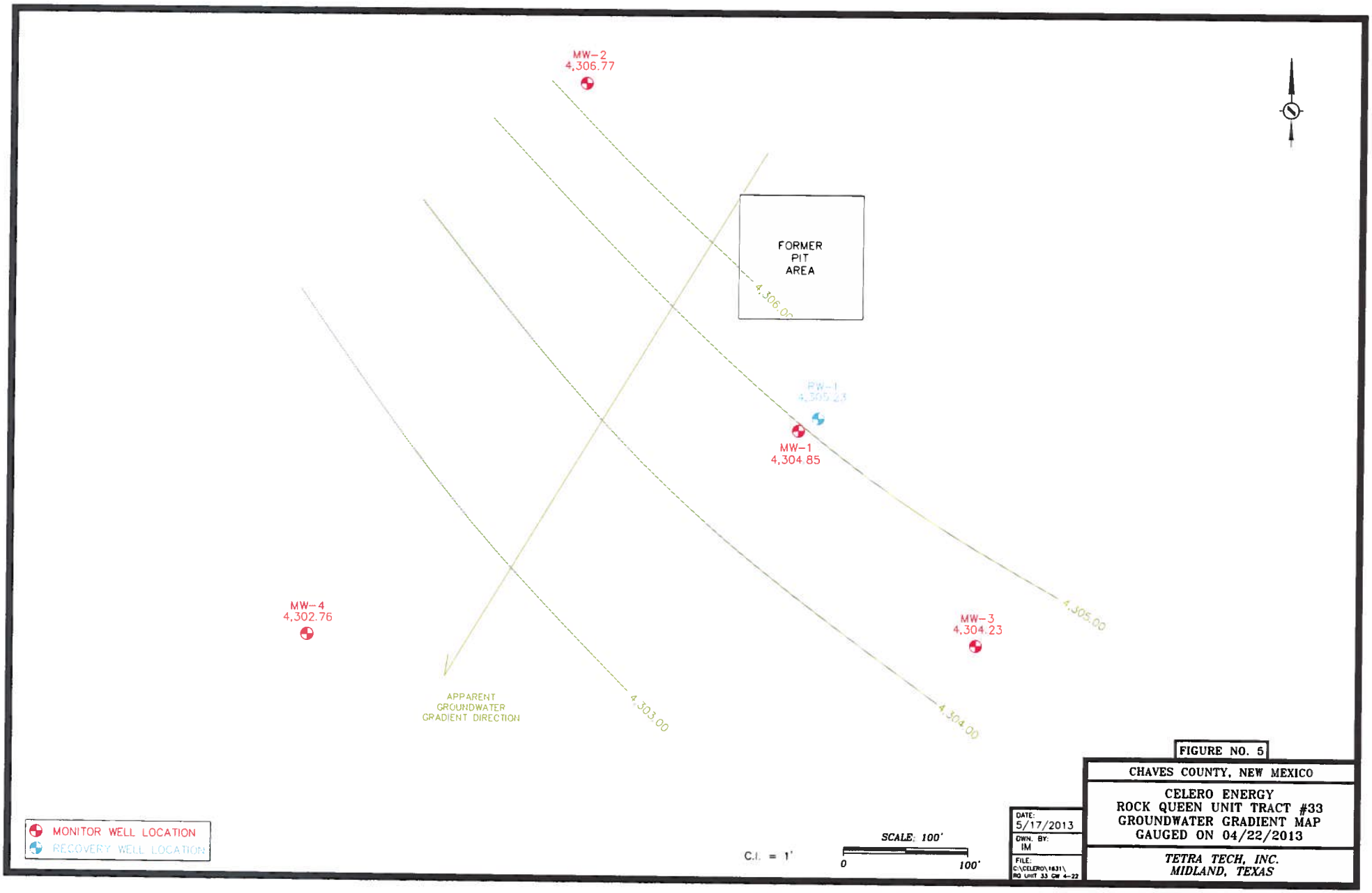

FIGURE NO. 5

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 04/22/2013

TETRA TECH, INC.
MIDLAND, TEXAS

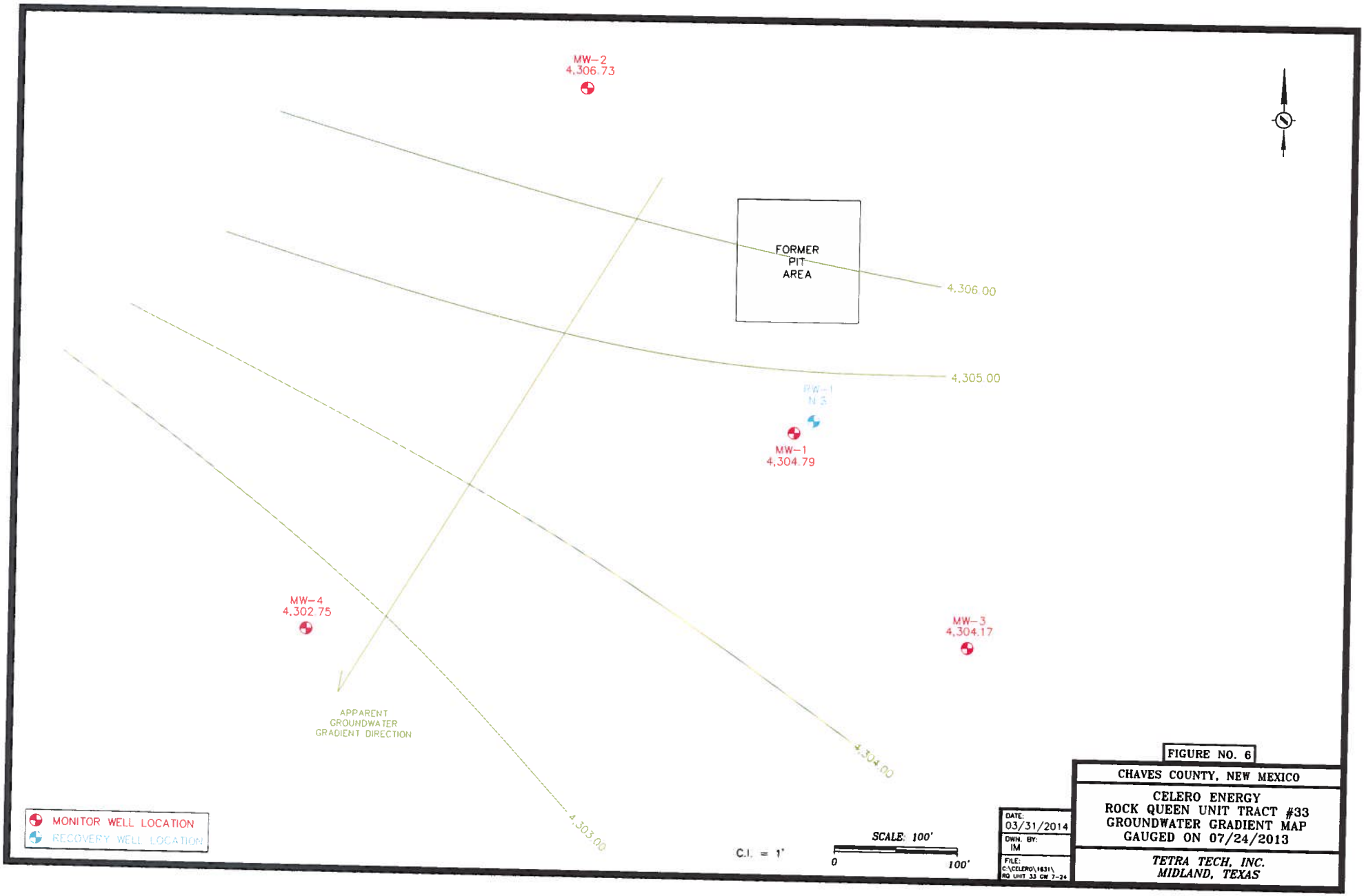

FIGURE NO. 6

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 07/24/2013

TETRA TECH, INC.
MIDLAND, TEXAS

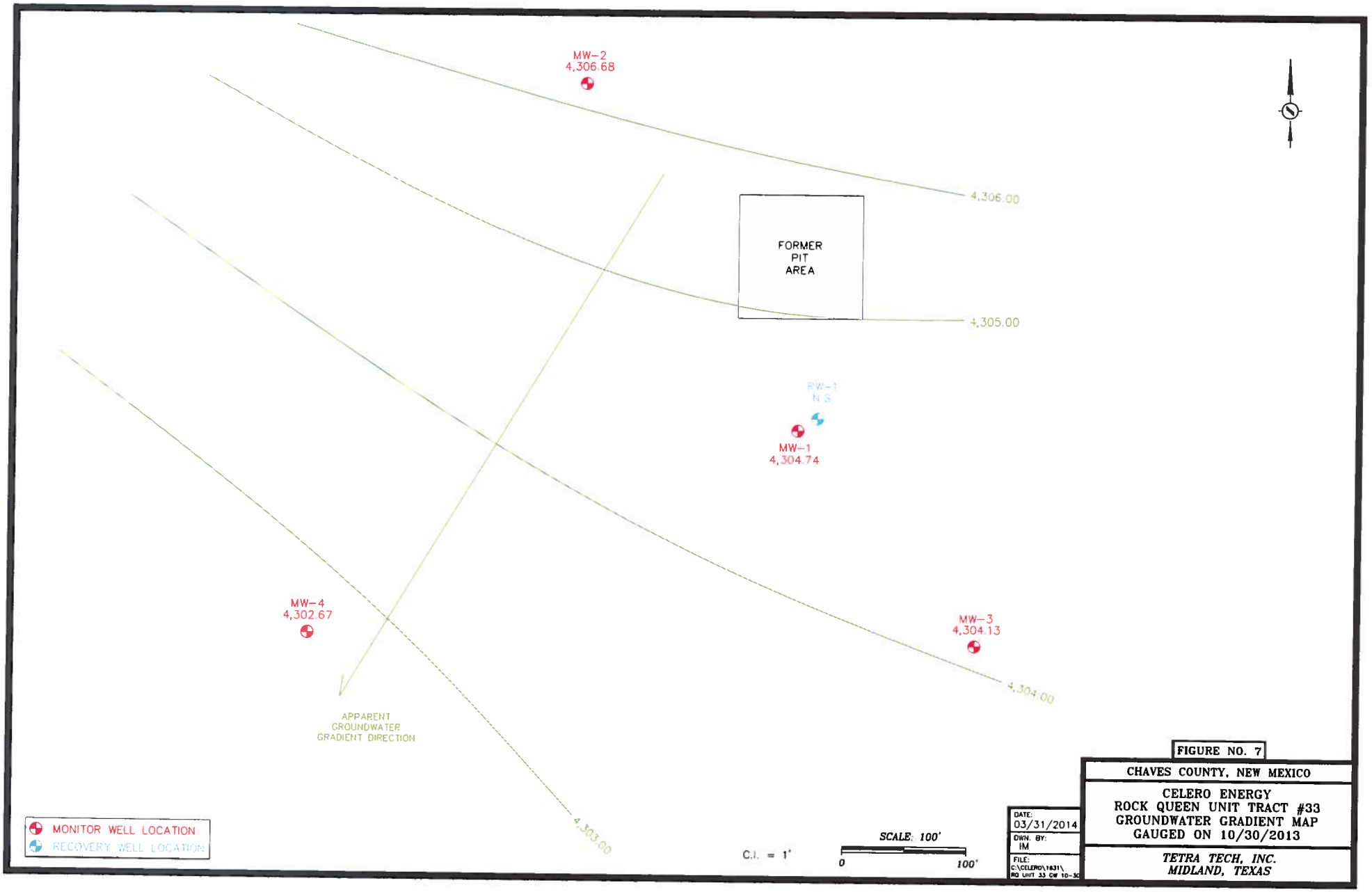

FIGURE NO. 7

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 10/30/2013

TETRA TECH, INC.
MIDLAND, TEXAS

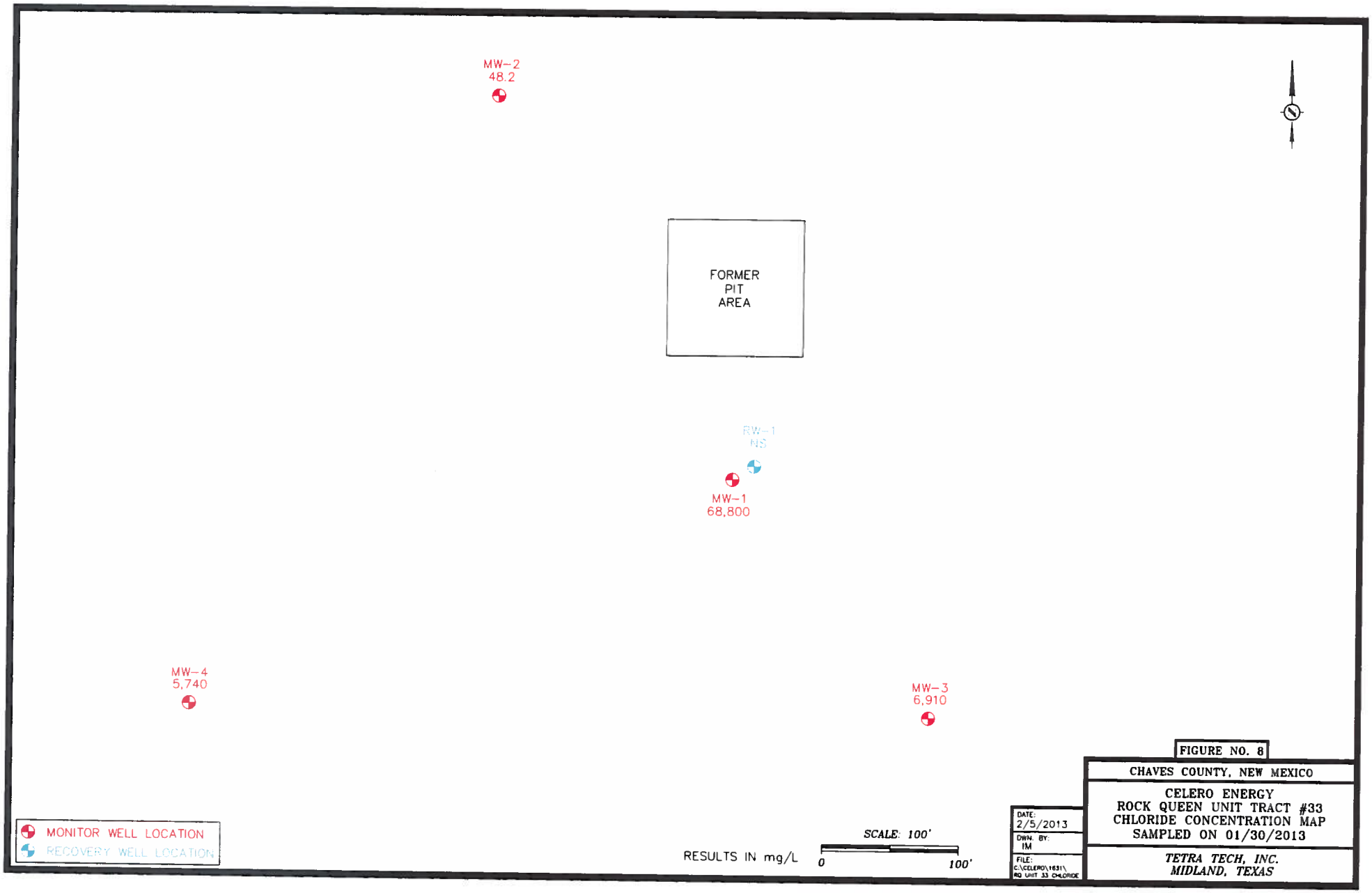

FIGURE NO. 8

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 01/30/2013

TETRA TECH, INC.
MIDLAND, TEXAS

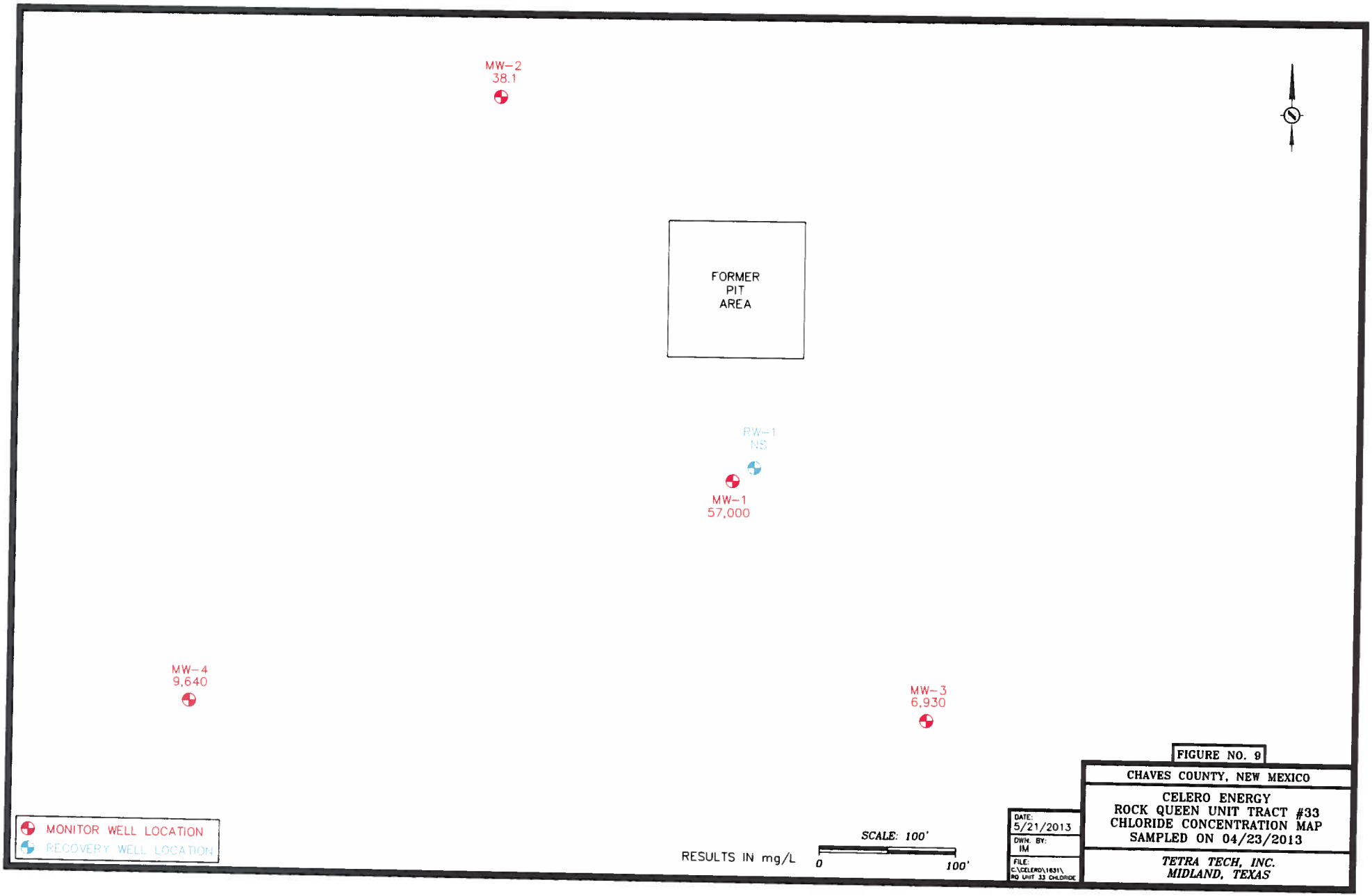

FIGURE NO. 9

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 04/23/2013

TETRA TECH, INC.
MIDLAND, TEXAS

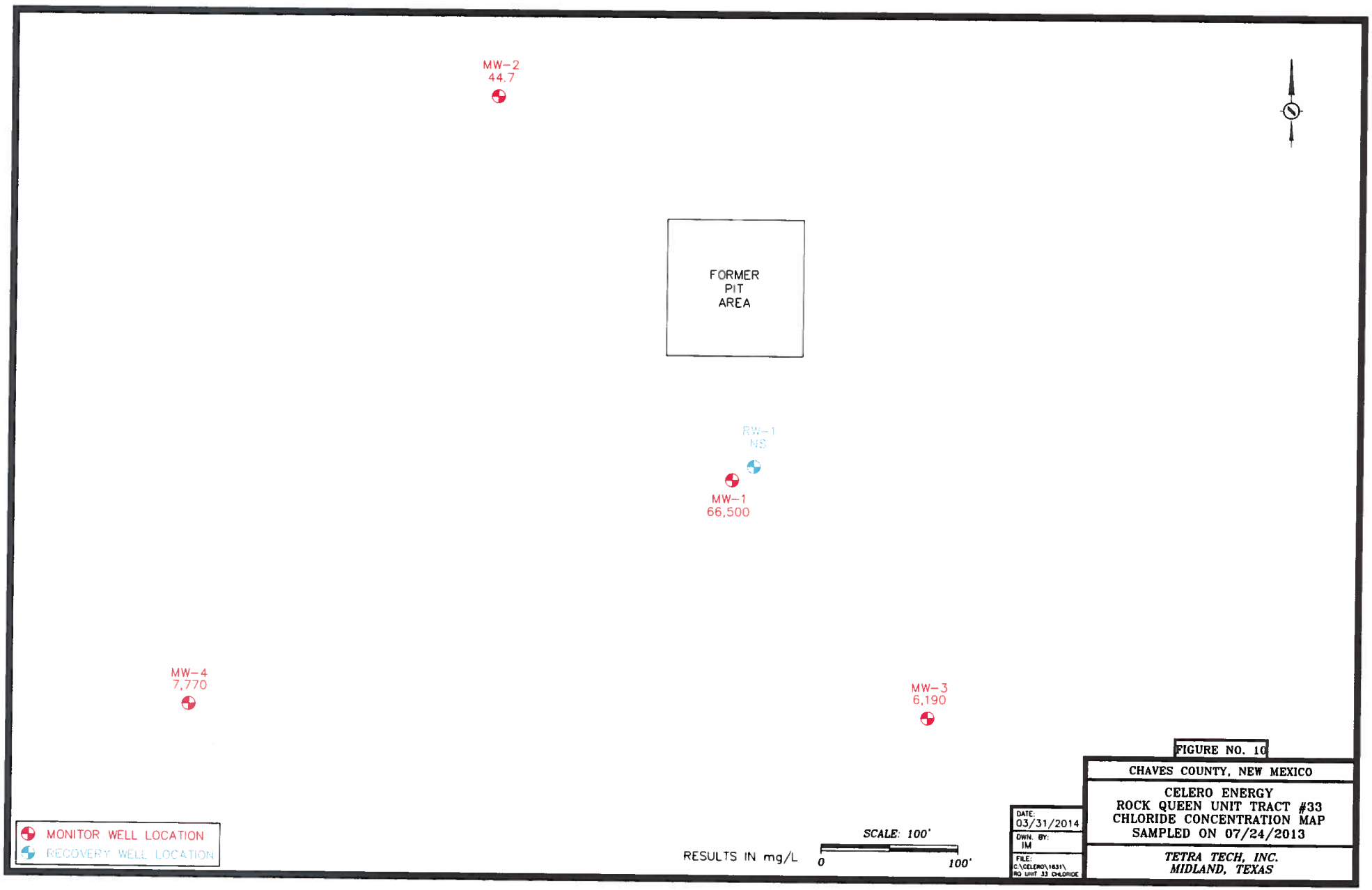

FIGURE NO. 10

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 07/24/2013

TETRA TECH, INC.
MIDLAND, TEXAS

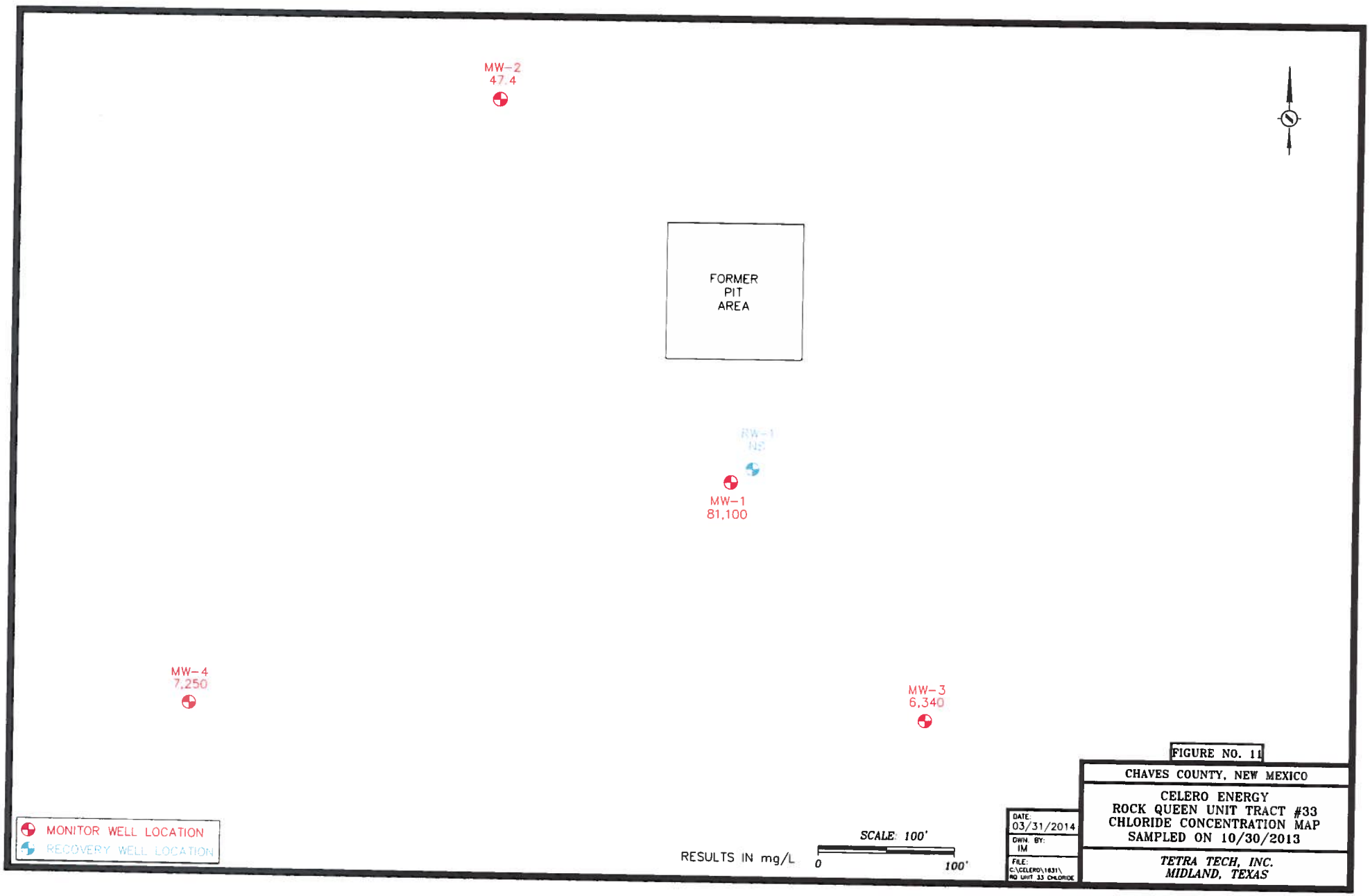

FIGURE NO. 11

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/30/2013

TETRA TECH, INC.
MIDLAND, TEXAS

TABLES

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract 33 Tank Battery
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	12/28/09	12/10/09	4,417.04	153.75	112.14	4,304.90
	02/25/10			153.25	112.09	4,304.95
	07/12/10			153.25	112.07	4,304.97
	10/11/10			153.25	112.11	4,304.93
	01/17/11			153.25	112.04	4,305.00
	04/12/11			153.25	112.00	4,305.04
	07/27/11			153.25	112.79	4,304.25
	10/24/11			153.25	112.04	4,305.00
	01/03/12			153.25	112.09	4,304.95
	04/09/12			153.25	112.09	4,304.95
	07/23/12			153.25	112.08	4,304.96
	10/24/12			153.25	112.21	4,304.83
	01/29/13			153.25	112.20	4,304.84
	04/22/13			153.25	112.19	4,304.85
	07/24/13			153.25	112.25	4,304.79
	10/30/13			153.25	112.30	4,304.74
MW-2	01/17/11	11/30/10	4,417.96	129.00	111.19	4,306.77
	04/12/11			129.00	111.18	4,306.78
	07/27/11			129.00	111.93	4,306.03
	10/24/11			129.00	111.21	4,306.75
	01/03/12			129.00	111.18	4,306.78
	04/09/12			129.00	111.21	4,306.75
	07/23/12			129.00	111.17	4,306.79
	10/24/12			129.00	111.27	4,306.69
	01/29/13			129.00	111.12	4,306.84
	04/22/13			129.00	111.19	4,306.77
	07/24/13			127.00	111.23	4,306.73
	10/30/13			127.00	111.28	4,306.68
MW-3	01/17/11	11/18/10	4,416.05	129.53	111.78	4,304.27
	04/12/11			129.53	111.75	4,304.30
	07/27/11			129.53	112.55	4,303.50
	10/24/11			129.53	111.78	4,304.27
	01/03/12			129.53	111.80	4,304.25
	04/09/12			129.53	111.76	4,304.29
	07/23/12			129.53	111.74	4,304.31

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract 33 Tank Battery
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	10/24/12			129.53	111.85	4,304.20
	01/29/13			129.53	111.84	4,304.21
	04/22/13			129.53	111.82	4,304.23
	07/24/13			127.53	111.88	4,304.17
	10/30/13			127.53	111.92	4,304.13
MW-4	01/17/11	11/30/10	4,417.87	128.45	115.08	4,302.79
	04/12/11			128.45	115.05	4,302.82
	07/27/11			128.45	115.85	4,302.02
	10/24/11			128.45	115.13	4,302.74
	01/03/12			128.45	115.11	4,302.76
	04/09/12			128.45	115.09	4,302.78
	07/23/12			128.45	115.13	4,302.74
	10/24/12			128.45	115.18	4,302.69
	01/29/13			128.45	115.14	4,302.73
	04/22/13			128.45	115.11	4,302.76
	07/24/13			128.45	115.12	4,302.75
	10/30/13			128.45	115.20	4,302.67
RW-1	01/17/11	12/06/10	4,416.61	128.65	111.22	4,305.39
	04/12/11			128.65	111.03	4,305.58
	07/27/11			128.65	112.01	4,304.60
	10/24/11			128.65	111.21	4,305.40
	01/03/12			128.65	111.24	4,305.37
	04/09/12			128.65	111.23	4,305.38
	07/23/12			128.65	111.29	4,305.32
	10/24/12			128.65	111.38	4,305.23
	01/29/13			128.65	111.35	4,305.26
	04/22/13			128.65	111.38	4,305.23
	07/24/13			128.65	111.46	4,305.15
	10/30/13			128.65	111.58	4,305.03

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #33 Tank Battery
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	12/28/09	607	156	1,080	13.3	<1.00	<1.00	134	134	99.3	3,220	5,430	2,160	7.33
	02/25/10	8,440	3,140	13,700	185.0	<1.00	<1.00	98	98	604	46,800	90,100	34,000	6.44
	07/13/10	-	-	-	-	-	-	-	-	613	63,500	102,000	-	-
	10/11/10	-	-	-	-	-	-	-	-	1,070	88,700	161,000	-	-
	01/21/11	-	-	-	-	-	-	-	-	1,050	81,200	134,000	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,010	77,400	116,000	-	-
	07/28/11	-	-	-	-	-	-	-	-	1,080	83,600	124,000	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,070	73,300	120,000	-	-
	01/04/12	-	-	-	-	-	-	-	-	932	82,200	113,000	-	-
	04/12/12	-	-	-	-	-	-	-	-	1,070	89,400	111,000	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	69,500	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,090	74,300	115,000	-	-
	01/30/13	-	-	-	-	-	-	-	-	794	68,800	116,000	-	-
	04/23/13	7,440	3,470	31,900	167.0	<1.00	<1.00	145	145	945	57,000	111,000	32,900	6.16
	07/24/13	6,370	2,830	27,500	211.0	<20.0	<20.0	293	293	<12500	66,500	148,000	27,600	6.36
	10/30/13	7,020	3,340	28,900	207.0	<20.0	<20.0	143	143	881	81,100	94,900	31,300	6.54
MW-2	01/21/11	-	-	-	-	-	-	-	-	124	55.6	2,010	-	-
	04/14/11	-	-	-	-	-	-	-	-	133	48.5	544	-	-
	07/28/11									171	55.1	576		
	10/28/11	-	-	-	-	-	-	-	-	163	45.4	566	-	-
	01/04/12	-	-	-	-	-	-	-	-	173	43.2	660	-	-
	04/12/12	-	-	-	-	-	-	-	-	167	42.4	598	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	51.9	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	98.2	29.7	624	-	-
	01/30/13	-	-	-	-	-	-	-	-	177	48.2	608	-	-
	04/23/13	66.4	23.3	114	0.550	<1.00	<1.00	150	150	180	38.1	848	262	7.98
	07/24/13	74.1	11.6	76	2.770	<20.0	<20.0	189	189	183	44.7	688	233	8.14
	10/30/13	85.1	16.2	82.4	5.260	<20.0	<20.0	171	171	213	47.4	636	279	7.75
MW-3	01/21/11	-	-	-	-	-	-	-	-	132	5,370	10,600	-	-
	04/14/11	-	-	-	-	-	-	-	-	126	5,420	6,180	-	-
	07/28/11									155	6,950	9,820		
	10/28/11	-	-	-	-	-	-	-	-	143	5,860	11,100	-	-
	01/04/12	-	-	-	-	-	-	-	-	150	6,380	10,200	-	-

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #33 Tank Battery
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-3	04/12/12	-	-	-	-	-	-	-	-	145	6,280	11,200	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	6,310	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	149	6,210	11,100	-	-
	01/30/13	-	-	-	-	-	-	-	-	236	6,910	11,600	-	-
	04/23/13	2,850	645	420	6.47	<1.00	<1.00	73.0	73.0	185	6,930	13,100	9,770	6.85
	07/24/13	2,370	470	365	15.50	<20.0	<20.0	74.0	74.0	<1250	6,190	13,400	7,850	7.18
	10/30/13	2,340	540	373	21.20	<20.0	<20.0	82.0	82.0	135	6,340	12,200	8,070	6.94
MW-4	01/21/11	-	-	-	-	-	-	-	-	230	6,510	18,400	-	-
	04/14/11	-	-	-	-	-	-	-	-	236	7,410	25,400	-	-
	07/28/11									258	5,450	12,700		
	10/28/11	-	-	-	-	-	-	-	-	324	8,170	15,600	-	-
	01/04/12	-	-	-	-	-	-	-	-	247	8,320	20,300	-	-
	04/12/12	-	-	-	-	-	-	-	-	232	7,850	12,900	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	8,270	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	281	8,000	9,800	-	-
	01/30/13	-	-	-	-	-	-	-	-	143	5,740	9,530	-	-
	04/23/13	2,680	615	2,110	7.61	<1.00	<1.00	72.0	72.0	278	9,640	16,600	9,220	6.99
	07/24/13	1,800	442	1,520	15.00	<20.0	<20.0	74.0	74.0	<1250	7,770	17,600	6,320	7.21
	10/30/13	1,820	460	1,700	18.00	<20.0	<20.0	105.0	105.0	238	7,250	14,700	6,450	7.09
RW-1	01/21/11	-	-	-	-	-	-	-	-	NS	NS	NS	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,070	83,700	122,000	-	-
	07/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/04/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/12/12	-	-	-	-	-	-	-	-	NS	NS	NS	-	-
	07/24/12	-	-	-	-	-	-	-	-	NS	NS	NS	-	-
	10/25/12	-	-	-	-	-	-	-	-	NS	NS	NS	-	-
	01/30/13	-	-	-	-	-	-	-	-	NS	NS	NS	-	-
	04/23/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/24/13	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 33 Tank Battery
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	12/28/09	<0.001	<0.001	<0.001	<0.001	<0.001
	02/25/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	0.002	0.0015	<0.001	<0.001	0.0035
	10/11/10	0.0048	<0.001	<0.001	<0.001	0.0048
	01/21/11	0.0121	0.0066	<0.001	<0.001	0.0187
	04/14/11	0.0076	<0.001	<0.001	<0.001	0.0076
	07/28/11	0.0114	<0.001	<0.001	<0.001	0.0114
	10/28/11	0.0020	<0.0010	<0.0010	0.0365	0.0385
	01/04/12	0.0068	0.0020	<0.0010	<0.0010	0.0088
	04/12/12	0.0089	<0.0010	<0.0010	<0.0010	0.0089
	10/25/12	0.0069	<0.0010	<0.0010	<0.0010	0.0069
	01/30/13	0.0045	<0.0010	<0.0010	<0.0010	<0.0010
	04/23/13	0.0038	<0.0010	<0.0010	<0.0010	0.0039
	07/24/13	0.0040	<0.0010	<0.0010	<0.0010	0.0040
	10/30/13	0.0026	0.0014	<0.001	<0.001	0.0040
MW-2	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	04/23/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	07/24/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	10/30/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
MW-3	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	04/23/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	07/24/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	10/30/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract 33 Tank Battery
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-4	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	04/23/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	07/24/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	10/30/13	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
RW-1	01/21/11	NS	NS	NS	NS	NS
	04/14/11	0.0124	0.007	<0.001	0.0176	0.0370
	07/28/11	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS
	01/04/12	NS	NS	NS	NS	NS
	04/12/12	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS
	01/30/13	NS	NS	NS	NS	NS
	04/23/13	NS	NS	NS	NS	NS
	07/24/13	NS	NS	NS	NS	NS
	10/30/13	NS	NS	NS	NS	NS

NS Not Sampled

APPENDIX A
LABORATORY ANALYTICAL

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972•242•7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

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 15, 2013

Work Order: 13020138

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #33
Project Number: 114-6401631

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
320204	MW-1	water	2013-01-30	15:10	2013-02-01
320205	MW-2	water	2013-01-30	15:20	2013-02-01
320206	MW-3	water	2013-01-30	15:30	2013-02-01
320207	MW-4	water	2013-01-30	15:40	2013-02-01

Report Corrections (Work Order 13020138)

- 2/15/13: Client requested a j-flag report.

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.

Notes:

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

Michael Abel

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2013-02-01 and assigned to work order 13020138. Samples for work order 13020138 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	83715	2013-02-08 at 12:00	98791	2013-02-08 at 12:00
Chloride (IC)	E 300.0	83644	2013-02-05 at 09:46	98815	2013-02-06 at 13:35
Chloride (IC)	E 300.0	83645	2013-02-06 at 09:48	98819	2013-02-06 at 14:14
Chloride (IC)	E 300.0	83645	2013-02-06 at 09:48	98820	2013-02-06 at 14:15
SO4 (IC)	E 300.0	83644	2013-02-05 at 09:46	98815	2013-02-06 at 13:35
SO4 (IC)	E 300.0	83645	2013-02-06 at 09:48	98819	2013-02-06 at 14:14
SO4 (IC)	E 300.0	83645	2013-02-06 at 09:48	98820	2013-02-06 at 14:15
TDS	SM 2540C	83642	2013-02-05 at 09:17	98844	2013-02-05 at 16:07
TDS	SM 2540C	83642	2013-02-05 at 09:17	98845	2013-02-06 at 16:08

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 13020138 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: 320204 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 98791
Prep Batch: 83715

Analytical Method: S 8021B
Date Analyzed: 2013-02-08
Sample Preparation: 2013-02-08

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

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene		1	**0.00450**	**0.00450**	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	1	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	1	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	U	1	<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)	Q8r		0.213	mg/L	1	0.100	213	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0802	mg/L	1	0.100	80	68.1 - 109

Sample: 320204 - MW-1

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98815
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-05

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)
Chloride		1	**68800**	**68800**	<1320	mg/L	5000	1320	2.5	0.265

Sample: 320204 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98820
Prep Batch: 83645

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-06

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)
Sulfate	J	1	**794**	<1250	<88.5	mg/L	500	88.5	2.5	0.177

Sample: 320204 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 98844
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	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		1	**116000**	**116000**	<1950	mg/L	200	1950	10	9.75

Sample: 320205 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 98791
Prep Batch: 83715

Analytical Method: S 8021B
Date Analyzed: 2013-02-08
Sample Preparation: 2013-02-08

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

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	U	1	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	1	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	1	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	U	1	<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)	QHT		0.117	mg/L	1	0.100	117	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.100	mg/L	1	0.100	100	68.1 - 109

Sample: 320205 - MW-2

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98815
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-05

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)
Chloride		1	**48.2**	**48.2**	<1.32	mg/L	5	1.32	2.5	0.265

Sample: 320205 - MW-2

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98815
Prep Batch: 83644

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-05

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)
Sulfate		1	**177**	**177**	<0.885	mg/L	5	0.885	2.5	0.177

Sample: 320205 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 98844
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	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		1	**608**	**608**	<19.5	mg/L	2	19.5	10	9.75

Sample: 320206 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 98791
Prep Batch: 83715

Analytical Method: S 8021B
Date Analyzed: 2013-02-08
Sample Preparation: 2013-02-08

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

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	U	1	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	1	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	1	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	U	1	<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)	QHF		0.116	mg/L	1	0.100	116	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0989	mg/L	1	0.100	99	68.1 - 109

Sample: 320206 - MW-3

Laboratory: Midland

Analysis: Chloride (IC)
QC Batch: 98819
Prep Batch: 83645

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-06

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)
Chloride	Q*	1	**6910**	**6910**	<132	mg/L	500	132	2.5	0.265

Sample: 320206 - MW-3

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98819
Prep Batch: 83645

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-06

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)
Sulfate		1	**236**	**236**	<8.85	mg/L	50	8.85	2.5	0.177

Sample: 320206 - MW-3

Laboratory: Midland
Analysis: TDS
QC Batch: 98845
Prep Batch: 83642

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

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		1	**11600**	**11600**	<195	mg/L	20	195	10	9.75

Sample: 320207 - MW-4

Laboratory: Midland
Analysis: BTEX
QC Batch: 98791
Prep Batch: 83715

Analytical Method: S 8021B
Date Analyzed: 2013-02-08
Sample Preparation: 2013-02-08

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

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	U	1	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002

continued ...

sample 320207 continued . . .

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Toluene	U	1	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	1	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	U	1	<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)	Qsr		0.116	mg/L	1	0.100	116	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.100	mg/L	1	0.100	100	68.1 - 109

Sample: 320207 - MW-4

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98820
Prep Batch: 83645

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-06

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)
Chloride	Qs	1	**5740**	**5740**	<132	mg/L	500	132	2.5	0.265

Sample: 320207 - MW-4

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98820
Prep Batch: 83645

Analytical Method: E 300.0
Date Analyzed: 2013-02-06
Sample Preparation: 2013-02-06

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)
Sulfate		1	**143**	**143**	<8.85	mg/L	50	8.85	2.5	0.177

Sample: 320207 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 98845
Prep Batch: 83642

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

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		1	**9530**	**9530**	<97.5	mg/L	10	97.5	10	9.75

Method Blanks

Method Blank (1)

QC Batch: 98791
Prep Batch: 83715

Date Analyzed: 2013-02-08
QC Preparation: 2013-02-08

Analyzed By: YG
Prepared By: YG

Parameter	F	C	Result	Units	Reporting Limits
Benzene		1	<0.000200	mg/L	0.0002
Toluene		1	<0.000300	mg/L	0.0003
Ethylbenzene		1	<0.000400	mg/L	0.0004
Xylene		1	<0.00120	mg/L	0.0012

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	QBR		0.116	mg/L	1	0.100	116	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0990	mg/L	1	0.100	99	68.1 - 109

Method Blank (1)

QC Batch: 98815
Prep Batch: 83644

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	1.03	mg/L	0.265

Method Blank (1)

QC Batch: 98815
Prep Batch: 83644

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Sulfate		1	<0.177	mg/L	0.177

Method Blank (1)

QC Batch: 98819
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	<0.265	mg/L	0.265

Method Blank (1)

QC Batch: 98819
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Sulfate		1	<0.177	mg/L	0.177

Method Blank (1)

QC Batch: 98820
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	0.980	mg/L	0.265

Method Blank (1)

QC Batch: 98820
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Sulfate		1	<0.177	mg/L	0.177

Method Blank (1)

QC Batch: 98844
Prep Batch: 83642

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

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Total Dissolved Solids		1	<9.75	mg/L	9.75

Method Blank (1)

QC Batch: 98845
Prep Batch: 83642

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Total Dissolved Solids		1	<9.75	mg/L	9.75

Duplicate (1) Duplicated Sample: 320196

QC Batch: 98844
Prep Batch: 83642

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

Analyzed By: AR
Prepared By: AR

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1	45000	49200	mg/L	200	9	10

Duplicate (1) Duplicated Sample: 320206

QC Batch: 98845
Prep Batch: 83642

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-05

Analyzed By: AR
Prepared By: AR

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1	11600	11600	mg/L	20	0	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 98791
Prep Batch: 83715

Date Analyzed: 2013-02-08
QC Preparation: 2013-02-08

Analyzed By: YG
Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.107	mg/L	1	0.100	<0.000200	107	80 - 120
Toluene		1	0.108	mg/L	1	0.100	<0.000300	108	80 - 120
Ethylbenzene		1	0.112	mg/L	1	0.100	<0.000400	112	70.6 - 120
Xylene		1	0.346	mg/L	1	0.300	<0.00120	115	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	0.105	mg/L	1	0.100	<0.000200	105	80 - 120	2	20
Toluene		1	0.106	mg/L	1	0.100	<0.000300	106	80 - 120	2	20
Ethylbenzene		1	0.110	mg/L	1	0.100	<0.000400	110	70.6 - 120	2	20
Xylene		1	0.340	mg/L	1	0.300	<0.00120	113	79.2 - 120	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)	Qar		0.116	0.116	mg/L	1	0.100	116	116	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.104	0.102	mg/L	1	0.100	104	102	68.1 - 109

Laboratory Control Spike (LCS-1)

QC Batch: 98815
Prep Batch: 83644

Date Analyzed: 2013-02-06
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	24.2	mg/L	1	25.0	<0.265	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
Chloride		1	23.7	mg/L	1	25.0	<0.265	95	90 - 110	2	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: 98815
Prep Batch: 83644

Date Analyzed: 2013-02-06
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	25.5	mg/L	1	25.0	<0.177	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
Sulfate		1	25.7	mg/L	1	25.0	<0.177	103	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: 98819
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.4	mg/L	1	25.0	<0.265	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	24.1	mg/L	1	25.0	<0.265	96	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: 98819
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.8	mg/L	1	25.0	<0.177	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	<0.177	102	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: 98820 | Date Analyzed: 2013-02-06 | Analyzed By: AR
Prep Batch: 83645 | QC Preparation: 2013-02-06 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.2	mg/L	1	25.0	<0.265	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
Chloride		1	23.8	mg/L	1	25.0	<0.265	95	90 - 110	2	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: 98820 | Date Analyzed: 2013-02-06 | Analyzed By: AR
Prep Batch: 83645 | QC Preparation: 2013-02-06 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.6	mg/L	1	25.0	<0.177	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
Sulfate		1	25.8	mg/L	1	25.0	<0.177	103	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: 98844 | Date Analyzed: 2013-02-05 | Analyzed By: AR
Prep Batch: 83642 | QC Preparation: 2013-02-05 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	998	mg/L	1	1000	<9.75	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
Total Dissolved Solids		1	970	mg/L	1	1000	<9.75	97	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: 98845
Prep Batch: 83642
Date Analyzed: 2013-02-06
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	962	mg/L	1	1000	<9.75	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
Total Dissolved Solids		1	948	mg/L	1	1000	<9.75	95	90 - 110	2	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: 320204

QC Batch: 98791
Prep Batch: 83715
Date Analyzed: 2013-02-08
QC Preparation: 2013-02-08
Analyzed By: YG
Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.106	mg/L	1	0.100	0.0045	102	25.7 - 139
Toluene		1	0.0953	mg/L	1	0.100	<0.000300	95	32.7 - 134
Ethylbenzene		1	0.0906	mg/L	1	0.100	<0.000400	91	45.9 - 120
Xylene		1	0.302	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	0.110	mg/L	1	0.100	0.0045	106	25.7 - 139	4	20
Toluene		1	0.0970	mg/L	1	0.100	<0.000300	97	32.7 - 134	2	20
Ethylbenzene		1	0.0921	mg/L	1	0.100	<0.000400	92	45.9 - 120	2	20
Xylene		1	0.306	mg/L	1	0.300	<0.00120	102	34.9 - 128	1	20

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

continued ...

matrix spikes continued ...

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	Qsr		0.215	0.215	mg/L	1	0.1	215	215	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0800	0.0810	mg/L	1	0.1	80	81	68.1 - 109

Matrix Spike (MS-1) Spiked Sample: 320201

QC Batch: 98815
Prep Batch: 83644

Date Analyzed: 2013-02-06
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	240	mg/L	5	150	72.6	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	240	mg/L	5	150	72.6	112	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: 320201

QC Batch: 98815
Prep Batch: 83644

Date Analyzed: 2013-02-06
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	278	mg/L	5	150	142	91	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	277	mg/L	5	150	142	90	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: 320206

QC Batch: 98819
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	1	26900	mg/L	500	15000	6910	133	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	Qs	1	27100	mg/L	500	15000	6910	135	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: 320206

QC Batch: 98819
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	15600	mg/L	500	15000	<88.5	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	15500	mg/L	500	15000	<88.5	103	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: 320207

QC Batch: 98820
Prep Batch: 83645

Date Analyzed: 2013-02-06
QC Preparation: 2013-02-06

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	1	24400	mg/L	500	15000	5740	124	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	Qs	1	24400	mg/L	500	15000	5740	124	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: 320207

QC Batch: 98820 | Date Analyzed: 2013-02-06 | Analyzed By: AR
Prep Batch: 83645 | QC Preparation: 2013-02-06 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	15600	mg/L	500	15000	<88.5	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	15600	mg/L	500	15000	<88.5	104	80 - 120	0	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: 98791 Date Analyzed: 2013-02-08 Analyzed By: YG

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.107	107	80 - 120	2013-02-08
Toluene		1	mg/L	0.100	0.109	109	80 - 120	2013-02-08
Ethylbenzene		1	mg/L	0.100	0.113	113	80 - 120	2013-02-08
Xylene		1	mg/L	0.300	0.348	116	80 - 120	2013-02-08

Standard (CCV-2)

QC Batch: 98791 Date Analyzed: 2013-02-08 Analyzed By: YG

Param	F	C	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	2013-02-08
Toluene		1	mg/L	0.100	0.105	105	80 - 120	2013-02-08
Ethylbenzene		1	mg/L	0.100	0.109	109	80 - 120	2013-02-08
Xylene		1	mg/L	0.300	0.336	112	80 - 120	2013-02-08

Standard (CCV-3)

QC Batch: 98791 Date Analyzed: 2013-02-08 Analyzed By: YG

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.107	107	80 - 120	2013-02-08
Toluene		1	mg/L	0.100	0.108	108	80 - 120	2013-02-08
Ethylbenzene		1	mg/L	0.100	0.112	112	80 - 120	2013-02-08
Xylene		1	mg/L	0.300	0.347	116	80 - 120	2013-02-08

Standard (CCV-1)

QC Batch: 98815 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.6	94	90 - 110	2013-02-06

Standard (CCV-1)

QC Batch: 98815 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.4	102	90 - 110	2013-02-06

Standard (CCV-2)

QC Batch: 98815 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.6	94	90 - 110	2013-02-06

Standard (CCV-2)

QC Batch: 98815 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.5	102	90 - 110	2013-02-06

Standard (CCV-1)

QC Batch: 98819 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.8	95	90 - 110	2013-02-06

Standard (CCV-1)

QC Batch: 98819 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.4	102	90 - 110	2013-02-06

Standard (CCV-2)

QC Batch: 98819 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.8	95	90 - 110	2013-02-06

Standard (CCV-2)

QC Batch: 98819 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.5	102	90 - 110	2013-02-06

Standard (CCV-1)

QC Batch: 98820 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.8	95	90 - 110	2013-02-06

Standard (CCV-1)

QC Batch: 98820 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.5	102	90 - 110	2013-02-06

Standard (CCV-2)

QC Batch: 98820 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.9	96	90 - 110	2013-02-06

Standard (CCV-2)

QC Batch: 98820 Date Analyzed: 2013-02-06 Analyzed By: AR

Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.4	102	90 - 110	2013-02-06

Limits of Detection (LOD)

Test	Method	Matrix	Instrument	Analyte	Spike Amount	Pass
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
Chloride (IC)	E 300.0	water	Dionex IC	Chloride	0.625	Pass
SO4 (IC)	E 300.0	water	Dionex IC	Sulfate	0.500	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	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

Attachments

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

130201 38

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

114-6401631

CLIENT NAME: Celero Energy

SITE MANAGER: Jeff Kindley

PROJECT NO.: ~~114-6401337A~~

PROJECT NAME: Celero- Rock Queen #33

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS	
320204	1/30/13	1510	W		X	MW 1	4		X		X		X											X				X	
205		1520	W		X	MW 2	4		X		X		X											X				X	
206		1530	W		X	MW 3	4		X		X		X											X				X	
207		1540	W		X	MW 4	4		X		X		X											X				X	

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) — Date: 2-1-13 Time: 1415

RECEIVED BY: (Signature) — Date: 2.4.13 Time:

RELINQUISHED BY: (Signature) — Date: Time:

RECEIVED BY: (Signature) — Date: Time:

RELINQUISHED BY: (Signature) — Date: Time:

RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) Ryan Reith / Marcus Bujanowski — Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

RECEIVING LABORATORY: Trace

ADDRESS:

CITY: Midland STATE: ZIP:

CONTACT: PHONE:

RECEIVED BY: (Signature)

DATE: TIME:

TETRA TECH CONTACT PERSON: Jeff Kindley

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: -2.1

REMARKS: BTEX, Cl, SO4, TDS

Midland.cc

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

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1296
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

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 10, 2013

Work Order: 13042624

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #33
Project Number: 114-6401631

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
327425	MW-1	water	2013-04-23	09:00	2013-04-25
327426	MW-2	water	2013-04-23	09:10	2013-04-25
327427	MW-3	water	2013-04-23	09:30	2013-04-25
327428	MW-4	water	2013-04-23	09:20	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 37 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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2013-04-25 and assigned to work order 13042624. Samples for work order 13042624 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	85787	2013-05-09 at 12:00	101222	2013-05-09 at 13:30
Alkalinity	SM 2320B	85823	2013-05-10 at 13:00	101270	2013-05-10 at 13:15
BTEX	S 8021B	85619	2013-05-02 at 13:34	101013	2013-05-02 at 13:36
Ca, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101129	2013-05-07 at 10:03
Chloride (IC)	E 300.0	85713	2013-05-07 at 08:00	101154	2013-05-07 at 08:37
Hardness	S 6010C	85572	2013-05-01 at 12:02	101129	2013-05-07 at 10:03
K, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101129	2013-05-07 at 10:03
Mg, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101129	2013-05-07 at 10:03
Na, Dissolved	S 6010C	85572	2013-05-01 at 12:02	101129	2013-05-07 at 10:03
pH	SM 4500-H+	85498	2013-04-26 at 16:03	100886	2013-04-26 at 17:10
SO4 (IC)	E 300.0	85713	2013-05-07 at 08:00	101154	2013-05-07 at 08:37
SO4 (IC)	E 300.0	85754	2013-05-08 at 08:30	101181	2013-05-08 at 09:27
TDS	SM 2540C	85528	2013-04-27 at 13:21	100915	2013-04-29 at 16:21

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 13042624 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: 327425 - MW-1

Laboratory:	Lubbock				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	101222	Date Analyzed:	2013-05-09	Analyzed By:	LM
Prep Batch:	85787	Sample Preparation:	2013-05-09	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	**145**	**145**	<1.00	mg/L as CaCo3	1	1.00	1	1
Total Alkalinity		1	**145**	**145**	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327425 - MW-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	101013	Date Analyzed:	2013-05-02	Analyzed By:	AH
Prep Batch:	85619	Sample Preparation:	2013-05-01	Prepared By:	AH

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene		2	**0.00380**	**0.00380**	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	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)	Q-R		0.141	mg/L	1	0.100	141	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0824	mg/L	1	0.100	82	70 - 130

Sample: 327425 - MW-1

Laboratory:	Lubbock				
Analysis:	Ca, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	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	**7440**	**7440**	<4.41	mg/L	100	4.41	1	0.0441

Sample: 327425 - MW-1

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101154
Prep Batch: 85713

Analytical Method: E 300.0
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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	**57000**	**57000**	<845	mg/L	5000	845	2.5	0.169

Sample: 327425 - MW-1

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101129
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)			**32900**	**32900**	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327425 - MW-1

Laboratory: Lubbock
Analysis: K, Dissolved
QC Batch: 101129
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	**167**	**167**	<4.43	mg/L	100	4.43	1	0.0443

Sample: 327425 - MW-1

Laboratory: Lubbock
Analysis: Mg, Dissolved

Analytical Method: S 6010C

Prep Method: S 3005A

QC Batch: 101129 | Date Analyzed: 2013-05-07 | Analyzed By: RR
Prep Batch: 85572 | Sample Preparation: 2013-05-01 | 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	**3470**	**3470**	<2.96	mg/L	100	2.96	1	0.0296

Sample: 327425 - MW-1

Laboratory: Lubbock
Analysis: Na, Dissolved | Analytical Method: S 6010C | Prep Method: S 3005A
QC Batch: 101129 | Date Analyzed: 2013-05-07 | Analyzed By: RR
Prep Batch: 85572 | Sample Preparation: 2013-05-01 | 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	**31900**	**31900**	<172	mg/L	1000	172	1	0.172

Sample: 327425 - MW-1

Laboratory: Midland
Analysis: pH | Analytical Method: SM 4500-H+ | Prep Method: N/A
QC Batch: 100886 | Date Analyzed: 2013-04-26 | Analyzed By: AR
Prep Batch: 85498 | Sample Preparation: 2013-04-26 | Prepared By: AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	6.16	s.u.	1	0

Sample: 327425 - MW-1

Laboratory: Lubbock
Analysis: SO4 (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 101181 | Date Analyzed: 2013-05-08 | Analyzed By: RL
Prep Batch: 85754 | Sample Preparation: 2013-05-08 | 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	**945**	<2500	<224	mg/L	1000	224	2.5	0.224

Sample: 327425 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 100915
Prep Batch: 85528

Analytical Method: SM 2540C
Date Analyzed: 2013-04-29
Sample Preparation: 2013-04-27

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	**111000**	**111000**	<975	mg/L	100	975	10	9.75

Sample: 327426 - MW-2

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101270
Prep Batch: 85823

Analytical Method: SM 2320B
Date Analyzed: 2013-05-10
Sample Preparation: 2013-05-10

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	**150**	**150**	<1.00	mg/L as CaCo3	1	1.00	1	1
Total Alkalinity		1	**150**	**150**	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327426 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 101013
Prep Batch: 85619

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	U	2	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	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)			0.0978	mg/L	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0959	mg/L	1	0.100	96	70 - 130

Sample: 327426 - MW-2

Laboratory:	Lubbock				
Analysis:	Ca, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	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	**66.4**	**66.4**	<0.0441	mg/L	1	0.0441	1	0.0441

Sample: 327426 - MW-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	101154	Date Analyzed:	2013-05-07	Analyzed By:	RL
Prep Batch:	85713	Sample Preparation:	2013-05-07	Prepared By:	RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	**38.1**	**38.1**	<0.845	mg/L	5	0.845	2.5	0.169

Sample: 327426 - MW-2

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	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)			**262**	**262**	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327426 - MW-2

Laboratory:	Lubbock				
Analysis:	K, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	Prepared By:	KV

continued ...

sample 327426 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	J	1	**0.550**	<1.00	<0.0443	mg/L	1	0.0443	1	0.0443

Sample: 327426 - MW-2

Laboratory:	Lubbock				
Analysis:	Mg, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	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	**23.3**	**23.3**	<0.0296	mg/L	1	0.0296	1	0.0296

Sample: 327426 - MW-2

Laboratory:	Lubbock				
Analysis:	Na, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	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	**114**	**114**	<0.172	mg/L	1	0.172	1	0.172

Sample: 327426 - MW-2

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	100886	Date Analyzed:	2013-04-26	Analyzed By:	AR
Prep Batch:	85498	Sample Preparation:	2013-04-26	Prepared By:	AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	7.98	s.u.	1	0

Sample: 327426 - MW-2

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101154
Prep Batch: 85713

Analytical Method: E 300.0
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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	**180**	**180**	<1.12	mg/L	5	1.12	2.5	0.224

Sample: 327426 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 100915
Prep Batch: 85528

Analytical Method: SM 2540C
Date Analyzed: 2013-04-29
Sample Preparation: 2013-04-27

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	**848**	**848**	<19.5	mg/L	2	19.5	10	9.75

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101270
Prep Batch: 85823

Analytical Method: SM 2320B
Date Analyzed: 2013-05-10
Sample Preparation: 2013-05-10

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	**73.0**	**73.0**	<1.00	mg/L as CaCo3	1	1.00	1	1
Total Alkalinity		1	**73.0**	**73.0**	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327427 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 101013
Prep Batch: 85619

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	U	2	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	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)			0.0972	mg/L	1	0.100	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0952	mg/L	1	0.100	95	70 - 130

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: Ca, Dissolved
QC Batch: 101129
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	**2850**	**2850**	<4.41	mg/L	100	4.41	1	0.0441

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101154
Prep Batch: 85713
Analytical Method: E 300.0
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07
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	**6930**	**6930**	<84.5	mg/L	500	84.5	2.5	0.169

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101129
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)			**9770**	**9770**	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: K, Dissolved — Analytical Method: S 6010C — Prep Method: S 3005A
QC Batch: 101129 — Date Analyzed: 2013-05-07 — Analyzed By: RR
Prep Batch: 85572 — Sample Preparation: 2013-05-01 — Prepared By: KV

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Dissolved Potassium	J	1	**6.47**	<10.0	<0.443	mg/L	10	0.443	1	0.0443

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: Mg, Dissolved — Analytical Method: S 6010C — Prep Method: S 3005A
QC Batch: 101129 — Date Analyzed: 2013-05-07 — Analyzed By: RR
Prep Batch: 85572 — Sample Preparation: 2013-05-01 — 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	**645**	**645**	<2.96	mg/L	100	2.96	1	0.0296

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: Na, Dissolved — Analytical Method: S 6010C — Prep Method: S 3005A
QC Batch: 101129 — Date Analyzed: 2013-05-07 — Analyzed By: RR
Prep Batch: 85572 — Sample Preparation: 2013-05-01 — 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	**420**	**420**	<17.2	mg/L	100	17.2	1	0.172

Sample: 327427 - MW-3

Laboratory: Midland
Analysis: pH — Analytical Method: SM 4500-H+ — Prep Method: N/A

QC Batch: 100886 | Date Analyzed: 2013-04-26 | Analyzed By: AR
Prep Batch: 85498 | Sample Preparation: 2013-04-26 | Prepared By: AR

Parameter	F	C	RL Result	Units	Dilution	RL
pH		2	6.85	s.u.	1	0

Sample: 327427 - MW-3

Laboratory: Lubbock
Analysis: SO4 (IC) | Analytical Method: E 300.0 | Prep Method: N/A
QC Batch: 101154 | Date Analyzed: 2013-05-07 | Analyzed By: RL
Prep Batch: 85713 | Sample Preparation: 2013-05-07 | 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	**185**	<1250	<112	mg/L	500	112	2.5	0.224

Sample: 327427 - MW-3

Laboratory: Midland
Analysis: TDS | Analytical Method: SM 2540C | Prep Method: N/A
QC Batch: 100915 | Date Analyzed: 2013-04-29 | Analyzed By: AR
Prep Batch: 85528 | Sample Preparation: 2013-04-27 | 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	**13100**	**13100**	<97.5	mg/L	10	97.5	10	9.75

Sample: 327428 - MW-4

Laboratory: Lubbock
Analysis: Alkalinity | Analytical Method: SM 2320B | Prep Method: N/A
QC Batch: 101270 | Date Analyzed: 2013-05-10 | Analyzed By: LM
Prep Batch: 85823 | Sample Preparation: 2013-05-10 | 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	**72.0**	**72.0**	<1.00	mg/L as CaCo3	1	1.00	1	1

continued ...

sample 327428 continued ...

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Alkalinity		1	**72.0**	**72.0**	<20.0	mg/L as CaCo3	1	20.0	20	20

Sample: 327428 - MW-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	101013	Date Analyzed:	2013-05-02	Analyzed By:	AH
Prep Batch:	85619	Sample Preparation:	2013-05-01	Prepared By:	AH

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Benzene	U	2	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	U	2	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	U	2	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	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)			0.0982	mg/L	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0952	mg/L	1	0.100	95	70 - 130

Sample: 327428 - MW-4

Laboratory:	Lubbock				
Analysis:	Ca, Dissolved	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	101129	Date Analyzed:	2013-05-07	Analyzed By:	RR
Prep Batch:	85572	Sample Preparation:	2013-05-01	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	**2680**	**2680**	<4.41	mg/L	100	4.41	1	0.0441

Sample: 327428 - MW-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	101154	Date Analyzed:	2013-05-07	Analyzed By:	RL
Prep Batch:	85713	Sample Preparation:	2013-05-07	Prepared By:	RL

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	**9640**	**9640**	<84.5	mg/L	500	84.5	2.5	0.169

Sample: 327428 - MW-4

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101129
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)			**9220**	**9220**	0.00	mg eq CaCO3/L	1	0.00		

Sample: 327428 - MW-4

Laboratory: Lubbock
Analysis: K, Dissolved
QC Batch: 101129
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	J	1	**7.61**	<10.0	<0.443	mg/L	10	0.443	1	0.0443

Sample: 327428 - MW-4

Laboratory: Lubbock
Analysis: Mg, Dissolved
QC Batch: 101129
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	**615**	**615**	<0.296	mg/L	10	0.296	1	0.0296

Sample: 327428 - MW-4

Laboratory: Lubbock
Analysis: Na, Dissolved
Analytical Method: S 6010C
Prep Method: S 3005A

QC Batch: 101129
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	**2110**	**2110**	<17.2	mg/L	100	17.2	1	0.172

Sample: 327428 - MW-4

Laboratory: Midland
Analysis: pH
QC Batch: 100886
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	6.99	s.u.	1	0

Sample: 327428 - MW-4

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101154
Prep Batch: 85713

Analytical Method: E 300.0
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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	**278**	<1250	<112	mg/L	500	112	2.5	0.224

Sample: 327428 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 100915
Prep Batch: 85528

Analytical Method: SM 2540C
Date Analyzed: 2013-04-29
Sample Preparation: 2013-04-27

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	**16600**	**16600**	<195	mg/L	20	195	10	9.75

Method Blanks

Method Blank (1)

QC Batch: 100915
Prep Batch: 85528

Date Analyzed: 2013-04-29
QC Preparation: 2013-04-27

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: 101013
Prep Batch: 85619

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

Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0995	mg/L	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0973	mg/L	1	0.100	97	70 - 130

Method Blank (1)

QC Batch: 101129
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: 101129
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: 101129
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: 101129
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 Sodium		1	<0.172	mg/L	0.172

Method Blank (1)

QC Batch: 101154
Prep Batch: 85713

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

Analyzed By: RL
Prepared By: RL

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	0.644	mg/L	0.169

Method Blank (1)

QC Batch: 101154
Prep Batch: 85713

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

Analyzed By: RL
Prepared By: RL

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

Method Blank (1)

QC Batch: 101181
Prep Batch: 85754

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

Analyzed By: RL
Prepared By: RL

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

Method Blank (1)

QC Batch: 101222
Prep Batch: 85787

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

Method Blank (1)

QC Batch: 101270
Prep Batch: 85823

Date Analyzed: 2013-05-10
QC Preparation: 2013-05-10

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	3.00	mg/L as CaCo3	1
Total Alkalinity		1	<20.0	mg/L as CaCo3	20

Duplicate (1) Duplicated Sample: 327422

QC Batch: 100886
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	6.73	6.68	s.u.	1	1	10

Duplicate (2) Duplicated Sample: 327422

QC Batch: 100915
Prep Batch: 85528

Date Analyzed: 2013-04-29
QC Preparation: 2013-04-27

Analyzed By: AR
Prepared By: AR

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		2	2230	2320	mg/L	2	4	10

Duplicate (1) Duplicated Sample: 327425

QC Batch: 101222
Prep Batch: 85787

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

Analyzed By: LM
Prepared By: LM

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		1	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		1	<1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		1	150	145	mg/L as CaCo3	1	3	20
Total Alkalinity		1	150	145	mg/L as CaCo3	1	3	20

Duplicate (1) Duplicated Sample: 328567

QC Batch: 101270
Prep Batch: 85823

Date Analyzed: 2013-05-10
QC Preparation: 2013-05-10

Analyzed By: LM
Prepared By: LM

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		1	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		1	12.0	14.0	mg/L as CaCo3	1	15	20
Bicarbonate Alkalinity		1	152	149	mg/L as CaCo3	1	2	20

continued ...

duplicate continued ...

Param	F	C	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Alkalinity		1	164	163	mg/L as CaCo3	1	1	20

Laboratory Control Spikes

Laboratory Control Spike (LCS-2)

QC Batch: 100915
Prep Batch: 85528

Date Analyzed: 2013-04-29
QC Preparation: 2013-04-27

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1070	mg/L	1	1000	<9.75	107	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	1050	mg/L	1	1000	<9.75	105	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: 101013
Prep Batch: 85619

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	0.0990	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	0.0953	mg/L	1	0.100	<0.000400	95	70 - 130
Xylene		2	0.277	mg/L	1	0.300	<0.00120	92	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	0.100	mg/L	1	0.100	<0.000200	100	70 - 130	1	20
Toluene		2	0.0989	mg/L	1	0.100	<0.000300	99	70 - 130	2	20
Ethylbenzene		2	0.0976	mg/L	1	0.100	<0.000400	98	70 - 130	2	20
Xylene		2	0.283	mg/L	1	0.300	<0.00120	94	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)			0.0995	0.0978	mg/L	1	0.100	100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0998	0.0980	mg/L	1	0.100	100	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101129
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: 101129
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: 101129
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

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: 101129
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: 101154
Prep Batch: 85713

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

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.8	mg/L	1	25.0	<0.169	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
Chloride		1	25.0	mg/L	1	25.0	<0.169	100	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: 101154
Prep Batch: 85713

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

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.6	mg/L	1	25.0	<0.224	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
Sulfate		1	26.2	mg/L	1	25.0	<0.224	105	90 - 110	2	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: 101181
Prep Batch: 85754

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

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	26.0	mg/L	1	25.0	<0.224	104	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: 327428

QC Batch: 101013
Prep Batch: 85619

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		2	0.0982	mg/L	1	0.100	<0.000200	98	70 - 130
Toluene		2	0.0944	mg/L	1	0.100	<0.000300	94	70 - 130
Ethylbenzene		2	0.0905	mg/L	1	0.100	<0.000400	90	70 - 130
Xylene		2	0.261	mg/L	1	0.300	<0.00120	87	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	0.0988	mg/L	1	0.100	<0.000200	99	70 - 130	1	20
Toluene		2	0.0954	mg/L	1	0.100	<0.000300	95	70 - 130	1	20
Ethylbenzene		2	0.0919	mg/L	1	0.100	<0.000400	92	70 - 130	2	20
Xylene		2	0.266	mg/L	1	0.300	<0.00120	89	70 - 130	2	20

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

continued ...

matrix spikes continued ...

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.0965	0.0970	mg/L	1	0.1	96	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0969	0.0964	mg/L	1	0.1	97	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327419

QC Batch: 101129
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	2680	mg/L	1	500	2270	82	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	2680	mg/L	1	500	2270	82	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: 327419

QC Batch: 101129
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	606	mg/L	1	500	30.2	115	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	585	mg/L	1	500	30.2	111	75 - 125	4	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: 327419

QC Batch: 101129
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 Magnesium		1	912	mg/L	1	500	369	109	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	884	mg/L	1	500	369	103	75 - 125	3	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: 327419

QC Batch: 101129
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 Sodium		1	5240	mg/L	1	500	4840	80	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	5250	mg/L	1	500	4840	82	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: 327426

QC Batch: 101154
Prep Batch: 85713

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	169	mg/L	5	125	38.1	105	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	171	mg/L	5	125	38.1	106	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: 327426

QC Batch: 101154
Prep Batch: 85713

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	325	mg/L	5	125	180	116	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	327	mg/L	5	125	180	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: 327221

QC Batch: 101181
Prep Batch: 85754

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	14100	mg/L	500	12500	1513	101	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	14600	mg/L	500	12500	1513	105	80 - 120	4	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: 100886 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	7.02	100	98 - 102	2013-04-26

Standard (CCV-1)

QC Batch: 100886 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	7.05	101	98 - 102	2013-04-26

Standard (CCV-1)

QC Batch: 101013 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	0.100	100	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0991	99	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.288	96	80 - 120	2013-05-02

Standard (CCV-2)

QC Batch: 101013 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	0.105	105	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.103	103	80 - 120	2013-05-02

continued ...

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	0.101	101	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.293	98	80 - 120	2013-05-02

Standard (CCV-3)

QC Batch: 101013 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	0.0982	98	80 - 120	2013-05-02
Toluene		2	mg/L	0.100	0.0962	96	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0943	94	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.274	91	80 - 120	2013-05-02

Standard (ICV-1)

QC Batch: 101129 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: 101129 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: 101129 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: 101129 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: 101129 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: 101129 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: 101129 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	53.6	105	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101129 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: 101154 Date Analyzed: 2013-05-07 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	2013-05-07

Standard (CCV-1)

QC Batch: 101154 Date Analyzed: 2013-05-07 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	25.6	102	90 - 110	2013-05-07

Standard (CCV-2)

QC Batch: 101154 Date Analyzed: 2013-05-07 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	2013-05-07

Standard (CCV-2)

QC Batch: 101154 Date Analyzed: 2013-05-07 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	25.5	102	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101181 Date Analyzed: 2013-05-08 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	24.8	99	90 - 110	2013-05-08

Standard (CCV-2)

QC Batch: 101181 Date Analyzed: 2013-05-08 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	26.1	104	90 - 110	2013-05-08

Standard (ICV-1)

QC Batch: 101222 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	<20.0		-	2013-05-09
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	238		-	2013-05-09
Total Alkalinity		1	mg/L as CaCo3	250	244	98	90 - 110	2013-05-09

Standard (CCV-1)

QC Batch: 101222 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	222		-	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

Standard (ICV-1)

QC Batch: 101270 Date Analyzed: 2013-05-10 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		-	2013-05-10
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	222		-	2013-05-10
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-10
Total Alkalinity		1	mg/L as CaCo3	250	237	95	90 - 110	2013-05-10

Standard (CCV-1)

QC Batch: 101270 Date Analyzed: 2013-05-10 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		-	2013-05-10
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	222		-	2013-05-10
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-10
Total Alkalinity		1	mg/L as CaCo3	250	238	95	90 - 110	2013-05-10

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

Attachments

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

1304262 4

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

CLIENT NAME: Celero Energy

SITE MANAGER: Jeff Kindley

PROJECT NO.: 114-640163

PROJECT NAME: Celero/ Rock Queen #23

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS	pH, TDS
327425	4-23	0900	W		X	MW-1	4	N	X		X		X											X					
327426		0915				MW-2																							
327427		0930				MW-3																							
327428		0945				MW-4																							

RELINQUISHED BY: (Signature) — Date: 4/25/13 Time: 1645
RECEIVED BY: (Signature) — Date: 4/29/13 Time: 16:45

RELINQUISHED BY: (Signature) — Date: 4/29/13 Time: 15:30
RECEIVED BY: (Signature) — Date: Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 4/30/13 TIME: 9:05

SAMPLED BY: (Print & Initial) CR LBD — Date: 4-25-13 Time: 1645

SAMPLE SHIPPED BY: (Circle)
FEDEX BUS
HAND DELIVERED UPS
AIRBILL #:
OTHER:

TETRA TECH CONTACT PERSON: Jeff Kindley

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 590

REMARKS: MW-3 has 2 vocs

LS ZP 895950

AR

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

Midland - Btex, pH & TDS
Lubbock - all other tests

13042624

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

CLIENT NAME: Celero Energy

SITE MANAGER: Jeff Kindley

PROJECT NO.: 114-640163

PROJECT NAME: Celero / Rock Queen #23

LAB I.D. NUMBER	DATE 2013	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS Sulfate	pH, TDS	TDS, SAR+ES, Hardness
327425	4/23	0900	W		X	MW-1	4	N	X		X		X											X					pH, TDS	
327426		0915				MW-2																								
327427		0930				MW-3																								
327428		0945				MW-4																								

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: 4/25/13 Time: 1645	RECEIVED BY: (Signature)	Date: 4/26/13 Time: 16:45
RELINQUISHED BY: (Signature)	Date: 4/29/13 Time: 15:30	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) BR LBD — Date: 4-25-13 Time: 1645

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RECEIVING LABORATORY: Xenco
ADDRESS:
CITY: Midland STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Brenda Ward
DATE: 4/30/13 TIME: 9:05

TETRA TECH CONTACT PERSON: Jeff Kindley

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 290

REMARKS: MW-3 has 2 vols

LS ZP 895950

AR

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

Midland - Btex, pH & TDS
Lubbock - all other tests

Cation-Anion Balance Sheet

DATE: 5/10/2013

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
327425	7440	3470	31900	167	145.00	945	57000				110700	
327426	66.4	23.3	114	0.55	150.00	180	38.1				848	
327427	2850	645	420	6.47	73.00	185	6930				13070	
327428	2680	615	2110	7.61	72.00	278	9640				16560	

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***
327425	371.26	285.55	1387.65	4.27	2.90	19.67	1607.97	0.00	0.00	0.00	2048.72	1630.54	11.36582438
327426	3.31	1.92	4.96	0.01	3.00	3.75	1.07	0.00	0.00	0.00	10.20	7.82	13.2106973
327427	142.22	53.08	18.27	0.17	1.46	3.85	195.50	0.00	0.00	0.00	213.73	200.81	3.116881939
327428	133.73	50.61	91.79	0.19	1.44	5.79	271.94	0.00	0.00	0.00	276.32	279.17	0.513480713

	EC/Cation	EC/Anion
327425	204872.416	163054.49
327426	1020.3786	782.2401
327427	21372.75526	20080.7
327428	27632.00138	27917.236

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

TDS/EC	TDS/Cat		TDS/Anion	
#DIV/0!	0.54		0.68	needs to be 0.55-0.77
#DIV/0!	0.83		1.08	needs to be 0.55-0.77
#DIV/0!	0.61		0.65	needs to be 0.55-0.77
#DIV/0!	0.60		0.59	needs to be 0.55-0.77

TRACEANALYSIS, INC.

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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: August 14, 2013

Work Order: 13072619

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #33
Project Number: 114-6401631

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
336654	MW-1	water	2013-07-24	17:35	2013-07-26
336655	MW-2	water	2013-07-24	17:20	2013-07-26
336656	MW-3	water	2013-07-24	17:45	2013-07-26
336657	MW-4	water	2013-07-24	18:00	2013-07-26

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.

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2013-07-26 and assigned to work order 13072619. Samples for work order 13072619 were received intact without headspace and at a temperature of 3.3 C. MW-2 is labeled as RQ #13. Time matches RQ #33.

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	103656	2013-07-31 at 15:00
BTEX	S 8021B	87919	2013-08-05 at 11:30	103765	2013-08-07 at 09:40
Ca, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103972	2013-08-13 at 11:53
Chloride (IC)	E 300.0	87957	2013-08-06 at 14:00	103814	2013-08-06 at 15:10
Chloride (IC)	E 300.0	87959	2013-08-06 at 14:00	103816	2013-08-06 at 15:10
Hardness	S 6010C	87768	2013-07-31 at 14:48	103972	2013-08-13 at 11:53
K, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103972	2013-08-13 at 11:53
Mg, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103972	2013-08-13 at 11:53
Na, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103972	2013-08-13 at 11:53
pH	SM 4500-H+	87639	2013-07-26 at 10:44	103501	2013-07-26 at 15:32
SO4 (IC)	E 300.0	87957	2013-08-06 at 14:00	103814	2013-08-06 at 15:10
SO4 (IC)	E 300.0	87959	2013-08-06 at 14:00	103816	2013-08-06 at 15:10
TDS	SM 2540C	87794	2013-07-25 at 11:48	103619	2013-07-30 at 16:52

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 13072619 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: 336654 - MW-1

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	103656	Date Analyzed:	2013-07-31	Analyzed By:	AR
Prep Batch:	87699	Sample Preparation:	2013-07-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	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	**293**		mg/L as CaCo3	1	20.0
Total Alkalinity		2	**293**		mg/L as CaCo3	1	20.0

Sample: 336654 - MW-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	103765	Date Analyzed:	2013-08-07	Analyzed By:	KC
Prep Batch:	87919	Sample Preparation:	2013-08-05	Prepared By:	KC

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene		2	**0.00400**		mg/L	1	0.00100
Toluene	U	2	<0.00100		mg/L	1	0.00100
Ethylbenzene	Q=U	2	<0.00100		mg/L	1	0.00100
Xylene	Q=U	2	<0.00100		mg/L	1	0.00100

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q=r	Q=r		0.136	mg/L	1	0.100	136	70 - 130
4-Bromofluorobenzene (4-BFB)				0.0724	mg/L	1	0.100	72	70 - 130

Sample: 336654 - MW-1

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**6370**	mg/L	100	1.00
Dissolved Potassium		1	**211**	mg/L	10	1.00
Dissolved Magnesium		1	**2830**	mg/L	100	1.00
Dissolved Sodium		1	**27500**	mg/L	1000	1.00

Sample: 336654 - MW-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103814	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87957	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**66500**	mg/L	5000	2.50

Sample: 336654 - MW-1

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**27600**	mg eq CaCO3/L	1	0.00

Sample: 336654 - MW-1

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	103501	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	**6.36**	s.u.	1	0.00

Sample: 336654 - MW-1

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103814	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87957	Sample Preparation:	2013-08-06	Prepared By:	RL

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

Sample: 336654 - MW-1

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	103619	Date Analyzed:	2013-07-30	Analyzed By:	AR
Prep Batch:	87794	Sample Preparation:	2013-07-25	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**148000**	mg/L	100	2.50

Sample: 336655 - MW-2

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	103656	Date Analyzed:	2013-07-31	Analyzed By:	AR
Prep Batch:	87699	Sample Preparation:	2013-07-29	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	**189**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**189**	mg/L as CaCo3	1	20.0

Sample: 336655 - MW-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	103765	Date Analyzed:	2013-08-07	Analyzed By:	KC
Prep Batch:	87919	Sample Preparation:	2013-08-05	Prepared By:	KC

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	Q#,U	2	<0.00100	mg/L	1	0.00100
Xylene	Q#,U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.102	mg/L	1	0.100	102	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0968	mg/L	1	0.100	97	70 - 130

Sample: 336655 - MW-2

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**74.1**	mg/L	1	1.00
Dissolved Potassium		1	**2.77**	mg/L	1	1.00
Dissolved Magnesium		1	**11.6**	mg/L	1	1.00
Dissolved Sodium		1	**76.0**	mg/L	1	1.00

Sample: 336655 - MW-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103814	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87957	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**44.7**	mg/L	5	2.50

Sample: 336655 - MW-2

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**233**	mg eq CaCO3/L	1	0.00

Sample: 336655 - MW-2

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	103501	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	**8.14**	s.u.	1	0.00

Sample: 336655 - MW-2

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103814	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87957	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**183**	mg/L	5	2.50

Sample: 336655 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	103619	Date Analyzed:	2013-07-30	Analyzed By:	AR
Prep Batch:	87794	Sample Preparation:	2013-07-25	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**688**	mg/L	2	2.50

Sample: 336656 - MW-3

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	103656	Date Analyzed:	2013-07-31	Analyzed By:	AR
Prep Batch:	87699	Sample Preparation:	2013-07-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL 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	**74.0**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**74.0**	mg/L as CaCo3	1	20.0

Sample: 336656 - MW-3

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	103765	Date Analyzed:	2013-08-07	Analyzed By:	KC
Prep Batch:	87919	Sample Preparation:	2013-08-05	Prepared By:	KC

Parameter	Flag	Cert	Result	RL 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	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0985	mg/L	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0936	mg/L	1	0.100	94	70 - 130

Sample: 336656 - MW-3

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Dissolved Calcium		1	**2370**	mg/L	100	1.00
Dissolved Potassium		1	**15.5**	mg/L	1	1.00
Dissolved Magnesium		1	**470**	mg/L	10	1.00

continued ...

sample 336656 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	**365**	mg/L	10	1.00

Sample: 336656 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103814	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87957	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**6190**	mg/L	500	2.50

Sample: 336656 - MW-3

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**7850**	mg eq CaCO3/L	1	0.00

Sample: 336656 - MW-3

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	103501	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	**7.18**	s.u.	1	0.00

Sample: 336656 - MW-3

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103814	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87957	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<1250	mg/L	500	2.50

Sample: 336656 - MW-3

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	103619	Date Analyzed:	2013-07-30	Analyzed By:	AR
Prep Batch:	87794	Sample Preparation:	2013-07-25	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**13400**	mg/L	10	2.50

Sample: 336657 - MW-4

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	103656	Date Analyzed:	2013-07-31	Analyzed By:	AR
Prep Batch:	87699	Sample Preparation:	2013-07-29	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	**74.0**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**74.0**	mg/L as CaCo3	1	20.0

Sample: 336657 - MW-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	103765	Date Analyzed:	2013-08-07	Analyzed By:	KC
Prep Batch:	87919	Sample Preparation:	2013-08-05	Prepared By:	KC

Parameter	Flag	Cert	Result	RL 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	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0970	mg/L	1	0.100	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0929	mg/L	1	0.100	93	70 - 130

Sample: 336657 - MW-4

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Dissolved Calcium		1	**1800**	mg/L	100	1.00
Dissolved Potassium		1	**15.0**	mg/L	1	1.00
Dissolved Magnesium		1	**442**	mg/L	10	1.00
Dissolved Sodium		1	**1520**	mg/L	100	1.00

Sample: 336657 - MW-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103816	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87959	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride		1	**7770**	mg/L	500	2.50

Sample: 336657 - MW-4

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	103972	Date Analyzed:	2013-08-13	Analyzed By:	RR
Prep Batch:	87768	Sample Preparation:	2013-07-31	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**6320**	mg eq CaCO3/L	1	0.00

Sample: 336657 - MW-4

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	103501	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	**7.21**	s.u.	1	0.00

Sample: 336657 - MW-4

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	103816	Date Analyzed:	2013-08-06	Analyzed By:	RL
Prep Batch:	87959	Sample Preparation:	2013-08-06	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<1250	mg/L	500	2.50

Sample: 336657 - MW-4

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	103619	Date Analyzed:	2013-07-30	Analyzed By:	AR
Prep Batch:	87794	Sample Preparation:	2013-07-25	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**17600**	mg/L	20	2.50

Method Blanks

Method Blank (1) QC Batch: 103619

QC Batch: 103619 | Date Analyzed: 2013-07-30 | Analyzed By: AR
Prep Batch: 87794 | QC Preparation: 2013-07-25 | Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	9.00	mg/L	2.5

Method Blank (1) QC Batch: 103656

QC Batch: 103656 | Date Analyzed: 2013-07-31 | Analyzed By: AR
Prep Batch: 87699 | QC Preparation: 2013-07-29 | 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: 103765

QC Batch: 103765 | Date Analyzed: 2013-08-07 | Analyzed By: KC
Prep Batch: 87919 | QC Preparation: 2013-08-05 | Prepared By: KC

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)			0.100	mg/L	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0959	mg/L	1	0.100	96	70 - 130

Method Blank (1) QC Batch: 103814

QC Batch: 103814 Date Analyzed: 2013-08-06 Analyzed By: RL
Prep Batch: 87957 QC Preparation: 2013-08-06 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.235	mg/L	2.5

Method Blank (1) QC Batch: 103814

QC Batch: 103814 Date Analyzed: 2013-08-06 Analyzed By: RL
Prep Batch: 87957 QC Preparation: 2013-08-06 Prepared By: RL

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

Method Blank (1) QC Batch: 103816

QC Batch: 103816 Date Analyzed: 2013-08-06 Analyzed By: RL
Prep Batch: 87959 QC Preparation: 2013-08-06 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.240	mg/L	2.5

Method Blank (1) QC Batch: 103816

QC Batch: 103816 Date Analyzed: 2013-08-06 Analyzed By: RL
Prep Batch: 87959 QC Preparation: 2013-08-06 Prepared By: RL

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

Method Blank (1) QC Batch: 103972

QC Batch: 103972 | Date Analyzed: 2013-08-13 | Analyzed By: RR
Prep Batch: 87768 | QC Preparation: 2013-07-31 | 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

Duplicates (2) Duplicated Sample: 336665

QC Batch: 103619 | Date Analyzed: 2013-07-30 | 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	100000	94900	mg/L	100	5	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 103619 | Date Analyzed: 2013-07-30 | Analyzed By: AR
Prep Batch: 87794 | QC Preparation: 2013-07-25 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1080	mg/L	1	1000	<2.50	108	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	6	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: 103765 | Date Analyzed: 2013-08-07 | Analyzed By: KC
Prep Batch: 87919 | QC Preparation: 2013-08-05 | Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.108	mg/L	1	0.100	<0.000200	108	70 - 130
Toluene		2	0.106	mg/L	1	0.100	<0.000300	106	70 - 130
Ethylbenzene		2	0.105	mg/L	1	0.100	<0.000400	105	70 - 130
Xylene		2	0.315	mg/L	1	0.300	<0.00120	105	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	0.106	mg/L	1	0.100	<0.000200	106	70 - 130	2	20
Toluene		2	0.105	mg/L	1	0.100	<0.000300	105	70 - 130	1	20
Ethylbenzene		2	0.103	mg/L	1	0.100	<0.000400	103	70 - 130	2	20
Xylene		2	0.309	mg/L	1	0.300	<0.00120	103	70 - 130	2	20

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

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0984	0.0953	mg/L	1	0.100	98	95	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0997	0.0976	mg/L	1	0.100	100	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 103814 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87957 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	26.4	mg/L	1	25.0	<0.169	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
Chloride		1	25.9	mg/L	1	25.0	<0.169	104	90 - 110	2	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: 103814 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87957 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.8	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	26.0	mg/L	1	25.0	<0.224	104	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: 103816 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87959 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.6	mg/L	1	25.0	<0.169	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	25.5	mg/L	1	25.0	<0.169	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: 103816 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87959 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	26.0	mg/L	1	25.0	<0.224	104	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	25.9	mg/L	1	25.0	<0.224	104	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: 103972 | Date Analyzed: 2013-08-13 | Analyzed By: RR
Prep Batch: 87768 | QC Preparation: 2013-07-31 | Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	53.9	mg/L	1	50.0	<0.0441	108	85 - 115
Dissolved Potassium		1	51.3	mg/L	1	50.0	<0.0443	103	85 - 115
Dissolved Magnesium		1	52.1	mg/L	1	50.0	<0.0296	104	85 - 115

continued ...

control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Sodium		1	53.9	mg/L	1	50.0	<0.172	108	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	53.0	mg/L	1	50.0	<0.0441	106	85 - 115	2	20
Dissolved Potassium		1	50.1	mg/L	1	50.0	<0.0443	100	85 - 115	2	20
Dissolved Magnesium		1	52.5	mg/L	1	50.0	<0.0296	105	85 - 115	1	20
Dissolved Sodium		1	52.7	mg/L	1	50.0	<0.172	105	85 - 115	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: 336652

QC Batch: 103765 | Date Analyzed: 2013-08-07 | Analyzed By: KC
Prep Batch: 87919 | QC Preparation: 2013-08-05 | Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0967	mg/L	1	0.100	<0.000200	97	70 - 130
Toluene		2	0.0812	mg/L	1	0.100	<0.000300	81	70 - 130
Ethylbenzene	QM	QM	2	0.0680	mg/L	1	0.100	<0.000400	68	70 - 130
Xylene	QM	QM	2	0.166	mg/L	1	0.300	<0.00120	55	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	0.100	mg/L	1	0.100	<0.000200	100	70 - 130	3	20
Toluene		2	0.0850	mg/L	1	0.100	<0.000300	85	70 - 130	5	20
Ethylbenzene		2	0.0719	mg/L	1	0.100	<0.000400	72	70 - 130	6	20
Xylene	QM	QM	2	0.165	mg/L	1	0.300	<0.00120	55	70 - 130	1	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)			0.0722	0.0705	mg/L	1	0.1	72	70	70 - 130
4-Bromofluorobenzene (4-BFB)	QBFB	QBFB	0.0651	0.0614	mg/L	1	0.1	65	61	70 - 130

Matrix Spike (MS-1) Spiked Sample: 336656

QC Batch: 103814 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87957 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	19900	mg/L	500	12500	6190	110	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	19600	mg/L	500	12500	6190	107	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: 336656

QC Batch: 103814 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87957 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	13200	mg/L	500	12500	125	105	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	13200	mg/L	500	12500	125	105	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: 336665

QC Batch: 103816 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87959 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	77700	mg/L	1000	25000	48600	116	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	78400	mg/L	1000	25000	48600	119	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: 336665

QC Batch: 103816 | Date Analyzed: 2013-08-06 | Analyzed By: RL
Prep Batch: 87959 | QC Preparation: 2013-08-06 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	27000	mg/L	1000	25000	543	106	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	26500	mg/L	1000	25000	543	104	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: 336650

QC Batch: 103972 | Date Analyzed: 2013-08-13 | Analyzed By: RR
Prep Batch: 87768 | QC Preparation: 2013-07-31 | Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	7340	mg/L	1	500	6770	114	75 - 125
Dissolved Potassium		1	579	mg/L	1	500	135	89	75 - 125
Dissolved Magnesium		1	1630	mg/L	1	500	1150	96	75 - 125
Dissolved Sodium		1	4460	mg/L	1	500	4030	86	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	7380	mg/L	1	500	6770	122	75 - 125	0	20
Dissolved Potassium		1	613	mg/L	1	500	135	96	75 - 125	6	20
Dissolved Magnesium		1	1700	mg/L	1	500	1150	110	75 - 125	4	20
Dissolved Sodium		1	4580	mg/L	1	500	4030	110	75 - 125	3	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: 103501 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: 103501 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	7.10	101	98 - 102	2013-07-26

Standard (ICV-1)

QC Batch: 103656 Date Analyzed: 2013-07-31 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		-	2013-07-31
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	238		-	2013-07-31
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-07-31
Total Alkalinity		2	mg/L as CaCo3	250	246	98	90 - 110	2013-07-31

Standard (CCV-1)

QC Batch: 103656 Date Analyzed: 2013-07-31 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	6.00		-	2013-07-31
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	252		-	2013-07-31
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<4.00		-	2013-07-31
Total Alkalinity		2	mg/L as CaCo3	250	258	103	90 - 110	2013-07-31

Standard (CCV-1)

QC Batch: 103765 Date Analyzed: 2013-08-07 Analyzed By: KC

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	2013-08-07
Toluene		2	mg/L	0.100	0.103	103	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.101	101	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.304	101	80 - 120	2013-08-07

Standard (CCV-2)

QC Batch: 103765 Date Analyzed: 2013-08-07 Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.103	103	80 - 120	2013-08-07
Toluene		2	mg/L	0.100	0.101	101	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.100	100	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.301	100	80 - 120	2013-08-07

Standard (CCV-3)

QC Batch: 103765 Date Analyzed: 2013-08-07 Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.115	115	80 - 120	2013-08-07

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Toluene		2	mg/L	0.100	0.114	114	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.112	112	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.333	111	80 - 120	2013-08-07

Standard (CCV-4)

QC Batch: 103765 Date Analyzed: 2013-08-07 Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.102	102	80 - 120	2013-08-07
Toluene		2	mg/L	0.100	0.102	102	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.101	101	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.302	101	80 - 120	2013-08-07

Standard (CCV-5)

QC Batch: 103765 Date Analyzed: 2013-08-07 Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.102	102	80 - 120	2013-08-07
Toluene		2	mg/L	0.100	0.102	102	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.0997	100	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.300	100	80 - 120	2013-08-07

Standard (CCV-1)

QC Batch: 103814 Date Analyzed: 2013-08-06 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	25.5	102	90 - 110	2013-08-06

Standard (CCV-1)

QC Batch: 103814 Date Analyzed: 2013-08-06 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	2013-08-06

Standard (CCV-2)

QC Batch: 103814 Date Analyzed: 2013-08-06 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	2013-08-06

Standard (CCV-2)

QC Batch: 103814 Date Analyzed: 2013-08-06 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	25.5	102	90 - 110	2013-08-06

Standard (CCV-1)

QC Batch: 103816 Date Analyzed: 2013-08-06 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	2013-08-06

Standard (CCV-1)

QC Batch: 103816 Date Analyzed: 2013-08-06 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	25.5	102	90 - 110	2013-08-06

Standard (CCV-2)

QC Batch: 103816 Date Analyzed: 2013-08-06 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	26.1	104	90 - 110	2013-08-06

Standard (CCV-2)

QC Batch: 103816 Date Analyzed: 2013-08-06 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	26.6	106	90 - 110	2013-08-06

Standard (ICV-1)

QC Batch: 103972 Date Analyzed: 2013-08-13 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	50.4	99	90 - 110	2013-08-13
Dissolved Potassium		1	mg/L	55.0	54.0	98	90 - 110	2013-08-13
Dissolved Magnesium		1	mg/L	51.0	51.6	101	90 - 110	2013-08-13
Dissolved Sodium		1	mg/L	51.0	51.3	100	90 - 110	2013-08-13

Standard (CCV-1)

QC Batch: 103972 Date Analyzed: 2013-08-13 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	52.3	102	90 - 110	2013-08-13
Dissolved Potassium		1	mg/L	55.0	55.6	101	90 - 110	2013-08-13
Dissolved Magnesium		1	mg/L	51.0	52.9	104	90 - 110	2013-08-13
Dissolved Sodium		1	mg/L	51.0	52.7	103	90 - 110	2013-08-13

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

Attachments

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

130B2619

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: Celero Energy
SITE MANAGER: Greg Pope
PROJECT NO.: 114-6401631
PROJECT NAME: Rock Queen Tract #33

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS (circled) salts; pH/alk/TDS; Cl/SO4/hardness/Cations
336654	7/24/13	1735	w		X	MW-1	5	N	X		X		X												X				X
655	↓	1700	↓		↓	MW-2	↓	↓	↓		↓		↓												↓				↓
656	↓	1745	↓		↓	MW-3	↓	↓	↓		↓		↓												↓				↓
657	↓	1820	↓		↓	MW-4	↓	↓	↓		↓		↓												↓				↓

RELINQUISHED BY: (Signature) [signature] Date: Time:
RECEIVED BY: (Signature) [signature] Date: 7-26-13 Time: 8:30

RELINQUISHED BY: (Signature) [signature] Date: 7-26-13 Time: 8:30
RECEIVED BY: (Signature) [signature] Date: 7-26-13 Time: 8:30

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) GF/RD Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

TETRA TECH CONTACT PERSON: AH

Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 3.3°

REMARKS: MW-2 500ml labeled TRACT 13 but time matches tract #33

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

1306 2619

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: Celero Energy
SITE MANAGER: Greg Pope
PROJECT NO.: 114-6401631
PROJECT NAME: Rock Queen Tract #33

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS solubles
336654	7/24/13	1735	W		X	MW-1	5	N	X		X		X											X				X
655	↓	1700	↓	↓	↓	MW-2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
656		1745				MW-3																						
657	↓	1800	↓	↓	↓	MW-4	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

ANALYSIS REQUEST (Circle or Specify Method No.)

pH/alk/TDS
Ca/SO4/Hardness/Cations

RELINQUISHED BY: (Signature) — Date: — Time:
RECEIVED BY: (Signature) — Date: 7-26-13 — Time: 8:30

RELINQUISHED BY: (Signature) — Date: 7-26-13 — Time: 8:30
RECEIVED BY: (Signature) — Date: 7/26/13 — Time: 8:30

RELINQUISHED BY: (Signature) — Date: 7/29/13 — Time: 15:30
RECEIVED BY: (Signature) — Date: — Time:

SAMPLED BY: (Print & Initial) E/RD — Date: — Time:

SAMPLE SHIPPED BY: (Circle)
FEDEX BUS AIRBILL #:
HAND DELIVERED UPS OTHER:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Brenda Ward
DATE: 7/30/13 TIME: 8:45

TETRA TECH CONTACT PERSON: LS ZQ 198885
3.6/3.9 AH

Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 3.3°

REMARKS: MW-2 500 ml labled TRACT 13 but time matches tract #33

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

Midland - TDS/pH/alk/BTEX Lubbock - all Others

Cation-Anion Balance Sheet

DATE: 8/14/2013

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
336654	6370	2830	27500	211	293.00	1170	66500				147800	
336655	74.1	11.6	76	2.77	189.00	183	44.7				688	
336656	2370	470	365	15.5	74.00	125	6190				13390	
336657	1800	442	1520	15	74.00	266	7770				17640	

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***
336654	317.86	232.88	1196.25	5.40	5.86	24.36	1875.97	0.00	0.00	0.00	1752.39	1906.18	4.20363939
336655	3.70	0.95	3.31	0.07	3.78	3.81	1.26	0.00	0.00	0.00	8.03	8.85	4.869867269
336656	118.26	38.68	15.88	0.40	1.48	2.60	174.62	0.00	0.00	0.00	173.21	178.70	1.559779844
336657	89.82	36.37	66.12	0.38	1.48	5.54	219.19	0.00	0.00	0.00	192.70	226.21	8.000354256

	EC/Cation	EC/Anion				
336654	175239.108	190618.44	range	0	to	0
336655	802.90106	885.1047	range	0	to	0
336656	17321.329	17870.24	range	0	to	0
336657	19269.588	22620.982	range	0	to	0

TDS/EC	TDS/Cat		TDS/Anion	
#DIV/0!	0.84		0.78	needs to be 0.55-0.77
#DIV/0!	0.86		0.78	needs to be 0.55-0.77
#DIV/0!	0.77		0.75	needs to be 0.55-0.77
#DIV/0!	0.92		0.78	needs to be 0.55-0.77

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

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 21, 2013

Work Order: 13103138

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #33
Project Number: 114-6401631

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
345400	MW-1	water	2013-10-30	16:45	2013-10-31
345401	MW-2	water	2013-10-30	17:00	2013-10-31
345402	MW-3	water	2013-10-30	16:30	2013-10-31
345403	MW-4	water	2013-10-30	16:20	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.

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2013-10-31 and assigned to work order 13103138. Samples for work order 13103138 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	90295	2013-11-03 at 12:14	106628	2013-11-05 at 13:15
BTEX	S 8021B	90166	2013-11-01 at 14:16	106532	2013-11-05 at 12:41
Ca, Dissolved	S 6010C	90324	2013-11-08 at 10:57	106733	2013-11-13 at 10:09
Chloride (IC)	E 300.0	90412	2013-11-13 at 14:00	106762	2013-11-13 at 15:58
Chloride (IC)	E 300.0	90492	2013-11-15 at 14:00	106869	2013-11-15 at 16:41
Hardness	S 6010C	90324	2013-11-08 at 10:57	106733	2013-11-13 at 10:09
K, Dissolved	S 6010C	90324	2013-11-08 at 10:57	106733	2013-11-13 at 10:09
Mg, Dissolved	S 6010C	90324	2013-11-08 at 10:57	106733	2013-11-13 at 10:09
Na, Dissolved	S 6010C	90324	2013-11-08 at 10:57	106733	2013-11-13 at 10:09
pH	SM 4500-H+	90131	2013-10-31 at 13:47	106466	2013-10-31 at 16:51
SO4 (IC)	E 300.0	90412	2013-11-13 at 14:00	106762	2013-11-13 at 15:58
SO4 (IC)	E 300.0	90492	2013-11-15 at 14:00	106869	2013-11-15 at 16:41
TDS	SM 2540C	90202	2013-11-03 at 11:09	106607	2013-11-04 at 17:33
TDS	SM 2540C	90563	2013-11-20 at 11:22	106955	2013-11-21 at 11:56

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 13103138 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: 345400 - MW-1

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106628	Date Analyzed:	2013-11-05	Analyzed By:	AR
Prep Batch:	90295	Sample Preparation:	2013-11-03	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	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	**143**		mg/L as CaCo3	1	20.0
Total Alkalinity		2	**143**		mg/L as CaCo3	1	20.0

Sample: 345400 - MW-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106532	Date Analyzed:	2013-11-05	Analyzed By:	AK
Prep Batch:	90166	Sample Preparation:	2013-11-01	Prepared By:	AK

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene		2	**0.00260**		mg/L	1	0.00100
Toluene		2	**0.00140**		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)			0.0823	mg/L	1	0.100	82	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0776	mg/L	1	0.100	78	70 - 130

Sample: 345400 - MW-1

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**7020**	mg/L	100	1.00
Dissolved Potassium		1	**207**	mg/L	1	1.00
Dissolved Magnesium		1	**3340**	mg/L	100	1.00
Dissolved Sodium		1	**28900**	mg/L	1000	1.00

Sample: 345400 - MW-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106869	Date Analyzed:	2013-11-15	Analyzed By:	RL
Prep Batch:	90492	Sample Preparation:	2013-11-15	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q*	1	**81100**	mg/L	5000	2.50

Sample: 345400 - MW-1

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**31300**	mg eq CaCO3/L	1	0.00

Sample: 345400 - MW-1

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106466	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	**6.54**	s.u.	1	0.00

Sample: 345400 - MW-1

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106869	Date Analyzed:	2013-11-15	Analyzed By:	RL
Prep Batch:	90492	Sample Preparation:	2013-11-15	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**881**	mg/L	100	2.50

Sample: 345400 - MW-1

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106955	Date Analyzed:	2013-11-21	Analyzed By:	AR
Prep Batch:	90563	Sample Preparation:	2013-11-20	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**94900**	mg/L	50	2.50

Sample: 345401 - MW-2

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106628	Date Analyzed:	2013-11-05	Analyzed By:	AR
Prep Batch:	90295	Sample Preparation:	2013-11-03	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	**171**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**171**	mg/L as CaCo3	1	20.0

Sample: 345401 - MW-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106532	Date Analyzed:	2013-11-05	Analyzed By:	AK
Prep Batch:	90166	Sample Preparation:	2013-11-01	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	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)			0.0841	mg/L	1	0.100	84	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0756	mg/L	1	0.100	76	70 - 130

Sample: 345401 - MW-2

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**85.1**	mg/L	1	1.00
Dissolved Potassium		1	**5.26**	mg/L	1	1.00
Dissolved Magnesium		1	**16.2**	mg/L	1	1.00
Dissolved Sodium		1	**82.4**	mg/L	1	1.00

Sample: 345401 - MW-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106762	Date Analyzed:	2013-11-13	Analyzed By:	RL
Prep Batch:	90412	Sample Preparation:	2013-11-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q8	1	**47.4**	mg/L	5	2.50

Sample: 345401 - MW-2

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**279**	mg eq CaCO3/L	1	0.00

Sample: 345401 - MW-2

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106466	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	**7.75**	s.u.	1	0.00

Sample: 345401 - MW-2

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106762	Date Analyzed:	2013-11-13	Analyzed By:	RL
Prep Batch:	90412	Sample Preparation:	2013-11-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**213**	mg/L	5	2.50

Sample: 345401 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106607	Date Analyzed:	2013-11-04	Analyzed By:	AR
Prep Batch:	90202	Sample Preparation:	2013-11-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**636**	mg/L	2	2.50

Sample: 345402 - MW-3

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106628	Date Analyzed:	2013-11-05	Analyzed By:	AR
Prep Batch:	90295	Sample Preparation:	2013-11-03	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	**82.0**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**82.0**	mg/L as CaCo3	1	20.0

Sample: 345402 - MW-3

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106532	Date Analyzed:	2013-11-05	Analyzed By:	AK
Prep Batch:	90166	Sample Preparation:	2013-11-01	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	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)			0.0850	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0760	mg/L	1	0.100	76	70 - 130

Sample: 345402 - MW-3

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**2340**	mg/L	100	1.00
Dissolved Potassium		1	**21.2**	mg/L	10	1.00
Dissolved Magnesium		1	**540**	mg/L	10	1.00

continued ...

sample 345402 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	**373**	mg/L	10	1.00

Sample: 345402 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106869	Date Analyzed:	2013-11-15	Analyzed By:	RL
Prep Batch:	90492	Sample Preparation:	2013-11-15	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q8	1	**6340**	mg/L	500	2.50

Sample: 345402 - MW-3

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**8070**	mg eq CaCO3/L	1	0.00

Sample: 345402 - MW-3

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106466	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	**6.94**	s.u.	1	0.00

Sample: 345402 - MW-3

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106762	Date Analyzed:	2013-11-13	Analyzed By:	RL
Prep Batch:	90412	Sample Preparation:	2013-11-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**135**	mg/L	50	2.50

Sample: 345402 - MW-3

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106607	Date Analyzed:	2013-11-04	Analyzed By:	AR
Prep Batch:	90202	Sample Preparation:	2013-11-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**12200**	mg/L	20	2.50

Sample: 345403 - MW-4

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106628	Date Analyzed:	2013-11-05	Analyzed By:	AR
Prep Batch:	90295	Sample Preparation:	2013-11-03	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	**105**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**105**	mg/L as CaCo3	1	20.0

Sample: 345403 - MW-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106532	Date Analyzed:	2013-11-05	Analyzed By:	AK
Prep Batch:	90166	Sample Preparation:	2013-11-01	Prepared By:	AK

Parameter	Flag	Cert	Result	RL	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)			0.0849	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0777	mg/L	1	0.100	78	70 - 130

Sample: 345403 - MW-4

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Dissolved Calcium		1	**1820**		mg/L	100	1.00
Dissolved Potassium		1	**18.0**		mg/L	10	1.00
Dissolved Magnesium		1	**460**		mg/L	10	1.00
Dissolved Sodium		1	**1700**		mg/L	100	1.00

Sample: 345403 - MW-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106869	Date Analyzed:	2013-11-15	Analyzed By:	RL
Prep Batch:	90492	Sample Preparation:	2013-11-15	Prepared By:	RL

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride	Q*	1	**7250**		mg/L	500	2.50

Sample: 345403 - MW-4

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106733	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90324	Sample Preparation:	2013-11-08	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**6450**	mg eq CaCO3/L	1	0.00

Sample: 345403 - MW-4

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106466	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	**7.09**	s.u.	1	0.00

Sample: 345403 - MW-4

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106762	Date Analyzed:	2013-11-13	Analyzed By:	RL
Prep Batch:	90412	Sample Preparation:	2013-11-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**238**	mg/L	50	2.50

Sample: 345403 - MW-4

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106607	Date Analyzed:	2013-11-04	Analyzed By:	AR
Prep Batch:	90202	Sample Preparation:	2013-11-03	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**14700**	mg/L	10	2.50

Method Blanks

Method Blank (1) QC Batch: 106532

QC Batch: 106532 | Date Analyzed: 2013-11-05 | Analyzed By: AK
Prep Batch: 90166 | QC Preparation: 2013-11-01 | Prepared By: AK

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)			0.0848	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0757	mg/L	1	0.100	76	70 - 130

Method Blank (1) QC Batch: 106607

QC Batch: 106607 | Date Analyzed: 2013-11-04 | Analyzed By: AR
Prep Batch: 90202 | QC Preparation: 2013-11-03 | Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	3.00	mg/L	2.5

Method Blank (1) QC Batch: 106628

QC Batch: 106628 | Date Analyzed: 2013-11-05 | Analyzed By: AR
Prep Batch: 90295 | QC Preparation: 2013-11-03 | 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

continued . . .

method blank continued ...

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

Method Blank (1) QC Batch: 106733

QC Batch: 106733 Date Analyzed: 2013-11-13 Analyzed By: RR
Prep Batch: 90324 QC Preparation: 2013-11-08 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

Method Blank (1) QC Batch: 106762

QC Batch: 106762 Date Analyzed: 2013-11-13 Analyzed By: RL
Prep Batch: 90412 QC Preparation: 2013-11-13 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	<0.254	mg/L	2.5

Method Blank (1) QC Batch: 106762

QC Batch: 106762 Date Analyzed: 2013-11-13 Analyzed By: RL
Prep Batch: 90412 QC Preparation: 2013-11-13 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.132	mg/L	2.5

Method Blank (1) QC Batch: 106869

QC Batch: 106869 | Date Analyzed: 2013-11-15 | Analyzed By: RL
Prep Batch: 90492 | QC Preparation: 2013-11-15 | Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.427	mg/L	2.5

Method Blank (1) QC Batch: 106869

QC Batch: 106869 | Date Analyzed: 2013-11-15 | Analyzed By: RL
Prep Batch: 90492 | QC Preparation: 2013-11-15 | Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.132	mg/L	2.5

Method Blank (1) QC Batch: 106955

QC Batch: 106955 | Date Analyzed: 2013-11-21 | Analyzed By: AR
Prep Batch: 90563 | QC Preparation: 2013-11-20 | Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	5.00	mg/L	2.5

Duplicates (1) Duplicated Sample: 345393

QC Batch: 106466 | Date Analyzed: 2013-10-31 | Analyzed By: AR
Prep Batch: 90131 | QC Preparation: 2013-10-31 | Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	2	7.14	7.06	s.u.	1	1	10

Duplicates (1) Duplicated Sample: 345394

QC Batch: 106607 | Date Analyzed: 2013-11-04 | Analyzed By: AR
Prep Batch: 90202 | QC Preparation: 2013-11-03 | Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	3560	3730	mg/L	5	5	10

Duplicates (1) Duplicated Sample: 345393

QC Batch: 106628 | Date Analyzed: 2013-11-05 | Analyzed By: AR
Prep Batch: 90295 | QC Preparation: 2013-11-03 | 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	82.0	75.0	mg/L as CaCo3	1	9	20
Total Alkalinity	2	82.0	75.0	mg/L as CaCo3	1	9	20

Duplicates (2) Duplicated Sample: 347094

QC Batch: 106955 | Date Analyzed: 2013-11-21 | Analyzed By: AR
Prep Batch: 90563 | QC Preparation: 2013-11-20 | Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	34500	35800	mg/L	50	4	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 106532 | Date Analyzed: 2013-11-05 | Analyzed By: AK
Prep Batch: 90166 | QC Preparation: 2013-11-01 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0848	mg/L	1	0.100	<0.000200	85	70 - 130
Toluene		2	0.0831	mg/L	1	0.100	<0.000300	83	70 - 130
Ethylbenzene		2	0.0812	mg/L	1	0.100	<0.000400	81	70 - 130
Xylene		2	0.244	mg/L	1	0.300	<0.00120	81	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	0.0829	mg/L	1	0.100	<0.000200	83	70 - 130	2	20
Toluene		2	0.0822	mg/L	1	0.100	<0.000300	82	70 - 130	1	20
Ethylbenzene		2	0.0801	mg/L	1	0.100	<0.000400	80	70 - 130	1	20
Xylene		2	0.241	mg/L	1	0.300	<0.00120	80	70 - 130	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)	0.0877	0.0871	mg/L	1	0.100	88	87	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0924	0.0911	mg/L	1	0.100	92	91	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 106607 | Date Analyzed: 2013-11-04 | Analyzed By: AR
Prep Batch: 90202 | QC Preparation: 2013-11-03 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	980	mg/L	1	1000	<2.50	98	90 - 110

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	1060	mg/L	1	1000	<2.50	106	90 - 110	8	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: 106733 | Date Analyzed: 2013-11-13 | Analyzed By: RR
Prep Batch: 90324 | QC Preparation: 2013-11-08 | Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	55.3	mg/L	1	52.5	<0.0441	105	85 - 115
Dissolved Potassium		1	54.9	mg/L	1	52.5	<0.0443	104	85 - 115
Dissolved Magnesium		1	56.4	mg/L	1	52.5	<0.0296	107	85 - 115
Dissolved Sodium		1	56.2	mg/L	1	52.5	<0.172	107	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	54.9	mg/L	1	52.5	<0.0441	104	85 - 115	1	20
Dissolved Potassium		1	54.9	mg/L	1	52.5	<0.0443	104	85 - 115	0	20
Dissolved Magnesium		1	56.4	mg/L	1	52.5	<0.0296	107	85 - 115	0	20
Dissolved Sodium		1	55.4	mg/L	1	52.5	<0.172	106	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: 106762 | Date Analyzed: 2013-11-13 | Analyzed By: RL
Prep Batch: 90412 | QC Preparation: 2013-11-13 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.8	mg/L	1	25.0	<0.254	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
Chloride		1	25.9	mg/L	1	25.0	<0.254	104	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: 106762 | Date Analyzed: 2013-11-13 | Analyzed By: RL
Prep Batch: 90412 | QC Preparation: 2013-11-13 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	27.2	mg/L	1	25.0	<0.132	109	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	27.1	mg/L	1	25.0	<0.132	108	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: 106869 | Date Analyzed: 2013-11-15 | Analyzed By: RL
Prep Batch: 90492 | QC Preparation: 2013-11-15 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	26.5	mg/L	1	25.0	0.427	104	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	26.1	mg/L	1	25.0	0.427	103	90 - 110	2	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: 106869 | Date Analyzed: 2013-11-15 | Analyzed By: RL
Prep Batch: 90492 | QC Preparation: 2013-11-15 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	26.9	mg/L	1	25.0	<0.132	108	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	26.9	mg/L	1	25.0	<0.132	108	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: 106955 | Date Analyzed: 2013-11-21 | Analyzed By: AR
Prep Batch: 90563 | QC Preparation: 2013-11-20 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	993	mg/L	1	1000	<2.50	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	<2.50	101	90 - 110	2	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: 345391

QC Batch: 106532 | Date Analyzed: 2013-11-05 | Analyzed By: AK
Prep Batch: 90166 | QC Preparation: 2013-11-01 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0861	mg/L	1	0.100	<0.000200	86	70 - 130
Toluene		2	0.0843	mg/L	1	0.100	<0.000300	84	70 - 130
Ethylbenzene		2	0.0803	mg/L	1	0.100	<0.000400	80	70 - 130
Xylene		2	0.244	mg/L	1	0.300	<0.00120	81	70 - 130

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

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.0865	mg/L	1	0.100	<0.000200	86	70 - 130	0	20
Toluene		2	0.0863	mg/L	1	0.100	<0.000300	86	70 - 130	2	20
Ethylbenzene		2	0.0837	mg/L	1	0.100	<0.000400	84	70 - 130	4	20
Xylene		2	0.252	mg/L	1	0.300	<0.00120	84	70 - 130	3	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)	0.0869	0.0876	mg/L	1	0.1	87	88	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0921	0.0933	mg/L	1	0.1	92	93	70 - 130

Matrix Spike (MS-1) Spiked Sample: 345393

QC Batch: 106733 | Date Analyzed: 2013-11-13 | Analyzed By: RR
Prep Batch: 90324 | QC Preparation: 2013-11-08 | Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	1290	mg/L	1	525	822	89	75 - 125
Dissolved Potassium		1	548	mg/L	1	525	9.04	103	75 - 125
Dissolved Magnesium		1	670	mg/L	1	525	136	102	75 - 125
Dissolved Sodium		1	745	mg/L	1	525	206	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 Calcium		1	1250	mg/L	1	525	822	82	75 - 125	3	20
Dissolved Potassium		1	560	mg/L	1	525	9.04	105	75 - 125	2	20
Dissolved Magnesium		1	670	mg/L	1	525	136	102	75 - 125	0	20
Dissolved Sodium		1	733	mg/L	1	525	206	100	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: 345409

QC Batch: 106762 | Date Analyzed: 2013-11-13 | Analyzed By: RL
Prep Batch: 90412 | QC Preparation: 2013-11-13 | Prepared By: RL

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Q*	Q*	1	338000	mg/L	5000	125000	187000	121	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	Q*	Q*	1	338000	mg/L	5000	125000	187000	121	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: 345409

QC Batch: 106762 | Date Analyzed: 2013-11-13 | Analyzed By: RL
Prep Batch: 90412 | QC Preparation: 2013-11-13 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	145000	mg/L	5000	125000	1869	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	142000	mg/L	5000	125000	1869	112	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: 345403

QC Batch: 106869 | Date Analyzed: 2013-11-15 | Analyzed By: RL
Prep Batch: 90492 | QC Preparation: 2013-11-15 | Prepared By: RL

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Q*	Q*	1	22400	mg/L	500	12500	7250	121	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	22000	mg/L	500	12500	7250	118	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: 345403

QC Batch: 106869 | Date Analyzed: 2013-11-15 | Analyzed By: RL
Prep Batch: 90492 | QC Preparation: 2013-11-15 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	14700	mg/L	500	12500	262	116	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	14300	mg/L	500	12500	262	112	80 - 120	3	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: 106466 Date Analyzed: 2013-10-31 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	2013-10-31

Standard (CCV-1)

QC Batch: 106466 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	7.10	101	98 - 102	2013-10-31

Standard (CCV-1)

QC Batch: 106532 Date Analyzed: 2013-11-05 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	2013-11-05
Toluene		2	mg/L	0.100	0.0889	89	80 - 120	2013-11-05
Ethylbenzene		2	mg/L	0.100	0.0872	87	80 - 120	2013-11-05
Xylene		2	mg/L	0.300	0.263	88	80 - 120	2013-11-05

Standard (CCV-2)

QC Batch: 106532 Date Analyzed: 2013-11-05 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	0.0815	82	80 - 120	2013-11-05
Toluene		2	mg/L	0.100	0.0827	83	80 - 120	2013-11-05
Ethylbenzene		2	mg/L	0.100	0.0815	82	80 - 120	2013-11-05
Xylene		2	mg/L	0.300	0.247	82	80 - 120	2013-11-05

Standard (CCV-3)

QC Batch: 106532 Date Analyzed: 2013-11-05 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	0.0911	91	80 - 120	2013-11-05
Toluene		2	mg/L	0.100	0.0904	90	80 - 120	2013-11-05
Ethylbenzene		2	mg/L	0.100	0.0895	90	80 - 120	2013-11-05
Xylene		2	mg/L	0.300	0.271	90	80 - 120	2013-11-05

Standard (ICV-1)

QC Batch: 106628 Date Analyzed: 2013-11-05 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		-	2013-11-05
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	230		-	2013-11-05
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	38.0		-	2013-11-05
Total Alkalinity		2	mg/L as CaCo3	250	268	107	90 - 110	2013-11-05

Standard (CCV-1)

QC Batch: 106628 Date Analyzed: 2013-11-05 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		-	2013-11-05

continued ...

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	246		-	2013-11-05
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-05
Total Alkalinity		2	mg/L as CaCo3	250	258	103	90 - 110	2013-11-05

Standard (ICV-1)

QC Batch: 106733 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: 106733 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	54.9	108	90 - 110	2013-11-13
Dissolved Potassium		1	mg/L	55.0	57.4	104	90 - 110	2013-11-13
Dissolved Magnesium		1	mg/L	51.0	54.0	106	90 - 110	2013-11-13
Dissolved Sodium		1	mg/L	51.0	51.1	100	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106762 Date Analyzed: 2013-11-13 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	26.0	104	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106762 | Date Analyzed: 2013-11-13 | 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	27.4	110	90 - 110	2013-11-13

Standard (CCV-2)

QC Batch: 106762 | Date Analyzed: 2013-11-13 | 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	26.0	104	90 - 110	2013-11-13

Standard (CCV-2)

QC Batch: 106762 | Date Analyzed: 2013-11-13 | 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	27.4	110	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106869 | Date Analyzed: 2013-11-15 | 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	26.1	104	90 - 110	2013-11-15

Standard (CCV-1)

QC Batch: 106869 | Date Analyzed: 2013-11-15 | 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	27.1	108	90 - 110	2013-11-15

Standard (CCV-2)

QC Batch: 106869 Date Analyzed: 2013-11-15 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	26.3	105	90 - 110	2013-11-15

Standard (CCV-2)

QC Batch: 106869 Date Analyzed: 2013-11-15 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	27.1	108	90 - 110	2013-11-15

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 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

Attachments

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

13103138

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

CLIENT NAME: Celero Energy
SITE MANAGER: Greg Pope
PROJECT NO.: 114-640631
PROJECT NAME: Rock Queen #33

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
345400	10/30/13	1645	W		X	MW-1	5	N	X		X	
401	↓	1700	↓		↓	MW-2	↓	↓	↓		↓	
402		1630				MW-3						
403		1620				MW-4						

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS Sulfides
X												X				X
↓												↓				↓

RELINQUISHED BY: (Signature) — Date: 10/31/13 Time: 1729
RECEIVED BY: (Signature) — Date: 10/31/13 Time: 12:29
SAMPLED BY: (Print & Initial) CF/RD — Date: Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: 880530792 OTHER:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: — Results by:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) TA
DATE: 11/1/13 TIME: 9:40
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.8 ICE D.2 3.1
REMARKS: Midland - BTEX/pH/TDS/alk Lubbock - cat ions

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