

1R – 1594

2013 AGWMR

04 / 21 / 2013



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 Groundwater Sampling Report for the Celero Energy II, LP, Rock Queen Unit Saltwater Plant #1, Located in Unit Letter D, Section 26, Township 13 South, Range 31 East, Chaves County, New Mexico (NMOCD 1RP#1594).

Mr. Von Gonten:

This report details the results of the groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Saltwater Plant #1 (Site) for 2013. The Site is located approximately 21-1/2 miles north of Maljamar, New Mexico. The Site location is shown on Figures 1 and 2.

FACILITY BACKGROUND

Pit Closure

On September 21, 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 Rock Queen Saltwater Plant #1 pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in August 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 obvious signs of impact. Approximately 2,200 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.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

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www.tetrattech.com



On October 12, 2009, a report entitled *Assessment and Closure Report for a Pit located at the Rock Queen Unit Saltwater Plant #1* was submitted to the NMOCD. The report detailed the closure of the former pit along with proposed extension of liner at the facility.

Groundwater Investigation

Between May 2007 and December 2010, Celero installed seven 2-inch monitor wells (MW-1 through MW-7) 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 20 feet below ground surface (bgs) and with calcareous with medium to very fine grain sand to a depth of approximately 130 to 165 feet bgs. From approximately 130 feet bgs to the terminus (approximately 150 to 198 feet bgs) the soils were a gray/brown to red clay.

During the investigation, groundwater was encountered at depths of approximately 134 to 139 feet bgs. Monitor Well MW-1 was drilled into the surrounding underlying clay to 198 feet bgs and sealed with bentonite back to 145 feet. Afterwards, 40 feet of 0.01 inch slotted screen was installed to from 145 feet to 105 feet bgs. The remaining monitor wells were drilled to depths of 150 to 155 (MW-7) feet bgs and installed with 30 feet of 0.02 inch slotted screen. Recovery well RW-1 was drilled to a depth of 150 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), Sulfate (SO₄) and benzene in monitor well MW-1. 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 May 24, 2007, 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 all the sampling events with the exception of May 24, 2007, which lacked sufficient points for development of a gradient map. The hydraulic gradient indicates a southeasterly direction.



Historically, each of the wells except for RW-1 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+. One sample, MW-1 on January 18, 2011 (0.0116 milligrams per Liter [mg/L]) had a result 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. All the samples collected and analyzed for chlorides were above the NMWQCC standard of 250 mg/L chlorides with samples ranging from 732 mg/L in MW-6 on October 25, 2012 to 174,000 mg/L in MW-1 on April 14, 2011.

2013 GROUNDWATER SAMPLING RESULTS

Tetra Tech, Inc. (Tetra Tech) was onsite January 28, April 22, July 22, and October 29, 2013 to gauge and sample all monitor 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 southeast. 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 25, July 24, and October 30, 2013, each of the monitor wells was sampled for BTEX utilizing Method SW8021B, chlorides and sulfates utilizing Method E 300.0, 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 were below the NMWQCC standard of 0.01 mg/L of benzene. Chlorides for the sampling period ranged from 430 mg/L in monitor well MW-6 on October 30, 2013 to 187,000 mg/L in monitor well MW-1 on October 30, 2013. All monitor wells exceeded the NMWQCC standard of 250 mg/L chlorides. The general chemistry and BTEX analyses are shown in Tables 2 and 3, respectively. Chloride concentration maps for the sampling events are included as Figures 8 through 11. Copies of the laboratory analyses reports are enclosed in Appendix A.

During purging activities, it was noted that all seven monitor wells (MW-1 through MW-7) bail dry.

CONCLUSIONS

1. Sampling occurred on January 30, April 25, 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, and periodically for general chemistry.

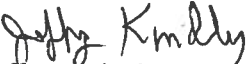
2. The hydraulic gradient is consistently in a southeasterly direction.
3. All monitor well samples were below the NMWQCC standard of 0.01 mg/L of benzene.
4. All the samples collected and analyzed for chlorides were above the NMWQCC standard of 250 mg/L, with chloride samples ranging from 430 mg/L in monitor well MW-6 on October 30, 2013 to 187,000 mg/L in monitor well MW-1 on October 30, 2012.

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 additional remediation on the site will be based on the results of the testing of the underlying groundwater.

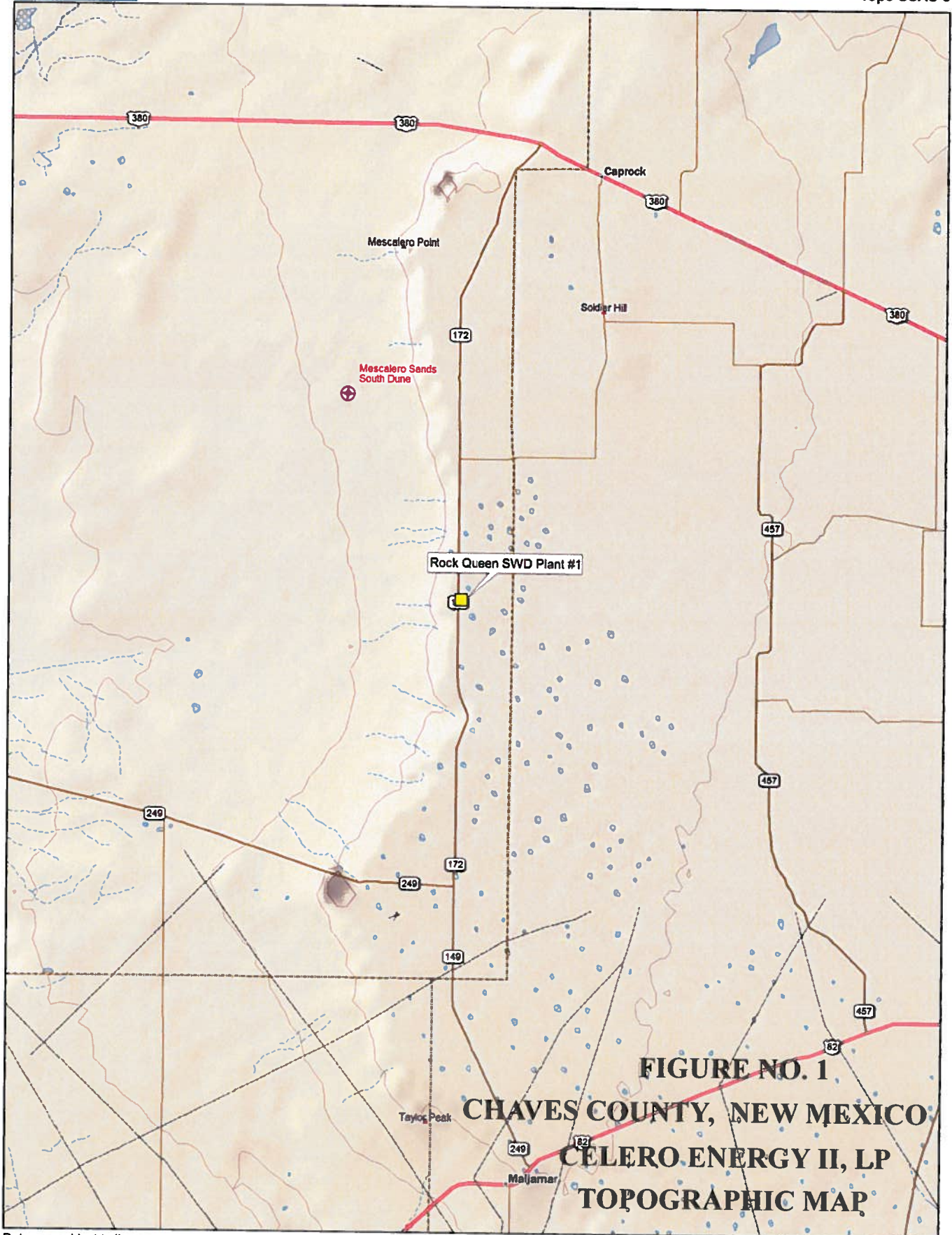
If you have any questions or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted,
Tetra Tech, Inc.


Jeffrey Kindley, P.G.
Senior Environmental Geologist

cc: Bruce Woodard – Celero Energy II, LP

FIGURES



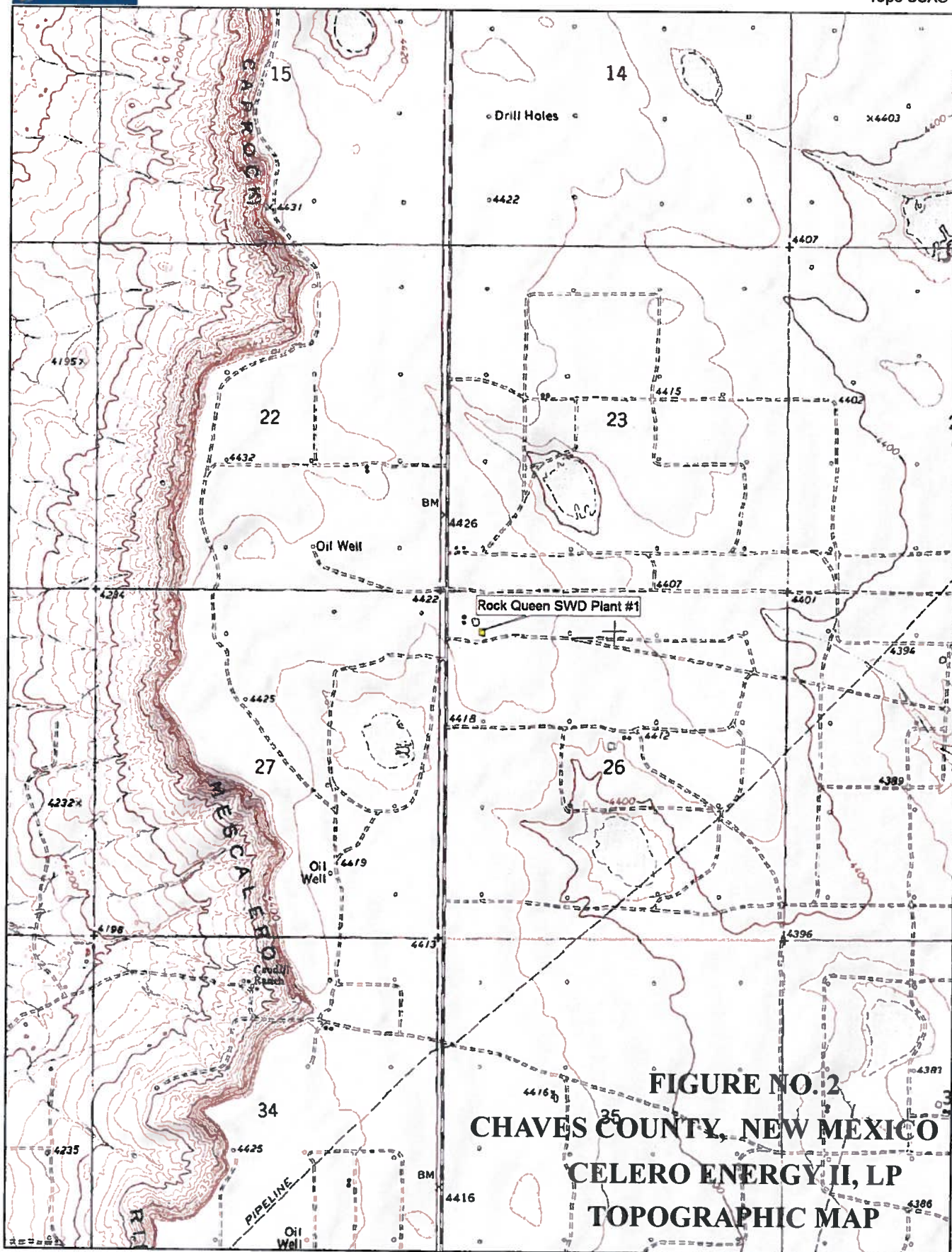
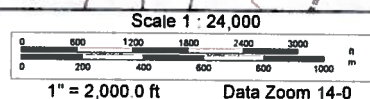


FIGURE NO. 2
CHAVES COUNTY, NEW MEXICO
CELERO ENERGY II, LP
TOPOGRAPHIC MAP

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MW-6

MW-2

FORMER PIT

MW-7

MW-3

MW-1 (RW-1)

ROCK QUEEN
INJ. WELL #1

MW-4

SCALE: 150'
0 150'

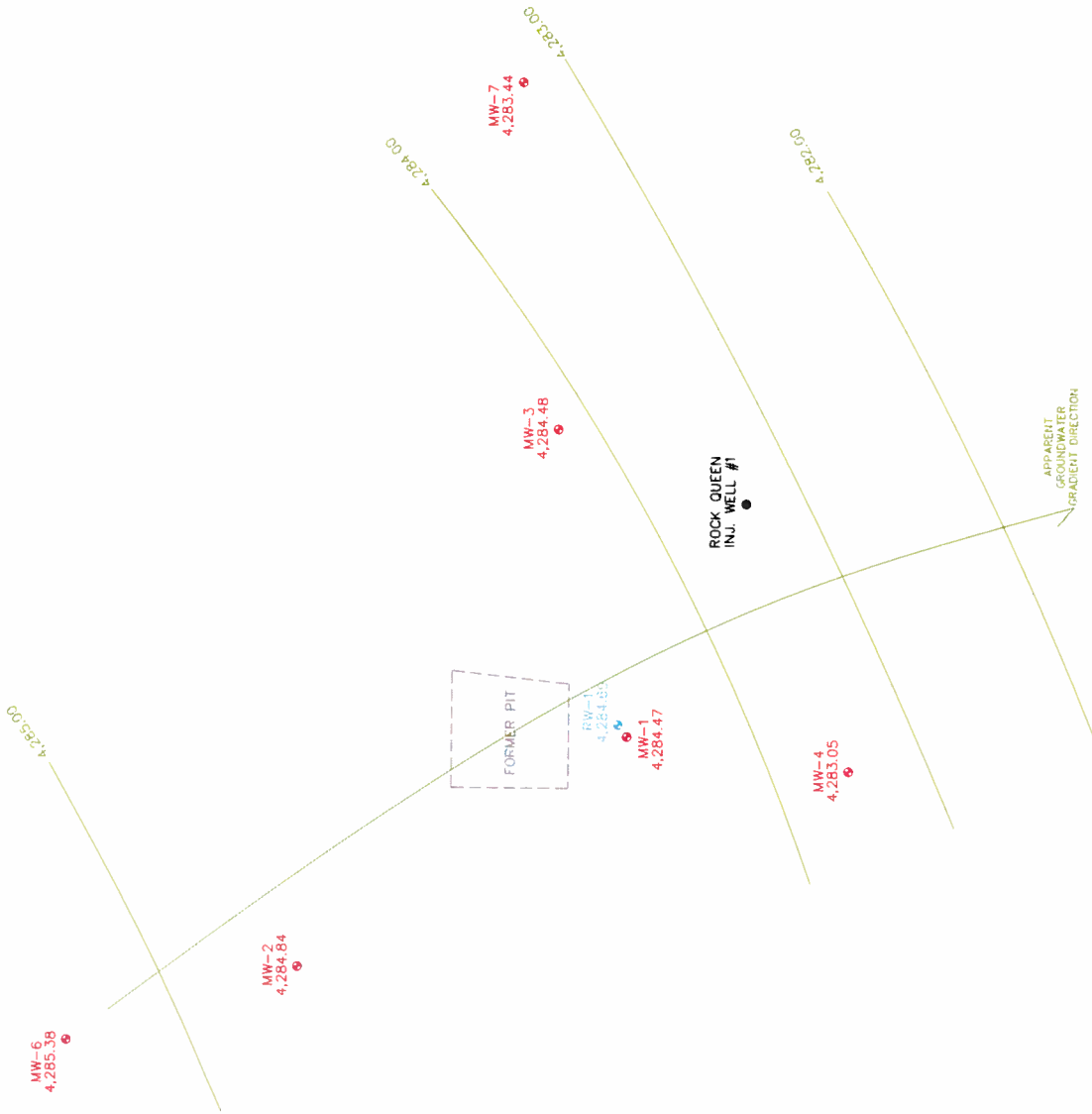
FIGURE NO. 3

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
SITE MAP

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:	12/10/09
DRAWN BY:	JJ
CHECKED BY:	CELERO/314A
DATE:	12/10/09



SCALE: 1" = 150'

0 150'

C.I. = 1'

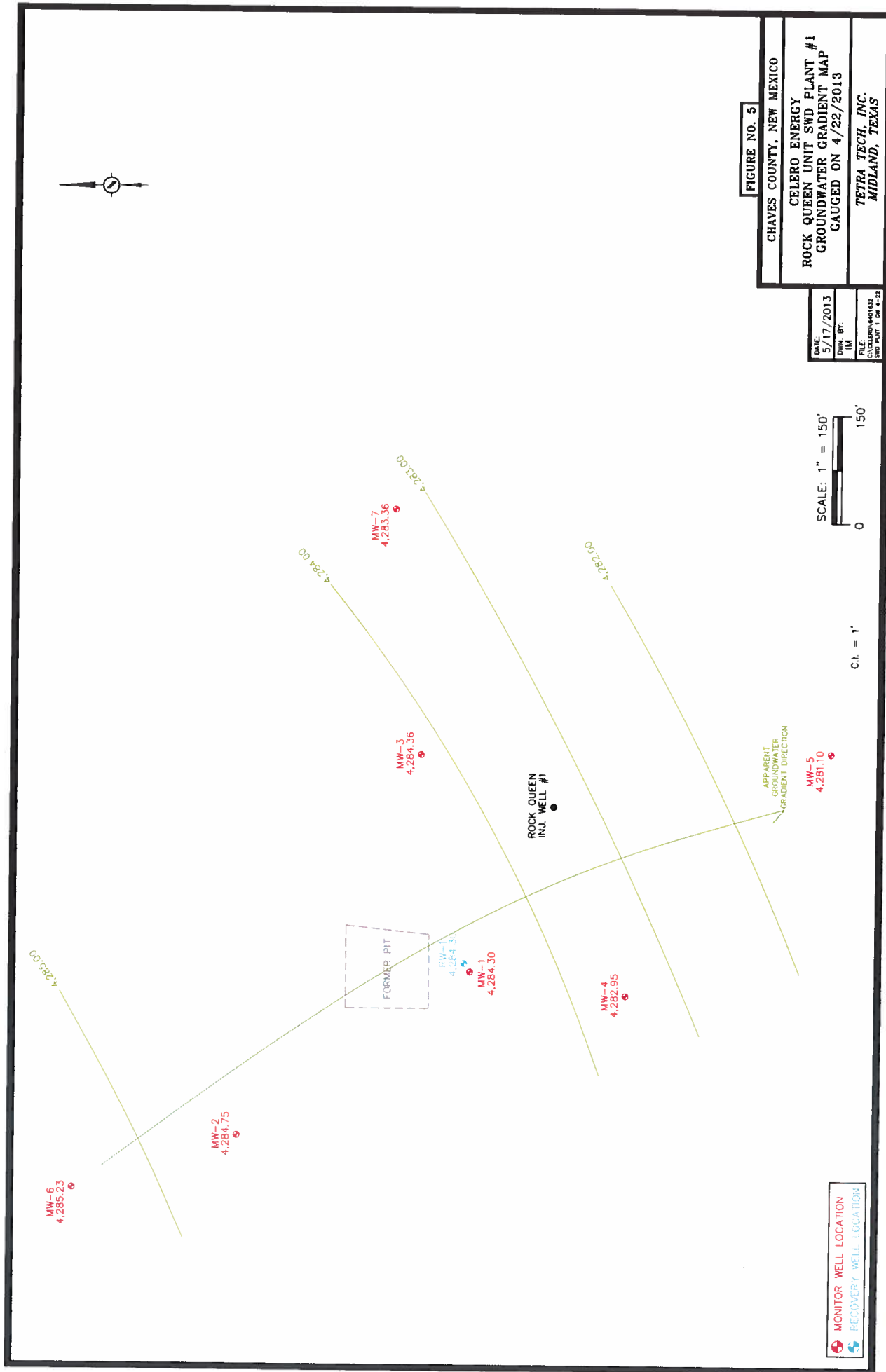
DATE:	1/28/2013
DWN. BY:	TM
FILE:	CELERO ENERGY
PROJECT:	ROCK QUEEN UNIT SWD PLANT #1
SWD PLAN:	1 OF 12-28

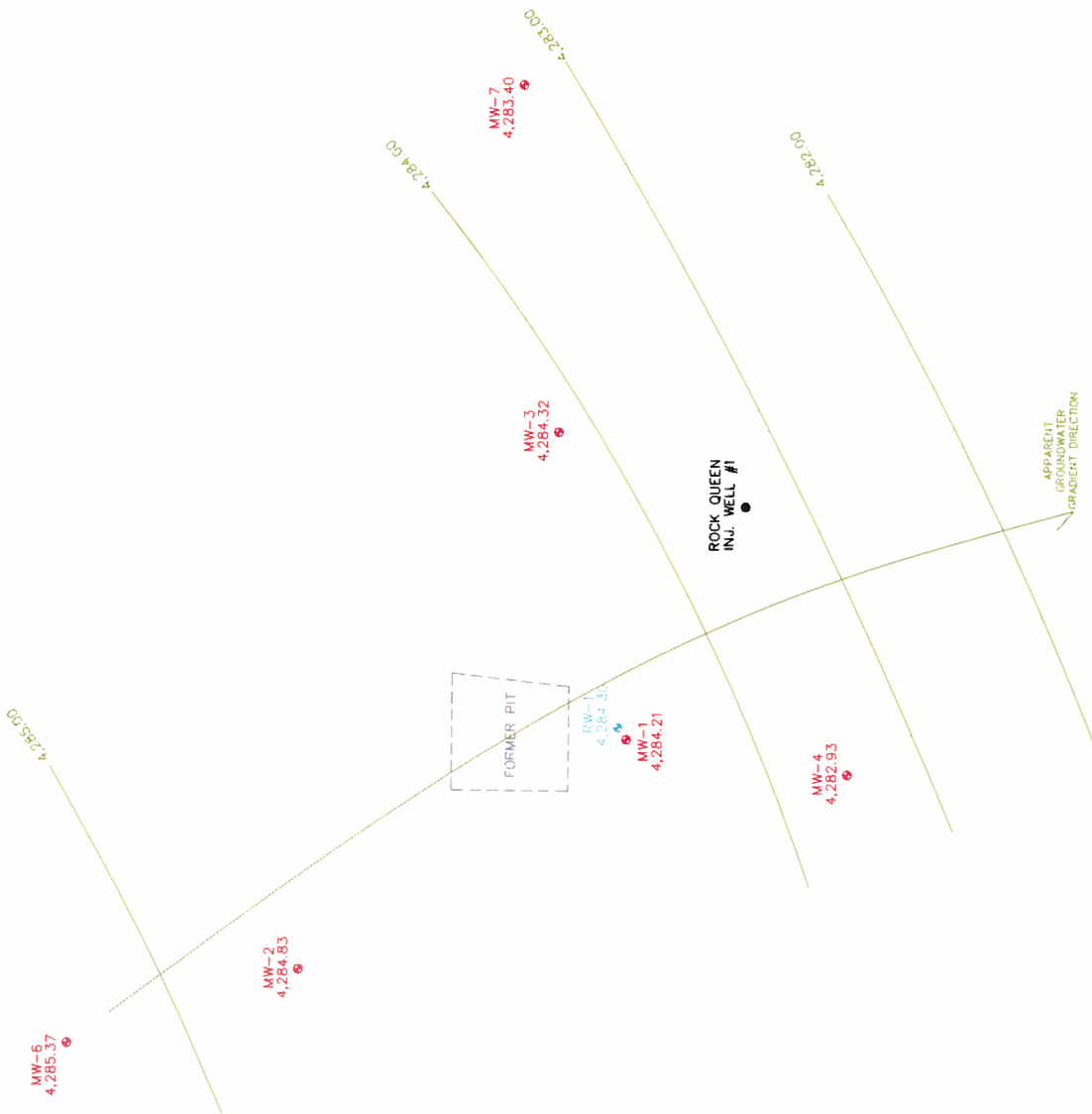
FIGURE NO. 4

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
GROUNDWATER GRADIENT MAP
GAUGED ON 1/28/2013

TETRA TECH, INC.
MIDLAND, TEXAS





SCALE: 1" = 150'

C.I. = 1'

FIGURE NO. 6

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
GROUNDWATER GRADIENT MAP
GAUGED ON 07/22/2013

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	03/31/2014
DWN. BY	IM
FILE	C:\WORK\449435
SWD PLANT	1 OF 7-22



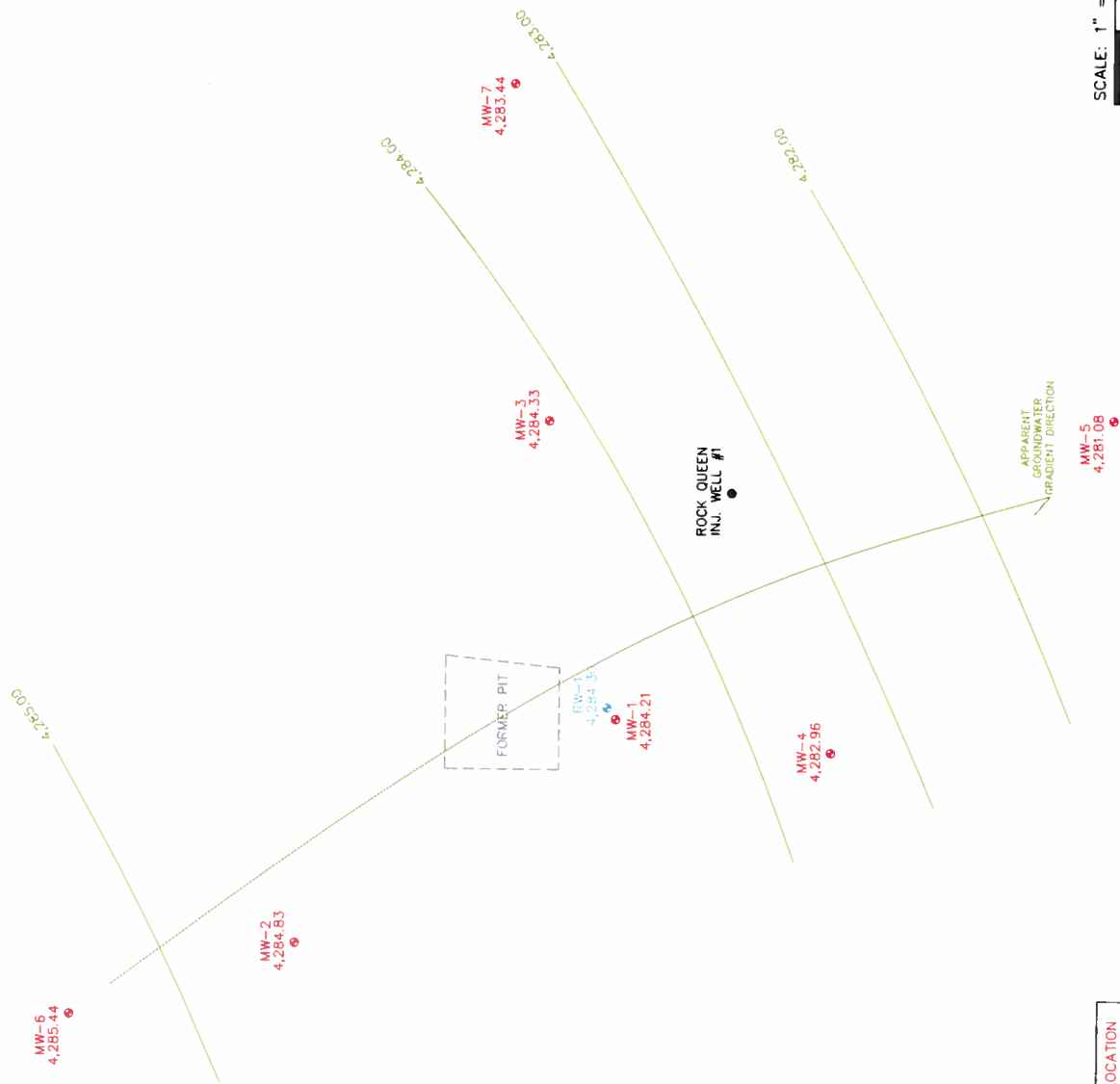


FIGURE NO. 7

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
GROUNDWATER GRADIENT MAP
GAUGED ON 10/29/2013

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 03/31/2014
OWN BY: IN
FILE: C:\PROJ\840132
SWD Plant 1, Cell 10-2



MW-6
1,050

MW-2
67,700



PW-1
NS

MW-1
153,000

MW-4
100,000

ROCK QUEEN
INJ. WELL #1

MW-3
59,500

MW-7
41,400



MW-5
33,900

RESULTS IN mg/L
NS - NOT SAMPLED

SCALE: 150'



DATE	2/5/2013
DATE BY	IM
FILE	C:\CELERO\DATA
PROJECT	CELERO ENERGY

FIGURE NO. 8

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
CHLORIDE CONCENTRATION MAP
SAMPLED ON 01/30/2013

TETRA TECH, INC.
MIDLAND, TEXAS



MW-6
3,570

MW-2
49,200

FORMER PIT

RW-1
NS

MW-1
138,000

MW-3
87,700

MW-7
46,800

ROCK QUEEN
INJ. WELL #1

MW-4
105,000

MW-5
53,100

RESULTS IN mg/L
NS - NOT SAMPLED

SCALE: 150'

DATE: 5/21/2013
DRAWN BY: JIM
FILED: JIM
BY: JIM

FIGURE NO. 9

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
CHLORIDE CONCENTRATION MAP
SAMPLED ON 04/25/2013

TETRA TECH, INC.
MIDLAND, TEXAS

MONITOR WELL LOCATION
RECOVERY WELL LOCATION



MW-6
595

MW-2
73,500

MW-7
48,600

MW-3
67,100

ROCK QUEEN
INJ. WELL #1



FW-1
NS

MW-1
171,000

MW-4
130,000

MW-5
26,000

RESULTS IN mg/L
NS - NOT SAMPLED



DATE
03/31/2014
DRAWN BY
JUN
PROJECT
C-CELERO 163A
R & B UNIT SWD PLANT 1

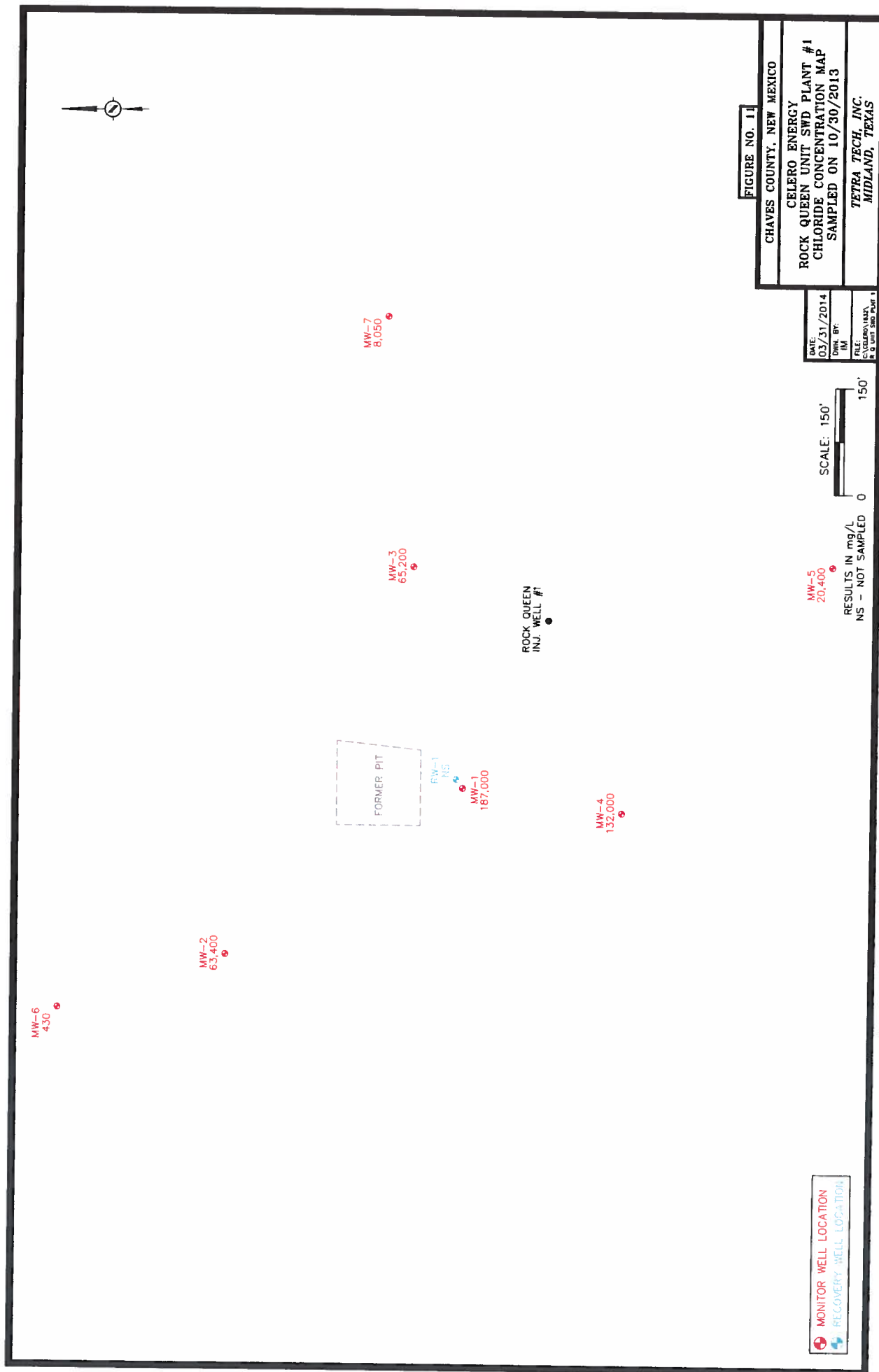
FIGURE NO. 1a

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
CHLORIDE CONCENTRATION MAP
SAMPLED ON 07/24/2013

TETRA TECH, INC.
MIDLAND, TEXAS





TABLES

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Saltwater Injection Plant #1
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	05/24/07	05/24/07	4,421.40	148.00	136.57	4,284.83
	02/05/08				136.08	4,285.32
	11/24/09				136.35	4,285.05
	07/13/10				136.49	4,284.91
	10/11/10				136.57	4,284.83
	01/17/11				136.60	4,284.80
	04/12/11				136.74	4,284.66
	07/28/11				136.82	4,284.58
	10/24/11				136.82	4,284.58
	01/03/12				136.92	4,284.48
	04/09/12				137.08	4,284.32
	07/23/12				136.99	4,284.41
	10/24/12				137.09	4,284.31
	01/28/13				136.93	4,284.47
MW-2	04/22/13	11/18/09	4,423.57	150.00	137.10	4,284.30
	07/22/13				137.21	4,284.19
	10/29/13				137.19	4,284.21
	11/24/09				137.84	4,285.73
	07/13/10				138.05	4,285.52
	10/11/10				138.18	4,285.39
	01/17/11				138.14	4,285.43
	04/12/11				138.23	4,285.34
	07/28/11				139.22	4,284.35
	10/24/11				138.45	4,285.12
	01/03/12				138.54	4,285.03
	04/09/12				138.54	4,285.03
	07/23/12				138.57	4,285.00
	10/24/12				138.77	4,284.80
MW-3	01/28/13				138.73	4,284.84
	04/22/13				138.82	4,284.75
	07/22/13				138.74	4,284.83
	10/29/13				138.74	4,284.83
	11/24/09		4,421.79	150.00	137.01	4,284.78
	07/13/10				137.07	4,284.72

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Saltwater Injection Plant #1
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	10/11/10				137.19	4,284.60
	01/17/11				136.78	4,285.01
	04/12/11				136.75	4,285.04
	07/28/11				137.82	4,283.97
	10/24/11				137.08	4,284.71
	01/03/12				137.12	4,284.67
	04/09/12				137.16	4,284.63
	07/23/12				137.21	4,284.58
	10/24/12				137.44	4,284.35
	01/28/13				137.31	4,284.48
	04/22/13				137.43	4,284.36
	07/22/13				137.47	4,284.32
	10/29/13				137.46	4,284.33
MW-4	11/24/09	11/18/09	4,421.26	150.00	137.30	4,283.96
	07/13/10				137.64	4,283.62
	10/11/10				137.72	4,283.54
	01/17/11				137.75	4,283.51
	04/12/11				137.89	4,283.37
	07/28/11				138.68	4,282.58
	10/24/11				137.99	4,283.27
	01/03/12				138.02	4,283.24
	04/09/12				138.04	4,283.22
	07/23/12				138.10	4,283.16
	10/24/12				138.23	4,283.03
	01/28/13				138.21	4,283.05
	04/22/13				138.31	4,282.95
MW-5	07/22/13				138.33	4,282.93
	10/29/13				138.30	4,282.96
	01/17/11	11/22/10	4,420.25	152.40	138.76	4,281.49
	04/12/11				138.81	4,281.44
	07/28/11				139.75	4,280.50
	10/24/11				138.97	4,281.28
	01/03/12				138.99	4,281.26
	04/09/12				139.03	4,281.22

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Saltwater Injection Plant #1
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-5	07/23/12				139.11	4,281.14
	10/24/12				139.09	4,281.16
	01/28/13				139.10	4,281.15
	04/22/13				139.15	4,281.10
	07/22/13				139.22	4,281.03
MW-6	10/29/13				139.17	4,281.08
	01/17/11	11/22/10	4,423.57	149.70	137.62	4,285.95
	04/12/11				137.81	4,285.76
	07/28/11				138.71	4,284.86
	10/24/11				137.97	4,285.60
	01/03/12				138.03	4,285.54
	04/09/12				138.11	4,285.46
	07/23/12				138.07	4,285.50
	10/24/12				138.30	4,285.27
	01/28/13				138.19	4,285.38
MW-7	04/22/13				138.34	4,285.23
	07/22/13				138.20	4,285.37
	10/29/13				138.13	4,285.44
	01/17/11	11/19/10	4,423.52	159.02	139.76	4,283.76
	04/12/11				139.79	4,283.73
	07/28/11				140.74	4,282.78
	10/24/11				139.96	4,283.56
	01/03/12				140.03	4,283.49
	04/09/12				140.05	4,283.47
	07/23/12				140.00	4,283.52
	10/24/12				140.13	4,283.39
	01/28/13				140.08	4,283.44
	04/22/13				140.16	4,283.36
	07/22/13				140.12	4,283.40
	10/29/13				140.08	4,283.44
RW-1	01/17/11	12/12/10	4,420.69	153.03	134.97	4,285.72
	04/12/11				135.35	4,285.34
	07/28/11				136.25	4,284.44
	10/24/11				135.72	4,284.97

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Saltwater Injection Plant #1
Chaves County, New Mexico

Monitor Well	Date Gauged	Date Well Installation	TOC Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
RW-1	01/03/12				135.91	4,284.78
	04/09/12				135.88	4,284.81
	07/23/12				135.98	4,284.71
	10/24/12				136.05	4,284.64
	01/28/13				136.00	4,284.69
	04/22/13				136.11	4,284.58
	07/22/13				136.20	4,284.49
	10/29/13				136.19	4,284.50

Table 2

Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Saltwater Injection Plant #1
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	05/24/07	3,040	4,620	79,100	1950	<1.00	<1.00	154	154	1,800	154,000	231,100	26,600	6.45
	11/24/09	2,060	3,630	70,000	1840	<1.00	<1.00	127	127	1,600	139,000	220,000	20,100	5.15
	07/13/10	-	-	-	-	-	-	-	-	1,530	155,000	225,000	-	-
	10/11/10	-	-	-	-	-	-	-	-	1,500	130,000	235,000	-	-
	01/18/11	-	-	-	-	-	-	-	-	1,940	132,000	234,000	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,830	174,000	237,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,730	137,000	223,000	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,870	143,000	258,000	-	-
	01/04/12	-	-	-	-	-	-	-	-	1,760	153,000	218,000	-	-
	04/09/12	-	-	-	-	-	-	-	-	1,510	153,000	226,000	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	164,000	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,900	168,000	226,000	-	-
	01/30/13	-	-	-	-	-	-	-	-	1,740	153,000	247,000	-	-
	04/25/13	2,620	4,430	80,700	1,970	<1.00	<1.00	167	167	1,640	138,000	190,000	24,800	5.78
MW-2	07/24/13	2,210	4,010	82,200	2,080	<20.0	<20.0	154	154	<12500	171,000	211,000	22,000	6.22
	10/30/13	1,710	3,550	74,200	1,480	<20.0	<20.0	166	166	1,930	187,000	221,000	19,000	5.94
	11/24/09	1,010	633	10,800	270	<1.00	<1.00	127	127	413	19,900	146,000	5,130	6.97
	07/13/10	-	-	-	-	-	-	-	-	652	43,200	72,700	-	-
	10/11/10	-	-	-	-	-	-	-	-	945	51,800	235,000	-	-
	01/18/11	-	-	-	-	-	-	-	-	1,640	66,600	133,000	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,820	99,700	159,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,770	90,400	155,000	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,460	80,300	135,000	-	-
	01/04/12	-	-	-	-	-	-	-	-	1,820	103,000	156,000	-	-
	04/09/12	-	-	-	-	-	-	-	-	1,460	85,900	132,000	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	97,100	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	890	45,200	81,400	-	-
	01/30/13	-	-	-	-	-	-	-	-	1,160	67,700	138,000	-	-
	04/25/13	2,280	1,960	32,400	620	<1.00	<1.00	180	180	1,280	49,200	161,000	13,800	6.53
	07/24/13	3,620	2,130	41,300	1000	<20.0	<20.0	179	179	<12500	73,500	80,800	17,800	6.31
	10/30/13	1,830	1,300	24,400	614	<20.0	<20.0	187	187	746	63,400	71,000	9,920	6.67

Table 2

Celero Energy II, LP

Groundwater Analytical Results

Rock Queen Unit Saltwater Injection Plant #1

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	11/24/09	6,030	2,150	29,900	323	<1.00	<1.00	92	92	908	59,500	108,000	23,900	6.02
	07/13/10	-	-	-	-	-	-	-	-	931	73,200	150,000	-	-
	10/11/10	-	-	-	-	-	-	-	-	934	85,500	167,000	-	-
	01/18/11	-	-	-	-	-	-	-	-	1,230	85,200	154,000	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,250	118,000	188,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,100	66,900	103,000	-	-
	10/27/11	-	-	-	-	-	-	-	-	1,160	123,000	184,000	-	-
	01/04/12	-	-	-	-	-	-	-	-	1,220	112,000	163,000	-	-
	04/09/12	-	-	-	-	-	-	-	-	1,100	69,800	104,000	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	52,000	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,210	84,000	123,000	-	-
	01/30/13	-	-	-	-	-	-	-	-	1,030	59,500	105,000	-	-
	04/25/13	8,950	3,440	47,600	330	<1.00	<1.00	132	132	1,190	87,700	188,000	36,500	5.95
	07/24/13	5,070	1,970	33,800	530	<20.0	<20.0	163	163	<13500	67,100	113,000	20,800	6.49
	10/30/13	2,820	1,550	28,300	550	<20.0	<20.0	150	150	940	65,200	153,000	13,400	6.24
MW-4	11/24/09	791	253	4,880	76.7	<1.00	<1.00	118	118	286	9,360	22,600	3,020	7.35
	07/13/10	-	-	-	-	-	-	-	-	1,540	85,800	159,000	-	-
	10/11/10	-	-	-	-	-	-	-	-	1,640	93,200	175,000	-	-
	01/18/11	-	-	-	-	-	-	-	-	2,360	93,200	173,000	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,950	102,000	159,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	2,120	107,000	171,000	-	-
	10/28/11	-	-	-	-	-	-	-	-	2,180	124,000	171,000	-	-
	01/04/12	-	-	-	-	-	-	-	-	2,240	117,000	180,000	-	-
	04/09/12	-	-	-	-	-	-	-	-	2,020	120,000	166,000	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	119,000	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	2,230	116,000	177,000	-	-
	01/30/13	-	-	-	-	-	-	-	-	2,100	100,000	173,000	-	-
	04/25/13	3,790	3,850	65,300	1,220	<1.00	<1.00	161	161	1,940	105,000	189,000	25,300	6.15
	07/24/13	2,900	2,910	55,000	1,300	<20.0	<20.0	274	274	<12500	130,000	175,000	19,200	6.01
	10/30/13	2,370	2,970	53,700	1,150	<20.0	<20.0	191	191	2,070	132,000	144,000	18,200	6.38

Table 2

Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Saltwater Injection Plant #1
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-5	01/18/11	-	-	-	-	-	-	-	-	822	32,400	69,700	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,070	20,000	39,400	-	-
	07/29/11	-	-	-	-	-	-	-	-	854	24,300	46,700	-	-
	10/27/11	-	-	-	-	-	-	-	-	701	49,700	91,900	-	-
	01/04/12	-	-	-	-	-	-	-	-	751	42,900	96,100	-	-
	04/09/12	-	-	-	-	-	-	-	-	692	44,500	79,100	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	19,900	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,050	23,500	45,200	-	-
	01/30/13	-	-	-	-	-	-	-	-	621	33,900	60,800	-	-
	04/25/13	18,500	2,720	7,390	63.5	<1.00	<1.00	63.0	63.0	877	53,100	90,900	57,300	6.28
MW-6	07/24/13	3,870	890	8,470	60.1	<20.0	<20.0	128.0	128.0	<2500	26,000	69,300	13,300	6.50
	10/30/13	2,600	865	7,810	57.9	<20.0	<20.0	108.0	108.0	928	20,400	39,200	10,000	6.74
	01/18/11	-	-	-	-	-	-	-	-	<250	3,010	16,500	-	-
	04/14/11	-	-	-	-	-	-	-	-	188	1,320	2,100	-	-
	07/29/11	-	-	-	-	-	-	-	-	146	912	1,860	-	-
	10/27/11	-	-	-	-	-	-	-	-	191	1,110	2,240	-	-
	01/04/12	-	-	-	-	-	-	-	-	197	3,240	6,080	-	-
	04/09/12	-	-	-	-	-	-	-	-	150	2,760	4,740	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	1,470	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	142	732	1,470	-	-
MW-7	01/30/13	-	-	-	-	-	-	-	-	125	1,050	2,300	-	-
	04/25/13	840	122.0	832	12.4	<1.00	<1.00	820	820	172	3,570	5,380	2,600	7.10
	07/24/13	297	32.2	220	11.1	<20.0	<20.0	176	176	<125	595	1,400	875	7.36
	10/30/13	244	24.6	131	11.7	<20.0	<20.0	157	157	156	430	1,720	710	7.21
	01/18/11	-	-	-	-	-	-	-	-	478	35,700	75,700	-	-
	04/14/11	-	-	-	-	-	-	-	-	657	61,500	91,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	172	17,400	29,500	-	-
	10/27/11	-	-	-	-	-	-	-	-	529	49,000	75,700	-	-
	01/04/12	-	-	-	-	-	-	-	-	430	39,300	91,800	-	-
	04/09/12	-	-	-	-	-	-	-	-	151	17,000	26,000	-	-
	07/24/12	-	-	-	-	-	-	-	-	-	37,700	-	-	-

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Saltwater Injection Plant #1
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-7	10/25/12	-	-	-	-	-	-	-	-	519	40,700	54,200	-	-
	01/30/13	-	-	-	-	-	-	-	-	364	41,400	49,200	-	-
	04/25/13	18,800	2,410	7,730	49.6	<1.00	<1.00	55.0	55.0	673	46,800	117,000	56,900	6.09
	07/24/13	17,000	1,920	6,490	76.7	<20.0	<20.0	74.0	74.0	<2500	48,600	94,900	50,300	6.11
	10/30/13	3,000	417	706	31.2	<20.0	<20.0	90.0	90.0	61.2	8,050	92,300	9,210	6.33
RW-1	01/18/11	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/14/11	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/29/11	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/27/11	-	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
	04/09/12	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/24/12	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/25/12	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/30/13	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/25/13	-	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
	10/30/13	-	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 Saltwater Injection Plant #1
Chaves County, New Mexico

Monitor Well	Date Sampled	Benzene in (mg/L)	Toluene in (mg/L)	Ethyl- Benzene (mg/L)	Xylene in (mg/L)	Total BTEX (mg/L)
MW-1	11/24/09	0.0016	<0.001	<0.001	<0.001	0.0016
	07/13/10	0.0031	<0.001	<0.001	<0.001	0.0031
	10/11/10	0.0038	<0.001	<0.001	<0.001	0.0038
	01/18/11	0.0116	0.0059	<0.001	<0.001	0.0175
	04/14/11	0.0088	0.0055	<0.001	<0.001	0.0143
	07/29/11	0.0081	<0.001	<0.001	<0.001	0.0081
	10/28/11	0.004	<0.001	<0.001	0.0063	0.0103
	01/04/12	0.0042	<0.001	<0.001	<0.001	0.0042
	04/09/12	0.005	<0.001	<0.001	<0.001	0.005
	07/24/12	0.0018	<0.0003	<0.0003	<0.0003	0.0018
	10/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/13	<0.005	<0.005	<0.005	<0.005	<0.005
MW-2	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	0.0017	<0.001	<0.001	<0.001	<0.001
	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	0.0076	<0.001	<0.001	<0.001	0.0076
	07/29/11	0.0092	<0.001	<0.001	<0.001	0.0092
	10/28/11	0.0039	<0.001	<0.001	<0.001	0.0039
	01/04/12	0.0034	<0.001	<0.001	<0.001	0.0034
	04/09/12	0.0052	<0.001	<0.001	<0.001	0.0052
	07/24/12	0.0019	<0.0003	<0.0003	<0.0003	0.0019
	10/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.001	<0.001	<0.001	<0.001	<0.001
	10/30/13	<0.001	<0.001	<0.001	<0.001	<0.001
MW-3	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	0.0059	<0.001	<0.001	<0.001	0.0059
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	0.00120	<0.001	<0.001	0.0044	0.0056
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/09/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/24/12	<0.0003	<0.0003	<0.0003	0.0046	0.0046
	10/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	10/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Saltwater Injection Plant #1
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	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	0.0015	<0.001	<0.001	<0.001	0.0015
	01/18/11	0.0095	<0.001	<0.001	<0.001	0.0095
	04/14/11	0.0064	<0.001	<0.001	<0.001	0.0064
	07/29/11	0.0084	<0.001	<0.001	<0.001	0.0084
	10/28/11	0.0028	<0.001	<0.001	<0.001	0.0028
	01/04/12	0.0029	<0.001	<0.001	<0.001	0.0029
	04/09/12	0.0065	<0.001	<0.001	<0.001	0.0065
	07/24/12	0.0027	<0.0003	<0.0003	<0.0003	0.0027
	10/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	10/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MW-5	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/09/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/24/12	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	10/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	10/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MW-6	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/09/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/24/12	<0.0003	<0.0003	<0.0003	0.0007	0.0007
	10/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	10/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MW-7	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/27/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/04/12	<0.001	<0.001	<0.001	<0.001	<0.001

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Saltwater Injection Plant #1
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-7	04/09/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/24/12	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
	10/1/25/12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	01/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	04/25/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	07/24/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
	10/30/13	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
RW-1	01/18/11	NS	NS	NS	NS	NS
	04/14/11	NS	NS	NS	NS	NS
	07/29/11	NS	NS	NS	NS	NS
	10/27/11	NS	NS	NS	NS	NS
	01/04/12	NS	NS	NS	NS	NS
	04/09/12	NS	NS	NS	NS	NS
	07/24/12	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS
	01/30/13	NS	NS	NS	NS	NS
	04/25/13	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



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

(Corrected Report)

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

Report Date: February 15, 2013

Work Order: 13020136



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #1 SWD
Project Number: 114-6401632

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
320190	MW-1	water	2013-01-30	11:25	2013-02-01
320191	MW-2	water	2013-01-30	11:00	2013-02-01
320192	MW-3	water	2013-01-30	11:20	2013-02-01
320193	MW-4	water	2013-01-30	10:45	2013-02-01
320194	MW-5	water	2013-01-30	10:40	2013-02-01
320195	MW-6	water	2013-01-30	10:55	2013-02-01
320196	MW-7	water	2013-01-30	11:10	2013-02-01

Report Corrections (Work Order 13020136)

- 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.

This report consists of a total of 34 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.

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

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

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Case Narrative

Samples for project Celero/Rock Queen #1 SWD were received by TraceAnalysis, Inc. on 2013-02-01 and assigned to work order 13020136. Samples for work order 13020136 were received intact without headspace and at a temperature of -2.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	83687	2013-02-07 at 12:00	98757	2013-02-07 at 12:00
BTEX	S 8021B	83745	2013-02-11 at 12:00	98837	2013-02-11 at 12:00
Chloride (IC)	E 300.0	83644	2013-02-05 at 09:46	98813	2013-02-05 at 13:33
Chloride (IC)	E 300.0	83644	2013-02-05 at 09:46	98814	2013-02-06 at 13:34
Chloride (IC)	E 300.0	83783	2013-02-12 at 09:44	98894	2013-02-12 at 16:54
SO4 (IC)	E 300.0	83644	2013-02-05 at 09:46	98813	2013-02-05 at 13:33
SO4 (IC)	E 300.0	83645	2013-02-06 at 09:48	98819	2013-02-06 at 14:14
SO4 (IC)	E 300.0	83862	2013-02-14 at 13:54	98980	2013-02-15 at 16:54
TDS	SM 2540C	83642	2013-02-05 at 09:17	98843	2013-02-05 at 16:06
TDS	SM 2540C	83642	2013-02-05 at 09:17	98844	2013-02-05 at 16:07

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 13020136 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Chavez Co., NM

Analytical Report

Sample: 320190 - MW-1

Laboratory: Midland

Analysis: BTEX

QC Batch: 98837

Prep Batch: 83745

Analytical Method: S 8021B

Date Analyzed: 2013-02-11

Sample Preparation: 2013-02-11

Prep Method: S 5030B

Analyzed By: YG

Prepared By: YG

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (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)	1	Q _{tr}	0.0730	mg/L	1	0.100	73	75.7 - 109
4-Bromofluorobenzene (4-BFB)	2	Q _{tr}	0.0418	mg/L	1	0.100	42	68.1 - 109

Sample: 320190 - MW-1

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 98894

Prep Batch: 83783

Analytical Method: E 300.0

Date Analyzed: 2013-02-12

Sample Preparation: 2013-02-12

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Chloride	Q _s	1	153000	153000	<1320	mg/L	5000	1320	2.5	0.265

Sample: 320190 - MW-1

Laboratory: Midland

Analysis: SO₄ (IC)

QC Batch: 98980

Prep Batch: 83862

Analytical Method: E 300.0

Date Analyzed: 2013-02-15

Sample Preparation: 2013-02-14

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Sulfate		1	1740	1740	<8.85	mg/L	50	8.85	2.5	0.177

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Sample: 320190 - MW-1

Laboratory: Midland

Analysis: TDS

QC Batch: 98843

Prep Batch: 83642

Analytical Method: SM 2540C

Date Analyzed: 2013-02-05

Sample Preparation: 2013-02-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		1	247000	247000	<1950	mg/L	200	1950	10	9.75

Sample: 320191 - MW-2

Laboratory: Midland

Analysis: BTEX

QC Batch: 98757

Prep Batch: 83687

Analytical Method: S 8021B

Date Analyzed: 2013-02-07

Sample Preparation: 2013-02-07

Prep Method: S 5030B

Analyzed By: YG

Prepared By: YG

Parameter	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)	Q _{tr}		0.113	mg/L	1	0.100	113	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0934	mg/L	1	0.100	93	68.1 - 109

Sample: 320191 - MW-2

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 98813

Prep Batch: 83644

Analytical Method: E 300.0

Date Analyzed: 2013-02-05

Sample Preparation: 2013-02-05

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	67700	67700	<2650	mg/L	10000	2650	2.5	0.265

Sample: 320191 - MW-2

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Chavez Co., NM

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	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Sulfate	1	1	1160	<1250	<88.5	mg/L	500	88.5	2.5	0.177

Sample: 320191 - MW-2

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

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

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

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids	1	1	138000	138000	<1950	mg/L	200	1950	10	9.75

Sample: 320192 - MW-3

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

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

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

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Benzene	1	1	<0.000200	<0.00100	<0.000200	mg/L	1	0.000200	0.001	0.0002
Toluene	1	1	<0.000300	<0.00100	<0.000300	mg/L	1	0.000300	0.001	0.0003
Ethylbenzene	1	1	<0.000400	<0.00100	<0.000400	mg/L	1	0.000400	0.001	0.0004
Xylene	1	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)	Q _{tr}		0.115	mg/L	1	0.100	115	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0918	mg/L	1	0.100	92	68.1 - 109

Sample: 320192 - MW-3

Laboratory: Midland

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Chavez Co., NM

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 98813 Date Analyzed: 2013-02-05 Analyzed By: AR
Prep Batch: 83644 Sample Preparation: 2013-02-05 Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	59500	59500	<2650	mg/L	10000	2650	2.5	0.265

Sample: 320192 - MW-3

Laboratory: Midland
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 98819 Date Analyzed: 2013-02-06 Analyzed By: AR
Prep Batch: 83645 Sample Preparation: 2013-02-06 Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate		1	1030	<1250	<88.5	mg/L	500	88.5	2.5	0.177

Sample: 320192 - MW-3

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 98843 Date Analyzed: 2013-02-05 Analyzed By: AR
Prep Batch: 83642 Sample Preparation: 2013-02-06 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	105000	105000	<1950	mg/L	200	1950	10	9.75

Sample: 320193 - MW-4

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B
QC Batch: 98837 Date Analyzed: 2013-02-11 Analyzed By: YG
Prep Batch: 83745 Sample Preparation: 2013-02-11 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 ...

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Work Order: 13020136
Celero/Rock Queen #1 SWD

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sample 320193 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)			0.0864	mg/L	1	0.100	86	75.7 - 109
4-Bromofluorobenzene (4-BFB)	3	Q _{tr}	0.0586	mg/L	1	0.100	59	68.1 - 109

Sample: 320193 - MW-4

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98813
Prep Batch: 83644

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

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

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	100000	100000	<2650	mg/L	10000	2650	2.5	0.265

Sample: 320193 - MW-4

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	2100	2100	<88.5	mg/L	500	88.5	2.5	0.177

Sample: 320193 - MW-4

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

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

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

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		1	173000	173000	<1950	mg/L	200	1950	10	9.75

Sample: 320194 - MW-5

Laboratory: Midland

Analysis: BTEX

QC Batch: 98757

Prep Batch: 83687

Analytical Method: S 8021B

Date Analyzed: 2013-02-07

Sample Preparation: 2013-02-07

Prep Method: S 5030B

Analyzed By: YG

Prepared By: YG

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (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)		Qsr	0.115	mg/L	1	0.100	115	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0961	mg/L	1	0.100	96	68.1 - 109

Sample: 320194 - MW-5

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 98813

Prep Batch: 83644

Analytical Method: E 300.0

Date Analyzed: 2013-02-05

Sample Preparation: 2013-02-05

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	33900	33900	<1320	mg/L	5000	1320	2.5	0.265

Sample: 320194 - MW-5

Laboratory: Midland

Analysis: SO4 (IC)

QC Batch: 98813

Prep Batch: 83644

Analytical Method: E 300.0

Date Analyzed: 2013-02-05

Sample Preparation: 2013-02-05

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Sulfate	1	1	621	<1250	<88.5	mg/L	500	88.5	2.5	0.177

Sample: 320194 - MW-5

Laboratory: Midland

Analysis: TDS

QC Batch: 98843

Prep Batch: 83642

Analytical Method: SM 2540C

Date Analyzed: 2013-02-05

Sample Preparation: 2013-02-06

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids	1	1	60800	60800	<1950	mg/L	200	1950	10	9.75

Sample: 320195 - MW-6

Laboratory: Midland

Analysis: BTEX

QC Batch: 98757

Prep Batch: 83687

Analytical Method: S 8021B

Date Analyzed: 2013-02-07

Sample Preparation: 2013-02-07

Prep Method: S 5030B

Analyzed By: YG

Prepared By: YG

Parameter	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)	Q _{nr}		0.121	mg/L	1	0.100	121	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.103	mg/L	1	0.100	103	68.1 - 109

Sample: 320195 - MW-6

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 98813

Prep Batch: 83644

Analytical Method: E 300.0

Date Analyzed: 2013-02-05

Sample Preparation: 2013-02-05

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

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Chavez Co., NM

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Chloride		1	1050	1050	<26.5	mg/L	100	26.5	2.5	0.265

Sample: 320195 - MW-6

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 98813
Prep Batch: 83644

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

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

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Sulfate		1	125	125	<1.77	mg/L	10	1.77	2.5	0.177

Sample: 320195 - MW-6

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

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

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

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (Unadjusted)	MDL (Unadjusted)
Total Dissolved Solids		1	2300	2300	<48.8	mg/L	5	48.8	10	9.75

Sample: 320196 - MW-7

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

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

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

Parameter	F	C	SDL Based Result	SQL Based Result	Method Blank Result	Units	Dilution	SDL	SQL (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

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Surrogate	F	C	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{net}		0.113	mg/L	1	0.100	113	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.0917	mg/L	1	0.100	92	68.1 - 109

Sample: 320196 - MW-7

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 98814
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	41400	41400	<1320	mg/L	5000	1320	2.5	0.265

Sample: 320196 - MW-7

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	J	1	364	<1250	<88.5	mg/L	500	88.5	2.5	0.177

Sample: 320196 - MW-7

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	49200	49200	<1950	mg/L	200	1950	10	9.75

Method Blanks

Method Blank (1)

QC Batch: 98757
Prep Batch: 83687

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

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)	Q _{NT}		0.118	mg/L	1	0.100	118	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.102	mg/L	1	0.100	102	68.1 - 109

Method Blank (1)

QC Batch: 98813
Prep Batch: 83644

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

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: 98813
Prep Batch: 83644

Date Analyzed: 2013-02-05
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

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Method Blank (1)

QC Batch: 98814
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	<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: 98837
Prep Batch: 83745

Date Analyzed: 2013-02-11
QC Preparation: 2013-02-11

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)	Q _{cr}		0.120	mg/L	1	0.100	120	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.103	mg/L	1	0.100	103	68.1 - 109

Method Blank (1)

QC Batch: 98843
Prep Batch: 83642

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

Analyzed By: AR
Prepared By: AR

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

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: 98894
Prep Batch: 83783

Date Analyzed: 2013-02-12
QC Preparation: 2013-02-12

Analyzed By: AR
Prepared By: AR

Parameter	F	C	Result	Units	Reporting Limits
Chloride		1	1.10	mg/L	0.265

Method Blank (1)

QC Batch: 98980
Prep Batch: 83862

Date Analyzed: 2013-02-15
QC Preparation: 2013-02-14

Analyzed By: AR
Prepared By: AR

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

Duplicate (1) Duplicated Sample: 320185

QC Batch: 98843
Prep Batch: 83642

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

Analyzed By: AR
Prepared By: AR

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

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 98757
Prep Batch: 83687

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

Analyzed By: YG
Prepared By: YG

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

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 98813
Prep Batch: 83644

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	23.9	mg/L	1	25.0	<0.265	96	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	24.0	mg/L	1	25.0	<0.265	96	90 - 110	0	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 98813
Prep Batch: 83644

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	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	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26.0	mg/L	1	25.0	<0.177	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: 98814
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	23.7	mg/L	1	25.0	<0.265	95	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	23.9	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	LCS 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

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

Laboratory Control Spike (LCS-1)

QC Batch: 98837
Prep Batch: 83745

Date Analyzed: 2013-02-11
QC Preparation: 2013-02-11

Analyzed By: YG
Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.108	mg/L	1	0.100	<0.000200	108	80 - 120
Toluene		1	0.109	mg/L	1	0.100	<0.000300	109	80 - 120
Ethylbenzene		1	0.113	mg/L	1	0.100	<0.000400	113	70.6 - 120
Xylene		1	0.349	mg/L	1	0.300	<0.00120	116	79.2 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.106	mg/L	1	0.100	<0.000200	106	80 - 120	2	20
Toluene		1	0.108	mg/L	1	0.100	<0.000300	108	80 - 120	1	20
Ethylbenzene		1	0.112	mg/L	1	0.100	<0.000400	112	70.6 - 120	1	20
Xylene		1	0.345	mg/L	1	0.300	<0.00120	115	79.2 - 120	1	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)		Q _{NT}	0.119	0.119	mg/L	1	0.100	119	119	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.106	0.106	mg/L	1	0.100	106	106	68.1 - 109

Laboratory Control Spike (LCS-1)

QC Batch: 98843
Prep Batch: 83642

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

Analyzed By: AR
Prepared By: AR

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

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

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

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

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Laboratory Control Spike (LCS-1)

QC Batch: 98844
Prep Batch: 83642

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	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	LCS 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: 98894
Prep Batch: 83783

Date Analyzed: 2013-02-12
QC Preparation: 2013-02-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.1	mg/L	1	25.0	<0.265	96	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	24.1	mg/L	1	25.0	<0.265	96	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: 98980
Prep Batch: 83862

Date Analyzed: 2013-02-15
QC Preparation: 2013-02-14

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	27.3	mg/L	1	25.0	<0.177	109	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	27.0	mg/L	1	25.0	<0.177	108	90 - 110	1	20

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

Matrix Spike (MS-1) Spiked Sample: 320185

QC Batch: 98757
Prep Batch: 83687

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

Analyzed By: YG
Prepared By: YG

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

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 320195

QC Batch: 98813
Prep Batch: 83644

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	4060	mg/L	100	3000	1240	94	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	4170	mg/L	100	3000	1240	98	80 - 120	3	20

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

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Matrix Spike (MS-1) Spiked Sample: 320195

QC Batch: 98813
Prep Batch: 83644

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2750	mg/L	100	3000	125	88	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	2780	mg/L	100	3000	125	88	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: 320198

QC Batch: 98814
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	39800	mg/L	1000	30000	8330	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	39800	mg/L	1000	30000	8330	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: 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

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

Matrix Spike (MS-1) Spiked Sample: 320217

QC Batch: 98837
Prep Batch: 83745

Date Analyzed: 2013-02-11
QC Preparation: 2013-02-11

Analyzed By: YG
Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.107	mg/L	1	0.100	<0.000200	107	25.7 - 139
Toluene		1	0.108	mg/L	1	0.100	<0.000300	108	32.7 - 134
Ethylbenzene		1	0.113	mg/L	1	0.100	<0.000400	113	45.9 - 120
Xylene		1	0.346	mg/L	1	0.300	<0.00120	115	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	0.108	mg/L	1	0.100	<0.000200	108	25.7 - 139	1	20
Toluene		1	0.109	mg/L	1	0.100	<0.000300	109	32.7 - 134	1	20
Ethylbenzene		1	0.114	mg/L	1	0.100	<0.000400	114	45.9 - 120	1	20
Xylene		1	0.354	mg/L	1	0.300	<0.00120	118	34.9 - 128	2	20

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

Surrogate	F	C	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	Q _{sr}		0.118	0.119	mg/L	1	0.1	118	119	75.7 - 109
4-Bromofluorobenzene (4-BFB)			0.104	0.105	mg/L	1	0.1	104	105	68.1 - 109

Matrix Spike (MS-1) Spiked Sample: 320450

QC Batch: 98894
Prep Batch: 83783

Date Analyzed: 2013-02-12
QC Preparation: 2013-02-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Q _{sr}	1	2060	mg/L	5	150	2000	40	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 _{sr}	1	2060	mg/L	5	150	2000	40	80 - 120	0	20

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

Report Date: February 15, 2013
114-6401632

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Celero/Rock Queen #1 SWD

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Matrix Spike (MS-1) Spiked Sample: 321149

QC Batch: 98980
Prep Batch: 83862

Date Analyzed: 2013-02-15
QC Preparation: 2013-02-14

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	3450	mg/L	100	3000	776	89	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	3430	mg/L	100	3000	776	88	80 - 120	1	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 98757

Date Analyzed: 2013-02-07

Analyzed By: YG

Param	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	2013-02-07
Toluene		1	mg/L	0.100	0.105	105	80 - 120	2013-02-07
Ethylbenzene		1	mg/L	0.100	0.108	108	80 - 120	2013-02-07
Xylene		1	mg/L	0.300	0.325	108	80 - 120	2013-02-07

Standard (CCV-2)

QC Batch: 98757

Date Analyzed: 2013-02-07

Analyzed By: YG

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

Standard (CCV-3)

QC Batch: 98757

Date Analyzed: 2013-02-07

Analyzed By: YG

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

Standard (CCV-1)

QC Batch: 98813

Date Analyzed: 2013-02-05

Analyzed By: AR

Report Date: February 15, 2013
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Celero/Rock Queen #1 SWD

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

Standard (CCV-1)

QC Batch: 98813

Date Analyzed: 2013-02-05

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	24.8	99	90 - 110	2013-02-05

Standard (CCV-2)

QC Batch: 98813

Date Analyzed: 2013-02-05

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	23.3	93	90 - 110	2013-02-05

Standard (CCV-2)

QC Batch: 98813

Date Analyzed: 2013-02-05

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	25.1	100	90 - 110	2013-02-05

Standard (CCV-1)

QC Batch: 98814

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	23.3	93	90 - 110	2013-02-06

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Standard (CCV-2)

QC Batch: 98814

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: 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
Sulfate		1	mg/L	25.0	25.5	102	90 - 110	2013-02-06

Standard (CCV-1)

QC Batch: 98837

Date Analyzed: 2013-02-11

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	0.105	105	80 - 120	2013-02-11
Toluene		1	mg/L	0.100	0.107	107	80 - 120	2013-02-11
Ethylbenzene		1	mg/L	0.100	0.111	111	80 - 120	2013-02-11
Xylene		1	mg/L	0.300	0.343	114	80 - 120	2013-02-11

Standard (CCV-2)

QC Batch: 98837

Date Analyzed: 2013-02-11

Analyzed By: YG

Report Date: February 15, 2013
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Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.105	105	80 - 120	2013-02-11
Toluene		1	mg/L	0.100	0.106	106	80 - 120	2013-02-11
Ethylbenzene		1	mg/L	0.100	0.110	110	80 - 120	2013-02-11
Xylene		1	mg/L	0.300	0.339	113	80 - 120	2013-02-11

Standard (CCV-3)

QC Batch: 98837

Date Analyzed: 2013-02-11

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	0.106	106	80 - 120	2013-02-11
Toluene		1	mg/L	0.100	0.107	107	80 - 120	2013-02-11
Ethylbenzene		1	mg/L	0.100	0.110	110	80 - 120	2013-02-11
Xylene		1	mg/L	0.300	0.345	115	80 - 120	2013-02-11

Standard (CCV-1)

QC Batch: 98894

Date Analyzed: 2013-02-12

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	2013-02-12

Standard (CCV-2)

QC Batch: 98894

Date Analyzed: 2013-02-12

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	2013-02-12

Standard (CCV-1)

QC Batch: 98980

Date Analyzed: 2013-02-15

Analyzed By: AR

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Param	F	C	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.7	107	90 - 110	2013-02-15

Standard (CCV-2)

QC Batch: 98980

Date Analyzed: 2013-02-15

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	25.0	100	90 - 110	2013-02-15

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 than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

- 1 Matrix Interference Confirmed by Reanalysis.
- 2 Matrix Interference Confirmed by Reanalysis.
- 3 Matrix Interference Confirmed by Reanalysis.

Report Date: February 15, 2013
114-6401632

Work Order: 13020136
Celero/Rock Queen #1 SWD

Page Number: 34 of 34
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Attachments

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

Analysis Request of Chain of Custody Record



**1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-4560**

(432) 682-4559 • Fax (432) 682-3946

7 14-6401632

CLIENT NAME:

SITE MANAGER:

Jeff Kindley

PROJECT NO.: PROJECT NAME:

Cebro - Rock Queen #1 SWD

SAMPLE IDENTIFICATION

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB
SAMPLE IDENTIFICATION					
NUMBER OF FILTERED V					
HCL					
HN03					
ICE					
NONE					

52010	13013	1125	W	X MW1	4	X	X
191	}	1100	W	X MW2	4	X	X
192		1120	W	X MW3	4	X	X
193		1045	W	X MW4	4	X	X
194		1040	W	X MW5	4	X	X
195		1055	W	X MW6	4	X	X
196		1110	W	X MW7	4	X	X

RELINQUISHED BY: (Signature) <i>[Signature]</i>	Date: 3-1-13	RECEIVED BY: (Signature) <i>[Signature]</i>	Date: 3-1-13
RELINQUISHED BY: (Signature)	Time: 1415	RECEIVED BY: (Signature)	Time: 1415
RELINQUISHED BY: (Signature)	Date: _____	RECEIVED BY: (Signature)	Date: _____
RELINQUISHED BY: (Signature)	Time: _____	RECEIVED BY: (Signature)	Time: _____
RECEIVING LABORATORY: Trace	ADDRESS: _____	RECEIVED BY: (Signature)	Time: _____
CITY: Midland	STATE: _____		
CONTACT: _____	PHONE: _____		
	ZIP: _____		
	DATE: _____		TIME: _____

REMARKS:

BTEX, Cl_2 , SO_2 , TDS

Null and af

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



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1296
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(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 8, 2013

Work Order: 13042602



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #1 SWD
Project Number: 114-6401632

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
327298	MW-1	water	2013-04-25	09:55	2013-04-25
327299	MW-2	water	2013-04-25	10:15	2013-04-25
327300	MW-3	water	2013-04-25	09:40	2013-04-25
327301	MW-4	water	2013-04-25	09:30	2013-04-25
327302	MW-5	water	2013-04-25	09:20	2013-04-25
327303	MW-6	water	2013-04-25	10:05	2013-04-25
327304	MW-7	water	2013-04-25	09:45	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 45 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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

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Case Narrative

Samples for project Celero/Rock Queen #1 SWD were received by TraceAnalysis, Inc. on 2013-04-25 and assigned to work order 13042602. Samples for work order 13042602 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	85712	2013-05-07 at 08:00	101132	2013-05-07 at 09:00
Alkalinity	SM 2320B	85729	2013-05-07 at 14:00	101151	2013-05-07 at 15:26
BTEX	S 8021B	85524	2013-04-30 at 12:53	100911	2013-04-30 at 12:54
BTEX	S 8021B	85587	2013-05-02 at 09:25	100979	2013-05-02 at 09:26
Ca, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101119	2013-05-07 at 08:53
Chloride (IC)	E 300.0	85703	2013-05-03 at 14:00	101123	2013-05-03 at 15:07
Chloride (IC)	E 300.0	85706	2013-05-06 at 14:00	101126	2013-05-06 at 15:55
Hardness	S 6010C	85570	2013-05-01 at 12:00	101119	2013-05-07 at 08:53
K, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101119	2013-05-07 at 08:53
Mg, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101119	2013-05-07 at 08:53
Na, Dissolved	S 6010C	85570	2013-05-01 at 12:00	101119	2013-05-07 at 08:53
pH	SM 4500-H+	85498	2013-04-26 at 16:03	100883	2013-04-26 at 17:06
SO4 (IC)	E 300.0	85703	2013-05-03 at 14:00	101123	2013-05-03 at 15:07
SO4 (IC)	E 300.0	85706	2013-05-06 at 14:00	101126	2013-05-06 at 15:55
TDS	SM 2540C	85494	2013-04-26 at 11:39	100878	2013-04-27 at 15:41

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13042602 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: May 8, 2013
114-6401632

Work Order: 13042602
Celero/Rock Queen #1 SWD

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Analytical Report

Sample: 327298 - MW-1

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101132
Prep Batch: 85712

Analytical Method: SM 2320B
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	167	mg/L as CaCo3	1	20.0
Total Alkalinity		1	167	mg/L as CaCo3	1	20.0

Sample: 327298 - MW-1

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs, U	2	<0.00100	mg/L	1	0.00100
Toluene	Qs, 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)	1 Q _{st}	Q _{st}	0.0579	mg/L	1	0.100	58	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	0.0411	mg/L	1	0.100	41	70 - 130

Sample: 327298 - MW-1

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Report Date: May 8, 2013
114-6401632

Work Order: 13042602
Celero/Rock Queen #1 SWD

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2620	mg/L	100	1.00
Dissolved Potassium		1	1970	mg/L	100	1.00
Dissolved Magnesium		1	4430	mg/L	100	1.00
Dissolved Sodium	Qs	1	80700	mg/L	1000	1.00

Sample: 327298 - MW-1

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	138000	mg/L	5000	2.50

Sample: 327298 - MW-1

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			24800	mg eq CaCO3/L	1	0.00

Sample: 327298 - MW-1

Laboratory: Midland
Analysis: pH
QC Batch: 100883
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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	5.78	s.u.	1	0.00

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Sample: 327298 - MW-1

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

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

Sample: 327298 - MW-1

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	190000	mg/L	100	10.0

Sample: 327299 - MW-2

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101132
Prep Batch: 85712

Analytical Method: SM 2320B
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	180	mg/L as CaCo3	1	20.0
Total Alkalinity		1	180	mg/L as CaCo3	1	20.0

Sample: 327299 - MW-2

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

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

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0862	mg/L	1	0.100	86	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0794	mg/L	1	0.100	79	70 - 130

Sample: 327299 - MW-2

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2280	mg/L	100	1.00
Dissolved Potassium		1	620	mg/L	100	1.00
Dissolved Magnesium		1	1960	mg/L	100	1.00
Dissolved Sodium	Q _n	1	32400	mg/L	1000	1.00

Sample: 327299 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	49200	mg/L	5000	2.50

Sample: 327299 - MW-2

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			13800	mg eq CaCO3/L	1	0.00

Sample: 327299 - MW-2

Laboratory: Midland

Analysis: pH

QC Batch: 100883

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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.53	s.u.	1	0.00

Sample: 327299 - MW-2

Laboratory: Lubbock

Analysis: SO4 (IC)

QC Batch: 101123

Prep Batch: 85703

Analytical Method: E 300.0

Date Analyzed: 2013-05-03

Sample Preparation: 2013-05-03

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

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

Sample: 327299 - MW-2

Laboratory: Midland

Analysis: TDS

QC Batch: 100878

Prep Batch: 85494

Analytical Method: SM 2540C

Date Analyzed: 2013-04-27

Sample Preparation: 2013-04-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	161000	mg/L	100	10.0

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Sample: 327300 - MW-3

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101132
Prep Batch: 85712

Analytical Method: SM 2320B
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	132	mg/L as CaCo3	1	20.0
Total Alkalinity		1	132	mg/L as CaCo3	1	20.0

Sample: 327300 - MW-3

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q*, U	2	<0.00100	mg/L	1	0.00100
Toluene	Q*, 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)	2 Q*, U	Q*, U	0.0652	mg/L	1	0.100	65	70 - 130

Sample: 327300 - MW-3

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	8950	mg/L	100	1.00
Dissolved Potassium		1	330	mg/L	100	1.00
Dissolved Magnesium		1	3440	mg/L	100	1.00

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Q*	1	47600	mg/L	1000	1.00

Sample: 327300 - MW-3

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	87700	mg/L	5000	2.50

Sample: 327300 - MW-3

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			36500	mg eq CaCO3/L	1	0.00

Sample: 327300 - MW-3

Laboratory: Midland
Analysis: pH
QC Batch: 100883
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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	5.95	s.u.	1	0.00

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Sample: 327300 - MW-3

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

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

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

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

Sample: 327300 - MW-3

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	188000	mg/L	100	10.0

Sample: 327301 - MW-4

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101132
Prep Batch: 85712

Analytical Method: SM 2320B
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	161	mg/L as CaCo3	1	20.0
Total Alkalinity		1	161	mg/L as CaCo3	1	20.0

Sample: 327301 - MW-4

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

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

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q _{n,U}	2	<0.00100	mg/L	1	0.00100
Toluene	Q _{n,U}	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Q _{n,U}	2	<0.00100	mg/L	1	0.00100
Xylene	Q _{n,U}	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}		0.0684	mg/L	1	0.100	68	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}		0.0539	mg/L	1	0.100	54	70 - 130

Sample: 327301 - MW-4

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	3790	mg/L	100	1.00
Dissolved Potassium		1	1220	mg/L	100	1.00
Dissolved Magnesium		1	3850	mg/L	100	1.00
Dissolved Sodium	Q _n	1	65300	mg/L	1000	1.00

Sample: 327301 - MW-4

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	105000	mg/L	5000	2.50

Sample: 327301 - MW-4

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			25300	mg eq CaCO3/L	1	0.00

Sample: 327301 - MW-4

Laboratory: Midland

Analysis: pH

QC Batch: 100883

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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.15	s.u.	1	0.00

Sample: 327301 - MW-4

Laboratory: Lubbock

Analysis: SO4 (IC)

QC Batch: 101123

Prep Batch: 85703

Analytical Method: E 300.0

Date Analyzed: 2013-05-03

Sample Preparation: 2013-05-03

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

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

Sample: 327301 - MW-4

Laboratory: Midland

Analysis: TDS

QC Batch: 100878

Prep Batch: 85494

Analytical Method: SM 2540C

Date Analyzed: 2013-04-27

Sample Preparation: 2013-04-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	189000	mg/L	100	10.0

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Sample: 327302 - MW-5

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101132
Prep Batch: 85712

Analytical Method: SM 2320B
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	63.0	mg/L as CaCo3	1	20.0
Total Alkalinity		1	63.0	mg/L as CaCo3	1	20.0

Sample: 327302 - MW-5

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q*, U	2	<0.00100	mg/L	1	0.00100
Toluene	Q*, 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)			0.0920	mg/L	1	0.100	92	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0859	mg/L	1	0.100	86	70 - 130

Sample: 327302 - MW-5

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	18500	mg/L	100	1.00
Dissolved Potassium		1	63.5	mg/L	10	1.00
Dissolved Magnesium		1	2720	mg/L	100	1.00

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Q*	1	7390	mg/L	100	1.00

Sample: 327302 - MW-5

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	53100	mg/L	5000	2.50

Sample: 327302 - MW-5

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			57300	mg eq CaCO3/L	1	0.00

Sample: 327302 - MW-5

Laboratory: Midland
Analysis: pH
QC Batch: 100883
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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.28	s.u.	1	0.00

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Sample: 327302 - MW-5

Laboratory: Lubbock
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 101123 Date Analyzed: 2013-05-03 Analyzed By: RL
Prep Batch: 85703 Sample Preparation: 2013-05-03 Prepared By: RL

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

Sample: 327302 - MW-5

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 100878 Date Analyzed: 2013-04-27 Analyzed By: AR
Prep Batch: 85494 Sample Preparation: 2013-04-26 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	90900	mg/L	100	10.0

Sample: 327303 - MW-6

Laboratory: Lubbock
Analysis: Alkalinity Analytical Method: SM 2320B Prep Method: N/A
QC Batch: 101151 Date Analyzed: 2013-05-07 Analyzed By: LM
Prep Batch: 85729 Sample Preparation: 2013-05-07 Prepared By: LM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	820	mg/L as CaCo3	1	20.0
Total Alkalinity		1	820	mg/L as CaCo3	1	20.0

Sample: 327303 - MW-6

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B
QC Batch: 100911 Date Analyzed: 2013-04-30 Analyzed By: AH
Prep Batch: 85524 Sample Preparation: 2013-04-29 Prepared By: AH

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0853	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0766	mg/L	1	0.100	77	70 - 130

Sample: 327303 - MW-6

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	840	mg/L	10	1.00
Dissolved Potassium		1	12.4	mg/L	10	1.00
Dissolved Magnesium		1	122	mg/L	10	1.00
Dissolved Sodium	Qn	1	832	mg/L	10	1.00

Sample: 327303 - MW-6

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	3570	mg/L	100	2.50

Sample: 327303 - MW-6

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			2600	mg eq CaCO ₃ /L	1	0.00

Sample: 327303 - MW-6

Laboratory: Midland

Analysis: pH

QC Batch: 100883

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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.10	s.u.	1	0.00

Sample: 327303 - MW-6

Laboratory: Lubbock

Analysis: SO₄ (IC)

QC Batch: 101123

Prep Batch: 85703

Analytical Method: E 300.0

Date Analyzed: 2013-05-03

Sample Preparation: 2013-05-03

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<250	mg/L	100	2.50

Sample: 327303 - MW-6

Laboratory: Midland

Analysis: TDS

QC Batch: 100878

Prep Batch: 85494

Analytical Method: SM 2540C

Date Analyzed: 2013-04-27

Sample Preparation: 2013-04-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	5380	mg/L	5	10.0

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Sample: 327304 - MW-7

Laboratory: Lubbock
Analysis: Alkalinity
QC Batch: 101151
Prep Batch: 85729

Analytical Method: SM 2320B
Date Analyzed: 2013-05-07
Sample Preparation: 2013-05-07

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	1	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		1	55.0	mg/L as CaCo3	1	20.0
Total Alkalinity		1	55.0	mg/L as CaCo3	1	20.0

Sample: 327304 - MW-7

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs,U	2	<0.00100	mg/L	1	0.00100
Toluene	Qs,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)			0.0907	mg/L	1	0.100	91	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0867	mg/L	1	0.100	87	70 - 130

Sample: 327304 - MW-7

Laboratory: Lubbock
Analysis: Cations
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	18800	mg/L	100	1.00
Dissolved Potassium		1	<100	mg/L	100	1.00
Dissolved Magnesium		1	2410	mg/L	100	1.00

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sample 327304 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Qs	1	7730	mg/L	100	1.00

Sample: 327304 - MW-7

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	46800	mg/L	5000	2.50

Sample: 327304 - MW-7

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 101119
Prep Batch: 85570

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			56900	mg eq CaCO ₃ /L	1	0.00

Sample: 327304 - MW-7

Laboratory: Midland
Analysis: pH
QC Batch: 100883
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	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.09	s.u.	1	0.00

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Sample: 327304 - MW-7

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 101123
Prep Batch: 85703

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

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

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

Sample: 327304 - MW-7

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	117000	mg/L	100	10.0

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Method Blanks

Method Blank (1) QC Batch: 100878

QC Batch: 100878
Prep Batch: 85494

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

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	<9.75	mg/L	10

Method Blank (1) QC Batch: 100911

QC Batch: 100911
Prep Batch: 85524

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

Analyzed By: AH
Prepared By: AH

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

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

Method Blank (1) QC Batch: 100979

QC Batch: 100979
Prep Batch: 85587

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

Analyzed By: AH
Prepared By: AH

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

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method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
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)			0.0988	mg/L	1	0.100	99	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0962	mg/L	1	0.100	96	70 - 130

Method Blank (1) QC Batch: 101119

QC Batch: 101119
Prep Batch: 85570

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

Analyzed By: RR
Prepared By: KV

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: 101123

QC Batch: 101123
Prep Batch: 85703

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

Analyzed By: RL
Prepared By: RL

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

Method Blank (1) QC Batch: 101123

QC Batch: 101123
Prep Batch: 85703

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

Analyzed By: RL
Prepared By: RL

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

Method Blank (1) QC Batch: 101126

QC Batch: 101126
Prep Batch: 85706

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

Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.182	mg/L	2.5

Method Blank (1) QC Batch: 101126

QC Batch: 101126
Prep Batch: 85706

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

Analyzed By: RL
Prepared By: RL

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

Method Blank (1) QC Batch: 101132

QC Batch: 101132
Prep Batch: 85712

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

Analyzed By: LM
Prepared By: LM

Parameter	Flag	Cert	MDL Result	Units	RL
Hydroxide Alkalinity		1	<1.00	mg/L as CaCo3	20
Carbonate Alkalinity		1	<1.00	mg/L as CaCo3	20
Bicarbonate Alkalinity		1	3.00	mg/L as CaCo3	20
Total Alkalinity		1	<20.0	mg/L as CaCo3	20

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Method Blank (1) QC Batch: 101151

QC Batch: 101151
Prep Batch: 85729

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

Analyzed By: LM
Prepared By: LM

Parameter	Flag	Cert	MDL Result	Units	RL
Hydroxide Alkalinity		1	<1.00	mg/L as CaCo3	20
Carbonate Alkalinity		1	<1.00	mg/L as CaCo3	20
Bicarbonate Alkalinity		1	2.00	mg/L as CaCo3	20
Total Alkalinity		1	<20.0	mg/L as CaCo3	20

Duplicates (2) Duplicated Sample: 327401

QC Batch: 100878
Prep Batch: 85494

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

Analyzed By: AR
Prepared By: AR

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

Duplicates (1) Duplicated Sample: 327298

QC Batch: 100883
Prep Batch: 85498

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

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	2	5.85	5.78	s.u.	1	1	10

Duplicates (1) Duplicated Sample: 327302

QC Batch: 101132
Prep Batch: 85712

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

Analyzed By: LM
Prepared By: LM

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<i>duplicate continued . . .</i>						
Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	1	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	1	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	1	64.0	mg/L as CaCo3	1	2	20
Total Alkalinity	1	64.0	mg/L as CaCo3	1	2	20

Duplicates (1) Duplicated Sample: 327401

QC Batch: 101151
Prep Batch: 85729

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

Analyzed By: LM
Prepared By: LM

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	1	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	1	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	1	131	mg/L as CaCo3	1	1	20
Total Alkalinity	1	131	mg/L as CaCo3	1	1	20

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 100878
Prep Batch: 85494

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1030	mg/L	1	1000	<9.75	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
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: 100911
Prep Batch: 85524

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

Analyzed By: AH
Prepared By: AH

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

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

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

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

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control spikes continued ...

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

Laboratory Control Spike (LCS-1)

QC Batch: 100979
Prep Batch: 85587

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

Analyzed By: AH
Prepared By: AH

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

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 101119
Prep Batch: 85570

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

Analyzed By: RR
Prepared By: KV

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	48.2	mg/L	1	50.0	<0.0441	96	85 - 115
Dissolved Potassium		1	47.3	mg/L	1	50.0	<0.0443	95	85 - 115
Dissolved Magnesium		1	48.1	mg/L	1	50.0	<0.0296	96	85 - 115
Dissolved Sodium		1	48.6	mg/L	1	50.0	<0.172	97	85 - 115

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium		1	48.4	mg/L	1	50.0	<0.0441	97	85 - 115	0	20
Dissolved Potassium		1	46.0	mg/L	1	50.0	<0.0443	92	85 - 115	3	20
Dissolved Magnesium		1	48.0	mg/L	1	50.0	<0.0296	96	85 - 115	0	20
Dissolved Sodium		1	48.1	mg/L	1	50.0	<0.172	96	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: 101123
Prep Batch: 85703

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

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.2	mg/L	1	25.0	<0.169	97	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	24.9	mg/L	1	25.0	<0.169	100	90 - 110	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 101123
Prep Batch: 85703

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

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	24.6	mg/L	1	25.0	<0.224	98	90 - 110

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

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26.1	mg/L	1	25.0	<0.224	104	90 - 110	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 101126
Prep Batch: 85706

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

Analyzed By: RL
Prepared By: RL

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 101126
Prep Batch: 85706

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

Analyzed By: RL
Prepared By: RL

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 327126

QC Batch: 100911
Prep Batch: 85524

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

Analyzed By: AH
Prepared By: AH

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

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 100979
Prep Batch: 85587

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

Analyzed By: AH
Prepared By: AH

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

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

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

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

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matrix spikes continued ...

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

Matrix Spike (MS-1) Spiked Sample: 327299

QC Batch: 101119
Prep Batch: 85570

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

Analyzed By: RR
Prepared By: KV

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	2690	mg/L	100	500	2280	82	75 - 125
Dissolved Potassium		1	1090	mg/L	100	500	620	94	75 - 125
Dissolved Magnesium		1	2420	mg/L	100	500	1960	92	75 - 125
Dissolved Sodium	⁵ Q ₁₀	Q ₁₀	32400	mg/L	1000	500	32400	0	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	2700	mg/L	100	500	2280	84	75 - 125	0	20
Dissolved Potassium		1	1100	mg/L	100	500	620	96	75 - 125	1	20
Dissolved Magnesium		1	2430	mg/L	100	500	1960	94	75 - 125	0	20
Dissolved Sodium	Q ₁₀	Q ₁₀	32400	mg/L	1000	500	32400	0	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: 327303

QC Batch: 101123
Prep Batch: 85703

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	6180	mg/L	100	2500	3570	104	80 - 120

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	6550	mg/L	100	2500	3570	119	80 - 120	6	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: 327303

QC Batch: 101123
Prep Batch: 85703

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2750	mg/L	100	2500	172	103	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	2710	mg/L	100	2500	172	102	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: 327406

QC Batch: 101126
Prep Batch: 85706

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

Analyzed By: RL
Prepared By: RL

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 327406

QC Batch: 101126
Prep Batch: 85706

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

Analyzed By: RL
Prepared By: RL

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

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

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

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

Calibration Standards

Standard (ICV-1)

QC Batch: 100883

Date Analyzed: 2013-04-26

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	7.03	100	98 - 102	2013-04-26

Standard (CCV-1)

QC Batch: 100883

Date Analyzed: 2013-04-26

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	7.08	101	98 - 102	2013-04-26

Standard (CCV-1)

QC Batch: 100911

Date Analyzed: 2013-04-30

Analyzed By: AH

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

Standard (CCV-2)

QC Batch: 100911

Date Analyzed: 2013-04-30

Analyzed By: AH

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0953	95	80 - 120	2013-04-30
Toluene		2	mg/L	0.100	0.0930	93	80 - 120	2013-04-30
Ethylbenzene		2	mg/L	0.100	0.0928	93	80 - 120	2013-04-30
Xylene		2	mg/L	0.300	0.276	92	80 - 120	2013-04-30

Standard (CCV-3)

QC Batch: 100911

Date Analyzed: 2013-04-30

Analyzed By: AH

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

Standard (CCV-1)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

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

Standard (CCV-2)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.100	100	80 - 120	2013-05-02

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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	0.0981	98	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0966	97	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.280	93	80 - 120	2013-05-02

Standard (CCV-3)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

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

Standard (CCV-4)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

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

Standard (CCV-5)

QC Batch: 100979

Date Analyzed: 2013-05-02

Analyzed By: AH

Param	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	2013-05-02

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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	0.101	101	80 - 120	2013-05-02
Ethylbenzene		2	mg/L	0.100	0.0997	100	80 - 120	2013-05-02
Xylene		2	mg/L	0.300	0.289	96	80 - 120	2013-05-02

Standard (ICV-1)

QC Batch: 101119

Date Analyzed: 2013-05-07

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	50.3	99	90 - 110	2013-05-07
Dissolved Potassium		1	mg/L	55.0	54.5	99	90 - 110	2013-05-07
Dissolved Magnesium		1	mg/L	51.0	50.9	100	90 - 110	2013-05-07
Dissolved Sodium		1	mg/L	51.0	50.7	99	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101119

Date Analyzed: 2013-05-07

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	52.8	104	90 - 110	2013-05-07
Dissolved Potassium		1	mg/L	55.0	56.2	102	90 - 110	2013-05-07
Dissolved Magnesium		1	mg/L	51.0	52.1	102	90 - 110	2013-05-07
Dissolved Sodium		1	mg/L	51.0	52.2	102	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101123

Date Analyzed: 2013-05-03

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	23.9	96	90 - 110	2013-05-03

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Standard (CCV-1)

QC Batch: 101123

Date Analyzed: 2013-05-03

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	24.5	98	90 - 110	2013-05-03

Standard (CCV-2)

QC Batch: 101123

Date Analyzed: 2013-05-03

Analyzed By: RL

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

Standard (CCV-2)

QC Batch: 101123

Date Analyzed: 2013-05-03

Analyzed By: RL

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

Standard (CCV-1)

QC Batch: 101126

Date Analyzed: 2013-05-06

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	24.8	99	90 - 110	2013-05-06

Standard (CCV-1)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

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

Standard (CCV-2)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

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

Standard (CCV-2)

QC Batch: 101126

Date Analyzed: 2013-05-06

Analyzed By: RL

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

Standard (ICV-1)

QC Batch: 101132

Date Analyzed: 2013-05-07

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		1	mg/L as CaCo3	0.00	<20.0	-	-	2013-05-07
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	242	-	-	2013-05-07
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0	-	-	2013-05-07
Total Alkalinity		1	mg/L as CaCo3	250	249	100	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101132

Date Analyzed: 2013-05-07

Analyzed By: LM

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Param	Flag	Cert	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		-	2013-05-07
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	248		-	2013-05-07
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-07
Total Alkalinity		1	mg/L as CaCo3	250	255	102	90 - 110	2013-05-07

Standard (ICV-1)

QC Batch: 101151

Date Analyzed: 2013-05-07

Analyzed By: LM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-07
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	228		-	2013-05-07
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-07
Total Alkalinity		1	mg/L as CaCo3	250	230	92	90 - 110	2013-05-07

Standard (CCV-1)

QC Batch: 101151

Date Analyzed: 2013-05-07

Analyzed By: LM

Param	Flag	Cert	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		-	2013-05-07
Carbonate Alkalinity		1	mg/L as CaCo3	0.00	226		-	2013-05-07
Bicarbonate Alkalinity		1	mg/L as CaCo3	0.00	<20.0		-	2013-05-07
Total Alkalinity		1	mg/L as CaCo3	250	239	96	90 - 110	2013-05-07

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 than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

- 1 Sample confirmed by reanalysis, surrogates failed due to matrix effect.
- 2 Sample confirmed by reanalysis, surrogates failed due to matrix effect.
- 3 Sample confirmed by reanalysis, surrogates failed due to matrix effect.
- 4 RPD for LCS/LCSD is within limits.
- 5 Matrix spike diluted out.

Attachments

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

DATE: 5/8/2013

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	Cations in meq/L	Anions in meq/L	% Difference*
327298	130.74	364.54	3510.45	50.39	3.34	34.14	3892.98	0.00	0.00	0.00	4056.13	3930.46	1.573393831
327299	113.77	161.29	1409.40	15.86	3.60	26.65	1387.93	0.00	0.00	0.00	1700.32	1418.18	9.047242432
327300	446.61	283.08	2070.60	8.44	2.64	24.78	2474.02	0.00	0.00	0.00	2808.72	2501.43	5.786857967
327301	189.12	316.82	2840.55	31.21	3.22	40.39	2962.05	0.00	0.00	0.00	3377.70	3005.66	5.828192973
327302	923.15	223.83	321.47	1.62	1.26	18.26	1497.95	0.00	0.00	0.00	1470.07	1517.47	1.586657834
327303	41.92	10.04	38.19	0.32	16.40	3.58	100.71	0.00	0.00	0.00	88.46	120.69	15.40776932
327304	938.12	198.32	336.26	1.27	1.10	14.01	1320.23	0.00	0.00	0.00	1473.96	1335.34	4.93442079

TDS/EC	TDS/Cat	TDS/Anion
#DIV/0!	0.47	0.48
#DIV/0!	0.94	1.13
#DIV/0!	0.67	0.75
#DIV/0!	0.56	0.63
#DIV/0!	0.62	0.60
#DIV/0!	0.61	0.45
#DIV/0!	0.79	0.87



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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 13, 2013

Work Order: 13072621



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #1 SWD
Project Number: 114-6401632

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
336659	MW-1	water	2013-07-24	11:05	2013-07-26
336660	MW-2	water	2013-07-24	11:55	2013-07-26
336661	MW-3	water	2013-07-24	11:20	2013-07-26
336662	MW-4	water	2013-07-24	10:40	2013-07-26
336663	MW-5	water	2013-07-24	10:50	2013-07-26
336664	MW-6	water	2013-07-24	12:10	2013-07-26
336665	MW-7	water	2013-07-24	11:40	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.

This report consists of a total of 44 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

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Case Narrative

Samples for project Celero/Rock Queen #1 SWD were received by TraceAnalysis, Inc. on 2013-07-26 and assigned to work order 13072621. Samples for work order 13072621 were received intact without headspace and at a temperature of 3.3 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Alkalinity	SM 2320B	87699	2013-07-29 at 15:01	103656	2013-07-31 at 15:00
Alkalinity	SM 2320B	87699	2013-07-29 at 15:01	103657	2013-08-01 at 14:08
BTEX	S 8021B	87919	2013-08-05 at 11:30	103765	2013-08-07 at 09:40
BTEX	S 8021B	87929	2013-08-06 at 08:00	103777	2013-08-07 at 12:45
Ca, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103973	2013-08-13 at 11:56
Chloride (IC)	E 300.0	87959	2013-08-06 at 14:00	103816	2013-08-06 at 15:10
Chloride (IC)	E 300.0	87995	2013-08-08 at 09:00	103855	2013-08-08 at 09:38
Hardness	S 6010C	87768	2013-07-31 at 14:48	103973	2013-08-13 at 11:56
K, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103973	2013-08-13 at 11:56
Mg, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103973	2013-08-13 at 11:56
Na, Dissolved	S 6010C	87768	2013-07-31 at 14:48	103973	2013-08-13 at 11:56
pH	SM 4500-H+	87639	2013-07-26 at 10:44	103501	2013-07-26 at 15:32
pH	SM 4500-H+	87639	2013-07-26 at 10:44	103502	2013-07-26 at 15:33
SO4 (IC)	E 300.0	87959	2013-08-06 at 14:00	103816	2013-08-06 at 15:10
SO4 (IC)	E 300.0	87995	2013-08-08 at 09:00	103855	2013-08-08 at 09:38
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 13072621 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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114-6401632

Work Order: 13072621
Celero/Rock Queen #1 SWD

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Chavez Co., NM

Analytical Report

Sample: 336659 - MW-1

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103656
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-07-31
Sample Preparation: 2013-07-29

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	154	mg/L as CaCo3	1	20.0
Total Alkalinity		2	154	mg/L as CaCo3	1	20.0

Sample: 336659 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 103777
Prep Batch: 87929

Analytical Method: S 8021B
Date Analyzed: 2013-08-07
Sample Preparation: 2013-08-06

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1 Qsr	Qsr	0.0655	mg/L	1	0.100	66	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	0.0505	mg/L	1	0.100	50	70 - 130

Sample: 336659 - MW-1

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2210	mg/L	100	1.00
Dissolved Potassium		1	2080	mg/L	100	1.00
Dissolved Magnesium		1	4010	mg/L	100	1.00
Dissolved Sodium	Qs	1	82200	mg/L	1000	1.00

Sample: 336659 - MW-1

Laboratory: Lubbock	Analytical Method: E 300.0	Prep Method: N/A
Analysis: Chloride (IC)	Date Analyzed: 2013-08-08	Analyzed By: RL
QC Batch: 103855	Sample Preparation: 2013-08-08	Prepared By: RL
Prep Batch: 87995		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	171000	mg/L	5000	2.50

Sample: 336659 - MW-1

Laboratory: Lubbock	Analytical Method: S 6010C	Prep Method: N/A
Analysis: Hardness	Date Analyzed: 2013-08-13	Analyzed By: RR
QC Batch: 103973	Sample Preparation: 2013-07-31	Prepared By: PM
Prep Batch: 87768		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			22000	mg eq CaCO3/L	1	0.00

Sample: 336659 - MW-1

Laboratory: Midland	Analytical Method: SM 4500-H+	Prep Method: N/A
Analysis: pH	Date Analyzed: 2013-07-26	Analyzed By: AR
QC Batch: 103501	Sample Preparation: 2013-07-26	Prepared By: AR
Prep Batch: 87639		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.22	s.u.	1	0.00

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Sample: 336659 - MW-1

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 103855
Prep Batch: 87995

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

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

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

Sample: 336659 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 103619
Prep Batch: 87794

Analytical Method: SM 2540C
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-25

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	211000	mg/L	100	2.50

Sample: 336660 - MW-2

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103657
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

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

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

Sample: 336660 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 103777
Prep Batch: 87929

Analytical Method: S 8021B
Date Analyzed: 2013-08-07
Sample Preparation: 2013-08-06

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

Report Date: August 13, 2013
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Work Order: 13072621
Celero/Rock Queen #1 SWD

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0743	mg/L	1	0.100	74	70 - 130
4-Bromofluorobenzene (4-BFB)	2 Q _{tr}	Q _{tr}	0.0631	mg/L	1	0.100	63	70 - 130

Sample: 336660 - MW-2

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	3620	mg/L	100	1.00
Dissolved Potassium		1	1000	mg/L	10	1.00
Dissolved Magnesium		1	2130	mg/L	100	1.00
Dissolved Sodium	Q _s	1	41300	mg/L	1000	1.00

Sample: 336660 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 103816
Prep Batch: 87959

Analytical Method: E 300.0
Date Analyzed: 2013-08-06
Sample Preparation: 2013-08-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	73500	mg/L	5000	2.50

Sample: 336660 - MW-2

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Report Date: August 13, 2013
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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			17800	mg eq CaCO ₃ /L	1	0.00

Sample: 336660 - MW-2

Laboratory: Midland

Analysis: pH

QC Batch: 103502

Prep Batch: 87639

Analytical Method: SM 4500-H+

Date Analyzed: 2013-07-26

Sample Preparation: 2013-07-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.31	s.u.	1	0.00

Sample: 336660 - MW-2

Laboratory: Lubbock

Analysis: SO₄ (IC)

QC Batch: 103816

Prep Batch: 87959

Analytical Method: E 300.0

Date Analyzed: 2013-08-06

Sample Preparation: 2013-08-06

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

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

Sample: 336660 - MW-2

Laboratory: Midland

Analysis: TDS

QC Batch: 103619

Prep Batch: 87794

Analytical Method: SM 2540C

Date Analyzed: 2013-07-30

Sample Preparation: 2013-07-25

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	80800	mg/L	100	2.50

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Sample: 336661 - MW-3

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103657
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	163	mg/L as CaCo3	1	20.0
Total Alkalinity		2	163	mg/L as CaCo3	1	20.0

Sample: 336661 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 103765
Prep Batch: 87919

Analytical Method: S 8021B
Date Analyzed: 2013-08-07
Sample Preparation: 2013-08-05

Prep Method: S 5030B
Analyzed By: KC
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)			0.100	mg/L	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0820	mg/L	1	0.100	82	70 - 130

Sample: 336661 - MW-3

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	5070	mg/L	100	1.00
Dissolved Potassium		1	530	mg/L	10	1.00
Dissolved Magnesium		1	1970	mg/L	100	1.00

continued ...

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Work Order: 13072621
Celero/Rock Queen #1 SWD

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sample 336661 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Q*	1	33800	mg/L	1000	1.00

Sample: 336661 - MW-3

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	RL Result	Units	Dilution	RL
Chloride		1	67100	mg/L	5000	2.50

Sample: 336661 - MW-3

Laboratory: Lubbock
Analysis: Hardness Analytical Method: S 6010C Prep Method: N/A
QC Batch: 103973 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)			20800	mg eq CaCO ₃ /L	1	0.00

Sample: 336661 - MW-3

Laboratory: Midland
Analysis: pH Analytical Method: SM 4500-H+ Prep Method: N/A
QC Batch: 103502 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	6.49	s.u.	1	0.00

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Sample: 336661 - MW-3

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 103816
Prep Batch: 87959

Analytical Method: E 300.0
Date Analyzed: 2013-08-06
Sample Preparation: 2013-08-06

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

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

Sample: 336661 - MW-3

Laboratory: Midland
Analysis: TDS
QC Batch: 103619
Prep Batch: 87794

Analytical Method: SM 2540C
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-25

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	113000	mg/L	100	2.50

Sample: 336662 - MW-4

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103657
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	274	mg/L as CaCo3	1	20.0
Total Alkalinity		2	274	mg/L as CaCo3	1	20.0

Sample: 336662 - MW-4

Laboratory: Midland
Analysis: BTEX
QC Batch: 103777
Prep Batch: 87929

Analytical Method: S 8021B
Date Analyzed: 2013-08-07
Sample Preparation: 2013-08-06

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0727	mg/L	1	0.100	73	70 - 130
4-Bromofluorobenzene (4-BFB)	3 Qrr	Qrr	0.0546	mg/L	1	0.100	55	70 - 130

Sample: 336662 - MW-4

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2900	mg/L	100	1.00
Dissolved Potassium		1	1300	mg/L	100	1.00
Dissolved Magnesium		1	2910	mg/L	100	1.00
Dissolved Sodium	Qs	1	55000	mg/L	1000	1.00

Sample: 336662 - MW-4

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 103816
Prep Batch: 87959

Analytical Method: E 300.0
Date Analyzed: 2013-08-06
Sample Preparation: 2013-08-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	130000	mg/L	5000	2.50

Sample: 336662 - MW-4

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			19200	mg eq CaCO3/L	1	0.00

Sample: 336662 - MW-4

Laboratory: Midland

Analysis: pH

QC Batch: 103502

Prep Batch: 87639

Analytical Method: SM 4500-H+

Date Analyzed: 2013-07-26

Sample Preparation: 2013-07-26

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.01	s.u.	1	0.00

Sample: 336662 - MW-4

Laboratory: Lubbock

Analysis: SO4 (IC)

QC Batch: 103816

Prep Batch: 87959

Analytical Method: E 300.0

Date Analyzed: 2013-08-06

Sample Preparation: 2013-08-06

Prep Method: N/A

Analyzed By: RL

Prepared By: RL

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

Sample: 336662 - MW-4

Laboratory: Midland

Analysis: TDS

QC Batch: 103619

Prep Batch: 87794

Analytical Method: SM 2540C

Date Analyzed: 2013-07-30

Sample Preparation: 2013-07-25

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	175000	mg/L	100	2.50

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Sample: 336663 - MW-5

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103657
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	128	mg/L as CaCo3	1	20.0
Total Alkalinity		2	128	mg/L as CaCo3	1	20.0

Sample: 336663 - MW-5

Laboratory: Midland
Analysis: BTEX
QC Batch: 103765
Prep Batch: 87919

Analytical Method: S 8021B
Date Analyzed: 2013-08-07
Sample Preparation: 2013-08-05

Prep Method: S 5030B
Analyzed By: KC
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	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: 336663 - MW-5

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	3870	mg/L	100	1.00
Dissolved Potassium		1	60.1	mg/L	1	1.00
Dissolved Magnesium		1	890	mg/L	10	1.00

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sample 336663 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Q*	1	8470	mg/L	100	1.00

Sample: 336663 - MW-5

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	RL Result	Units	Dilution	RL
Chloride		1	26000	mg/L	1000	2.50

Sample: 336663 - MW-5

Laboratory: Lubbock
Analysis: Hardness Analytical Method: S 6010C Prep Method: N/A
QC Batch: 103973 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)			13300	mg eq CaCO3/L	1	0.00

Sample: 336663 - MW-5

Laboratory: Midland
Analysis: pH Analytical Method: SM 4500-H+ Prep Method: N/A
QC Batch: 103502 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	6.50	s.u.	1	0.00

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Sample: 336663 - MW-5

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

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

Sample: 336663 - MW-5

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	69300	mg/L	100	2.50

Sample: 336664 - MW-6

Laboratory:	Midland	Analytical Method:	SM 2320B	Prep Method:	N/A
Analysis:	Alkalinity	Date Analyzed:	2013-08-01	Analyzed By:	AR
QC Batch:	103657	Sample Preparation:	2013-07-29	Prepared By:	AR
Prep Batch:	87699				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	176	mg/L as CaCo3	1	20.0
Total Alkalinity		2	176	mg/L as CaCo3	1	20.0

Sample: 336664 - MW-6

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

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

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)			0.0955	mg/L	1	0.100	96	70 - 130

Sample: 336664 - MW-6

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	297	mg/L	10	1.00
Dissolved Potassium		1	11.1	mg/L	1	1.00
Dissolved Magnesium		1	32.2	mg/L	1	1.00
Dissolved Sodium	Qs	1	220	mg/L	10	1.00

Sample: 336664 - MW-6

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 103816
Prep Batch: 87959

Analytical Method: E 300.0
Date Analyzed: 2013-08-06
Sample Preparation: 2013-08-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	595	mg/L	50	2.50

Sample: 336664 - MW-6

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			875	mg eq CaCO3/L	1	0.00

Sample: 336664 - MW-6

Laboratory: Midland
Analysis: pH
QC Batch: 103502
Prep Batch: 87639

Analytical Method: SM 4500-H+
Date Analyzed: 2013-07-26
Sample Preparation: 2013-07-26

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.36	s.u.	1	0.00

Sample: 336664 - MW-6

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 103816
Prep Batch: 87959

Analytical Method: E 300.0
Date Analyzed: 2013-08-06
Sample Preparation: 2013-08-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	<125	mg/L	50	2.50

Sample: 336664 - MW-6

Laboratory: Midland
Analysis: TDS
QC Batch: 103619
Prep Batch: 87794

Analytical Method: SM 2540C
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-25

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	1400	mg/L	2	2.50

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Sample: 336665 - MW-7

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 103657
Prep Batch: 87699

Analytical Method: SM 2320B
Date Analyzed: 2013-08-01
Sample Preparation: 2013-07-29

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	74.0	mg/L as CaCo3	1	20.0
Total Alkalinity		2	74.0	mg/L as CaCo3	1	20.0

Sample: 336665 - MW-7

Laboratory: Midland
Analysis: BTEX
QC Batch: 103765
Prep Batch: 87919

Analytical Method: S 8021B
Date Analyzed: 2013-08-07
Sample Preparation: 2013-08-05

Prep Method: S 5030B
Analyzed By: KC
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	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)			0.0886	mg/L	1	0.100	89	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0823	mg/L	1	0.100	82	70 - 130

Sample: 336665 - MW-7

Laboratory: Lubbock
Analysis: Cations
QC Batch: 103973
Prep Batch: 87768

Analytical Method: S 6010C
Date Analyzed: 2013-08-13
Sample Preparation: 2013-07-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	17000	mg/L	1000	1.00
Dissolved Potassium		1	76.7	mg/L	1	1.00
Dissolved Magnesium		1	1920	mg/L	100	1.00

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sample 336665 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium	Q#	1	6490	mg/L	100	1.00

Sample: 336665 - MW-7

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	RL Result	Units	Dilution	RL
Chloride		1	48600	mg/L	1000	2.50

Sample: 336665 - MW-7

Laboratory: Lubbock
Analysis: Hardness Analytical Method: S 6010C Prep Method: N/A
QC Batch: 103973 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)			50300	mg eq CaCO3/L	1	0.00

Sample: 336665 - MW-7

Laboratory: Midland
Analysis: pH Analytical Method: SM 4500-H+ Prep Method: N/A
QC Batch: 103502 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	6.11	s.u.	1	0.00

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Sample: 336665 - MW-7

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 103816
Prep Batch: 87959

Analytical Method: E 300.0
Date Analyzed: 2013-08-06
Sample Preparation: 2013-08-06

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

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

Sample: 336665 - MW-7

Laboratory: Midland
Analysis: TDS
QC Batch: 103619
Prep Batch: 87794

Analytical Method: SM 2540C
Date Analyzed: 2013-07-30
Sample Preparation: 2013-07-25

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	94900	mg/L	100	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: 103657

QC Batch: 103657 Date Analyzed: 2013-08-01 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

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Method Blank (1) QC Batch: 103765

QC Batch: 103765
Prep Batch: 87919

Date Analyzed: 2013-08-07
QC Preparation: 2013-08-05

Analyzed By: KC
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: 103777

QC Batch: 103777
Prep Batch: 87929

Date Analyzed: 2013-08-07
QC Preparation: 2013-08-06

Analyzed By: KC
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)			0.106	mg/L	1	0.100	106	70 - 130
4-Bromofluorobenzene (4-BFB)			0.101	mg/L	1	0.100	101	70 - 130

Method Blank (1) QC Batch: 103816

QC Batch: 103816
Prep Batch: 87959

Date Analyzed: 2013-08-06
QC Preparation: 2013-08-06

Analyzed By: RL
Prepared By: RL

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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: 103855

QC Batch: 103855 Date Analyzed: 2013-08-08 Analyzed By: RL
Prep Batch: 87995 QC Preparation: 2013-08-08 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.363	mg/L	2.5

Method Blank (1) QC Batch: 103855

QC Batch: 103855 Date Analyzed: 2013-08-08 Analyzed By: RL
Prep Batch: 87995 QC Preparation: 2013-08-08 Prepared By: RL

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

Method Blank (1) QC Batch: 103973

QC Batch: 103973 Date Analyzed: 2013-08-13 Analyzed By: RR
Prep Batch: 87768 QC Preparation: 2013-07-31 Prepared By: PM

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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
Prep Batch: 87794

Date Analyzed: 2013-07-30
QC Preparation: 2013-07-25

Analyzed By: AR
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
Prep Batch: 87794

Date Analyzed: 2013-07-30
QC Preparation: 2013-07-25

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	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-2)

QC Batch: 103619
Prep Batch: 87794

Date Analyzed: 2013-07-30
QC Preparation: 2013-07-25

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1040	mg/L	1	1000	<2.50	104	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	1070	mg/L	1	1000	<2.50	107	87.8 - 109.1	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: 103765
Prep Batch: 87919

Date Analyzed: 2013-08-07
QC Preparation: 2013-08-05

Analyzed By: KC
Prepared By: KC

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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	LCS 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.

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS 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: 103777
Prep Batch: 87929

Date Analyzed: 2013-08-07
QC Preparation: 2013-08-06

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.107	mg/L	1	0.100	<0.000200	107	70 - 130
Toluene		2	0.108	mg/L	1	0.100	<0.000300	108	70 - 130
Ethylbenzene		2	0.104	mg/L	1	0.100	<0.000400	104	70 - 130
Xylene		2	0.314	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	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.110	mg/L	1	0.100	<0.000200	110	70 - 130	3	20
Toluene		2	0.110	mg/L	1	0.100	<0.000300	110	70 - 130	2	20
Ethylbenzene		2	0.108	mg/L	1	0.100	<0.000400	108	70 - 130	4	20
Xylene		2	0.324	mg/L	1	0.300	<0.00120	108	70 - 130	3	20

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.102	mg/L	1	0.100	102	102	70 - 130
4-Bromofluorobenzene (4-BFB)	0.108	0.107	mg/L	1	0.100	108	107	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 103816
Prep Batch: 87959

Date Analyzed: 2013-08-06
QC Preparation: 2013-08-06

Analyzed By: RL
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
Prep Batch: 87959

Date Analyzed: 2013-08-06
QC Preparation: 2013-08-06

Analyzed By: RL
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.

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Laboratory Control Spike (LCS-1)

QC Batch: 103855
Prep Batch: 87995

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

Analyzed By: RL
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	25.4	mg/L	1	25.0	<0.169	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: 103855
Prep Batch: 87995

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

Analyzed By: RL
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: 103973
Prep Batch: 87768

Date Analyzed: 2013-08-13
QC Preparation: 2013-07-31

Analyzed By: RR
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

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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
Prep Batch: 87919

Date Analyzed: 2013-08-07
QC Preparation: 2013-08-05

Analyzed By: KC
Prepared By: KC

Param			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	Q ⁿ	Q ⁿ	2	0.0680	mg/L	1	0.100	<0.000400	68	70 - 130
Xylene	Q ⁿ	Q ⁿ	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		Dil.	Spike	Matrix	Rec.	Rec.	RPD	RPD	
			Result	Units		Amount	Result		Limit		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	Q _s	Q _s	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)	0.0651	0.0614	mg/L	1	0.1	65	61	70 - 130

Matrix Spike (MS-1) Spiked Sample: 337354

QC Batch: 103777
Prep Batch: 87929

Date Analyzed: 2013-08-07
QC Preparation: 2013-08-06

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Q ⁿ	Q ⁿ	2	0.0267	mg/L	1	0.100	<0.000200	27 70 - 130
Toluene	Q ⁿ	Q ⁿ	2	0.0247	mg/L	1	0.100	<0.000300	25 70 - 130
Ethylbenzene	Q ⁿ	Q ⁿ	2	0.0228	mg/L	1	0.100	<0.000400	23 70 - 130
Xylene	Q ⁿ	Q ⁿ	2	0.0660	mg/L	1	0.300	<0.00120	22 70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	Q ^r , Q ^s	Q ^r , Q ^s	2	0.0144	mg/L	1	0.100	<0.000200	14 70 - 130	60	20
Toluene	Q ^r , Q ^s	Q ^r , Q ^s	2	0.0134	mg/L	1	0.100	<0.000300	13 70 - 130	59	20
Ethylbenzene	Q ^r , Q ^s	Q ^r , Q ^s	2	0.0143	mg/L	1	0.100	<0.000400	14 70 - 130	46	20
Xylene	Q ^r , Q ^s	Q ^r , Q ^s	2	0.0417	mg/L	1	0.300	<0.00120	14 70 - 130	45	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)	0.0960	0.0977	mg/L	1	0.1	96	98	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0958	0.0962	mg/L	1	0.1	96	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 336665

QC Batch: 103816
Prep Batch: 87959

Date Analyzed: 2013-08-06
QC Preparation: 2013-08-06

Analyzed By: RL
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.

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Matrix Spike (MS-1) Spiked Sample: 336665

QC Batch: 103816
Prep Batch: 87959

Date Analyzed: 2013-08-06
QC Preparation: 2013-08-06

Analyzed By: RL
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: 336539

QC Batch: 103855
Prep Batch: 87995

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	134	mg/L	5	125	9.25	100	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	139	mg/L	5	125	9.25	104	80 - 120	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: 336539

QC Batch: 103855
Prep Batch: 87995

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

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	138	mg/L	5	125	9.68	103	80 - 120

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	142	mg/L	5	125	9.68	106	80 - 120	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: 336660

QC Batch: 103973
Prep Batch: 87768

Date Analyzed: 2013-08-13
QC Preparation: 2013-07-31

Analyzed By: RR
Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	4140	mg/L	1	500	3620	104	75 - 125
Dissolved Potassium		1	1550	mg/L	1	500	1000	110	75 - 125
Dissolved Magnesium		1	2650	mg/L	1	500	2130	104	75 - 125
Dissolved Sodium	Q*	Q*	40600	mg/L	1	500	41300	-140	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	4120	mg/L	1	500	3620	100	75 - 125	0	20
Dissolved Potassium		1	1560	mg/L	1	500	1000	112	75 - 125	1	20
Dissolved Magnesium		1	2630	mg/L	1	500	2130	100	75 - 125	1	20
Dissolved Sodium	Q*	Q*	40400	mg/L	1	500	41300	-180	75 - 125	0	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: 103502

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	6.94	99	98 - 102	2013-07-26

Standard (CCV-1)

QC Batch: 103502

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 (ICV-1)

QC Batch: 103657

Date Analyzed: 2013-08-01

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-08-01
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	244		-	2013-08-01
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-08-01
Total Alkalinity		2	mg/L as CaCo3	250	245	98	90 - 110	2013-08-01

Standard (CCV-1)

QC Batch: 103657

Date Analyzed: 2013-08-01

Analyzed By: AR

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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	<1.00		-	2013-08-01
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	226		-	2013-08-01
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	33.0		-	2013-08-01
Total Alkalinity		2	mg/L as CaCo3	250	259	104	90 - 110	2013-08-01

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

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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: 103777

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	0.106	106	80 - 120	2013-08-07

continued ...

Report Date: August 13, 2013
114-6401632

Work Order: 13072621
Celero/Rock Queen #1 SWD

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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	0.106	106	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.105	105	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.314	105	80 - 120	2013-08-07

Standard (CCV-2)

QC Batch: 103777

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	0.112	112	80 - 120	2013-08-07
Toluene		2	mg/L	0.100	0.110	110	80 - 120	2013-08-07
Ethylbenzene		2	mg/L	0.100	0.109	109	80 - 120	2013-08-07
Xylene		2	mg/L	0.300	0.326	109	80 - 120	2013-08-07

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

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114-6401632

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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 (CCV-1)

QC Batch: 103855

Date Analyzed: 2013-08-08

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.4	102	90 - 110	2013-08-08

Standard (CCV-1)

QC Batch: 103855

Date Analyzed: 2013-08-08

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-08-08

Standard (CCV-2)

QC Batch: 103855

Date Analyzed: 2013-08-08

Analyzed By: RL

Report Date: August 13, 2013
114-6401632

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Celero/Rock Queen #1 SWD

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.8	103	90 - 110	2013-08-08

Standard (CCV-2)

QC Batch: 103855

Date Analyzed: 2013-08-08

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-08-08

Standard (ICV-1)

QC Batch: 103973

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: 103973

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	53.7	105	90 - 110	2013-08-13
Dissolved Potassium		1	mg/L	55.0	57.1	104	90 - 110	2013-08-13
Dissolved Magnesium		1	mg/L	51.0	53.8	105	90 - 110	2013-08-13
Dissolved Sodium		1	mg/L	51.0	53.6	105	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 than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

- 1 Surrogate failure confirmed by sample reanalysis.
- 2 Surrogate failure confirmed by sample reanalysis.
- 3 Surrogate failure confirmed by sample reanalysis.
- 4 RPD failing due to prep error. LCS/LCSD show recovery for batch to be under control.

Attachments

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

1307 2621

Analysis Request of Chain of Custody Record

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

CLIENT NAME: Celerb Energy		SITE MANAGER: Greg Pope	
PROJECT NO.: 114-6401632		PROJECT NAME: Rock Queen SWD #1	
LAB I.D. NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
336659	7/24/13	1105	mw-1
660		1155	mw-2
661		1120	mw-3
662		640	mw-4
663		1050	mw-5
664		1210	mw-6
665		1140	mw-7

NUMBER OF CONTAINERS	PRESERVATIVE METHOD			
	HCL	HNO3	ICE	NONE
5	X		X	

RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
<i>[Signature]</i>	7/24/13	8:30	<i>[Signature]</i>	7-26-13	8:30
RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
<i>[Signature]</i>	7-26-13	8:30	<i>[Signature]</i>	7-26-13	8:30
RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
<i>[Signature]</i>	7-26-13	8:30	<i>[Signature]</i>	7-26-13	8:30

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

SAMPLE CONDITION WHEN RECEIVED:	330
---------------------------------	-----

REMARKS:	Midland - BTEX/TDS off/alk Lubrod ill other
----------	---

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

PAGE: 1 OF: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

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 Cr Pb 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/OUT/TDS
Ext. to C35
3.2/3.5-AH

Results by:

RUSH Charges
Authorized:

Yes No

DATE: 8/13/2013

DATE: 8/13/2013

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
336659	2210	4010	82200	2080	154.00	2110	171000				211000	
336660	3620	2130	41300	1000	179.00	1460	73500				80900	
336661	5070	1970	33800	530	163.00	0	67100				113200	
336662	2900	2910	55000	1300	274.00	2170	130000				175400	
336663	3870	890	8470	60.1	128.00	1040	26000				69300	
336664	297	32.2	220	11.1	176.00	106	595				1400	
336665	17000	1920	6490	76.7	74.00	543	48600				94900	

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*
336659	110.28	329.98	3575.70	53.21	3.08	43.93	4823.91	0.00	0.00	0.00	4069.17	4870.92	8.96805328
336660	180.64	175.28	1796.55	25.58	3.58	30.40	2073.44	0.00	0.00	0.00	2178.05	2107.41	1.648213602
336661	252.99	162.11	1470.30	13.56	3.26	0.00	1892.89	0.00	0.00	0.00	1899.96	1896.15	0.074061042
336662	144.71	239.46	2392.50	33.25	5.48	45.18	3667.30	0.00	0.00	0.00	2809.93	3717.96	13.91003841
336663	193.11	73.24	368.45	1.54	2.56	21.65	733.46	0.00	0.00	0.00	636.33	757.67	8.704361354
336664	14.82	2.65	9.57	0.28	3.52	2.21	16.78	0.00	0.00	0.00	27.32	22.51	9.655913135
336665	848.30	158.00	282.32	1.96	1.48	11.31	1371.01	0.00	0.00	0.00	1290.57	1383.79	3.485592744

	EC/Cation	EC/Anion
336659	406916.83	487092.02
336660	217804.57	210741.22
336661	189896.17	189615.1
336662	280952.79	371795.94
336663	63633.3458	75767.28
336664	2732.3976	2251.187
336665	129057.3786	138579.126

TDS/EC	TDS/Cat	TDS/Anion
#DIV/0!	0.52	0.43
#DIV/0!	0.37	0.38
#DIV/0!	0.60	0.60
#DIV/0!	0.62	0.47
#DIV/0!	1.09	0.91
#DIV/0!	0.51	0.62
#DIV/0!	0.74	0.69

needs to be 0.55-0.77



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

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

Report Date: November 20, 2013

Work Order: 13103142



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #1 SWD
Project Number: 114-6401632

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
345409	MW-1	water	2013-10-30	17:05	2013-10-31
345410	MW-2	water	2013-10-30	17:30	2013-10-31
345411	MW-3	water	2013-10-30	17:45	2013-10-31
345412	MW-4	water	2013-10-30	16:40	2013-10-31
345413	MW-5	water	2013-10-30	16:50	2013-10-31
345414	MW-6	water	2013-10-30	17:15	2013-10-31
345415	MW-7	water	2013-10-30	18:00	2013-10-31

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

This report consists of a total of 48 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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

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QC Batch 106762 - LCS (1)	32
QC Batch 106763 - LCS (1)	32
QC Batch 106763 - LCS (1)	33
QC Batch 106869 - LCS (1)	33
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QC Batch 106631 - CCV (1)	42
QC Batch 106733 - ICV (1)	42
QC Batch 106733 - CCV (1)	43
QC Batch 106762 - CCV (1)	43
QC Batch 106762 - CCV (2)	43
QC Batch 106763 - CCV (1)	43
QC Batch 106763 - CCV (1)	44
QC Batch 106763 - CCV (2)	44
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Case Narrative

Samples for project Celero/Rock Queen #1 SWD were received by TraceAnalysis, Inc. on 2013-10-31 and assigned to work order 13103142. Samples for work order 13103142 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
Alkalinity	SM 2320B	90295	2013-11-03 at 12:14	106631	2013-11-07 at 13:22
BTEX	S 8021B	90166	2013-11-01 at 14:16	106532	2013-11-05 at 12:41
BTEX	S 8021B	90232	2013-11-06 at 09:36	106590	2013-11-07 at 07:28
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	90413	2013-11-13 at 14:00	106763	2013-11-13 at 15:58
Chloride (IC)	E 300.0	90525	2013-11-19 at 14:00	106908	2013-11-19 at 16:14
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+	90132	2013-10-31 at 14:49	106467	2013-10-31 at 16:55
SO4 (IC)	E 300.0	90413	2013-11-13 at 14:00	106763	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
SO4 (IC)	E 300.0	90525	2013-11-19 at 14:00	106908	2013-11-19 at 16:14
TDS	SM 2540C	90202	2013-11-03 at 11:09	106607	2013-11-04 at 17:33
TDS	SM 2540C	90203	2013-11-04 at 13:10	106608	2013-11-05 at 16:48

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 13103142 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: 345409 - MW-1

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 106628
Prep Batch: 90295

Analytical Method: SM 2320B
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-03

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	166	mg/L as CaCo3	1	20.0
Total Alkalinity		2	166	mg/L as CaCo3	1	20.0

Sample: 345409 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 106590
Prep Batch: 90232

Analytical Method: S 8021B
Date Analyzed: 2013-11-07
Sample Preparation: 2013-11-06

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	I Q _{nr} , U	2	<0.00500	mg/L	5	0.00100
Toluene	Q _{nr} , U	2	<0.00500	mg/L	5	0.00100
Ethylbenzene	Q _{nr} , U	2	<0.00500	mg/L	5	0.00100
Xylene	Q _{nr} , U	2	<0.00500	mg/L	5	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{nr}	Q _{nr}	0.487	mg/L	5	0.100	487	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{nr}	Q _{nr}	0.485	mg/L	5	0.100	485	70 - 130

Sample: 345409 - MW-1

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Report Date: November 20, 2013
114-6401632

Work Order: 13103142
Celero/Rock Queen #1 SWD

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Chavez Co., NM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	1710	mg/L	100	1.00
Dissolved Potassium		1	1480	mg/L	100	1.00
Dissolved Magnesium		1	3550	mg/L	100	1.00
Dissolved Sodium		1	74200	mg/L	1000	1.00

Sample: 345409 - MW-1

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 106762
Prep Batch: 90412

Analytical Method: E 300.0
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q*	1	187000	mg/L	5000	2.50

Sample: 345409 - MW-1

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			19000	mg eq CaCO3/L	1	0.00

Sample: 345409 - MW-1

Laboratory: Midland
Analysis: pH
QC Batch: 106467
Prep Batch: 90132

Analytical Method: SM 4500-H+
Date Analyzed: 2013-10-31
Sample Preparation: 2013-10-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	5.94	s.u.	1	0.00

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Sample: 345409 - MW-1

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1930	mg/L	500	2.50

Sample: 345409 - MW-1

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	221000	mg/L	100	2.50

Sample: 345410 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2320B	Prep Method:	N/A
Analysis:	Alkalinity	Date Analyzed:	2013-11-07	Analyzed By:	AR
QC Batch:	106631	Sample Preparation:	2013-11-03	Prepared By:	AR
Prep Batch:	90295				

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	187	mg/L as CaCo3	1	20.0
Total Alkalinity		2	187	mg/L as CaCo3	1	20.0

Sample: 345410 - MW-2

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0830	mg/L	1	0.100	83	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0730	mg/L	1	0.100	73	70 - 130

Sample: 345410 - MW-2

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	1830	mg/L	100	1.00
Dissolved Potassium		1	614	mg/L	10	1.00
Dissolved Magnesium		1	1300	mg/L	100	1.00
Dissolved Sodium		1	24400	mg/L	1000	1.00

Sample: 345410 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 106763
Prep Batch: 90413

Analytical Method: E 300.0
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	63400	mg/L	5000	2.50

Sample: 345410 - MW-2

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			9920	mg eq CaCO3/L	1	0.00

Sample: 345410 - MW-2

Laboratory: Midland
Analysis: pH
QC Batch: 106467
Prep Batch: 90132

Analytical Method: SM 4500-H+
Date Analyzed: 2013-10-31
Sample Preparation: 2013-10-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.67	s.u.	1	0.00

Sample: 345410 - MW-2

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 106869
Prep Batch: 90492

Analytical Method: E 300.0
Date Analyzed: 2013-11-15
Sample Preparation: 2013-11-15

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	746	mg/L	100	2.50

Sample: 345410 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 106608
Prep Batch: 90203

Analytical Method: SM 2540C
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	71000	mg/L	100	2.50

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Sample: 345411 - MW-3

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 106631
Prep Batch: 90295

Analytical Method: SM 2320B
Date Analyzed: 2013-11-07
Sample Preparation: 2013-11-03

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	150	mg/L as CaCo3	1	20.0
Total Alkalinity		2	150	mg/L as CaCo3	1	20.0

Sample: 345411 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 106532
Prep Batch: 90166

Analytical Method: S 8021B
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-01

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	2	<0.00100	mg/L	1	0.00100
Toluene	u	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	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)			0.0801	mg/L	1	0.100	80	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0741	mg/L	1	0.100	74	70 - 130

Sample: 345411 - MW-3

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2820	mg/L	100	1.00
Dissolved Potassium		1	550	mg/L	10	1.00
Dissolved Magnesium		1	1550	mg/L	100	1.00

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	28300	mg/L	1000	1.00

Sample: 345411 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106763	Date Analyzed:	2013-11-13	Analyzed By:	RL
Prep Batch:	90413	Sample Preparation:	2013-11-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	65200	mg/L	5000	2.50

Sample: 345411 - 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)			13400	mg eq CaCO3/L	1	0.00

Sample: 345411 - MW-3

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106467	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90132	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.24	s.u.	1	0.00

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Sample: 345411 - MW-3

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	940	mg/L	100	2.50

Sample: 345411 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2013-11-05	Analyzed By:	AR
QC Batch:	106608	Sample Preparation:	2013-11-04	Prepared By:	AR
Prep Batch:	90203				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	153000	mg/L	100	2.50

Sample: 345412 - MW-4

Laboratory:	Midland	Analytical Method:	SM 2320B	Prep Method:	N/A
Analysis:	Alkalinity	Date Analyzed:	2013-11-07	Analyzed By:	AR
QC Batch:	106631	Sample Preparation:	2013-11-03	Prepared By:	AR
Prep Batch:	90295				

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	191	mg/L as CaCo3	1	20.0
Total Alkalinity		2	191	mg/L as CaCo3	1	20.0

Sample: 345412 - MW-4

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2013-11-07	Analyzed By:	AK
QC Batch:	106590	Sample Preparation:	2013-11-06	Prepared By:	AK
Prep Batch:	90232				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q _{s,U}	2	<0.00100	mg/L	1	0.00100
Toluene	Q _{s,U}	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Q _{s,U}	2	<0.00100	mg/L	1	0.00100
Xylene	Q _{s,U}	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0698	mg/L	1	0.100	70	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0780	mg/L	1	0.100	78	70 - 130

Sample: 345412 - MW-4

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2370	mg/L	100	1.00
Dissolved Potassium		1	1150	mg/L	10	1.00
Dissolved Magnesium		1	2970	mg/L	100	1.00
Dissolved Sodium		1	53700	mg/L	1000	1.00

Sample: 345412 - MW-4

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 106763
Prep Batch: 90413

Analytical Method: E 300.0
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	132000	mg/L	5000	2.50

Sample: 345412 - MW-4

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			18200	mg eq CaCO3/L	1	0.00

Sample: 345412 - MW-4

Laboratory: Midland
Analysis: pH
QC Batch: 106467
Prep Batch: 90132

Analytical Method: SM 4500-H+
Date Analyzed: 2013-10-31
Sample Preparation: 2013-10-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.38	s.u.	1	0.00

Sample: 345412 - MW-4

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 106869
Prep Batch: 90492

Analytical Method: E 300.0
Date Analyzed: 2013-11-15
Sample Preparation: 2013-11-15

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	2070	mg/L	500	2.50

Sample: 345412 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 106608
Prep Batch: 90203

Analytical Method: SM 2540C
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	144000	mg/L	100	2.50

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Sample: 345413 - MW-5

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 106631
Prep Batch: 90295

Analytical Method: SM 2320B
Date Analyzed: 2013-11-07
Sample Preparation: 2013-11-03

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	108	mg/L as CaCo3	1	20.0
Total Alkalinity		2	108	mg/L as CaCo3	1	20.0

Sample: 345413 - MW-5

Laboratory: Midland
Analysis: BTEX
QC Batch: 106532
Prep Batch: 90166

Analytical Method: S 8021B
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-01

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	2	<0.00100	mg/L	1	0.00100
Toluene	u	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	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)			0.0837	mg/L	1	0.100	84	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0766	mg/L	1	0.100	77	70 - 130

Sample: 345413 - MW-5

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	2600	mg/L	100	1.00
Dissolved Potassium		1	57.9	mg/L	10	1.00
Dissolved Magnesium		1	865	mg/L	10	1.00

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	7810	mg/L	100	1.00

Sample: 345413 - MW-5

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2013-11-19	Analyzed By:	RL
QC Batch:	106908	Sample Preparation:	2013-11-19	Prepared By:	RL
Prep Batch:	90525				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q*	1	20400	mg/L	1000	2.50

Sample: 345413 - MW-5

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			10000	mg eq CaCO3/L	1	0.00

Sample: 345413 - MW-5

Laboratory:	Midland	Analytical Method:	SM 4500-H+	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2013-10-31	Analyzed By:	AR
QC Batch:	106467	Sample Preparation:	2013-10-31	Prepared By:	AR
Prep Batch:	90132				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.74	s.u.	1	0.00

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Sample: 345413 - MW-5

Laboratory: Lubbock
Analysis: SO₄ (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 106908 Date Analyzed: 2013-11-19 Analyzed By: RL
Prep Batch: 90525 Sample Preparation: 2013-11-19 Prepared By: RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	928	mg/L	100	2.50

Sample: 345413 - MW-5

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 106608 Date Analyzed: 2013-11-05 Analyzed By: AR
Prep Batch: 90203 Sample Preparation: 2013-11-04 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	39200	mg/L	50	2.50

Sample: 345414 - MW-6

Laboratory: Midland
Analysis: Alkalinity Analytical Method: SM 2320B Prep Method: N/A
QC Batch: 106631 Date Analyzed: 2013-11-07 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	157	mg/L as CaCo3	1	20.0
Total Alkalinity		2	157	mg/L as CaCo3	1	20.0

Sample: 345414 - MW-6

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0825	mg/L	1	0.100	82	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0757	mg/L	1	0.100	76	70 - 130

Sample: 345414 - MW-6

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	244	mg/L	10	1.00
Dissolved Potassium		1	11.7	mg/L	10	1.00
Dissolved Magnesium		1	24.6	mg/L	10	1.00
Dissolved Sodium		1	131	mg/L	10	1.00

Sample: 345414 - MW-6

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 106763
Prep Batch: 90413

Analytical Method: E 300.0
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	430	mg/L	50	2.50

Sample: 345414 - MW-6

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			710	mg eq CaCO3/L	1	0.00

Sample: 345414 - MW-6

Laboratory: Midland
Analysis: pH
QC Batch: 106467
Prep Batch: 90132

Analytical Method: SM 4500-H+
Date Analyzed: 2013-10-31
Sample Preparation: 2013-10-31

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	7.21	s.u.	1	0.00

Sample: 345414 - MW-6

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 106763
Prep Batch: 90413

Analytical Method: E 300.0
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-13

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	156	mg/L	50	2.50

Sample: 345414 - MW-6

Laboratory: Midland
Analysis: TDS
QC Batch: 106608
Prep Batch: 90203

Analytical Method: SM 2540C
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-04

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	1720	mg/L	2	2.50

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Sample: 345415 - MW-7

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 106631
Prep Batch: 90295

Analytical Method: SM 2320B
Date Analyzed: 2013-11-07
Sample Preparation: 2013-11-03

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	u	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	90.0	mg/L as CaCo3	1	20.0
Total Alkalinity		2	90.0	mg/L as CaCo3	1	20.0

Sample: 345415 - MW-7

Laboratory: Midland
Analysis: BTEX
QC Batch: 106532
Prep Batch: 90166

Analytical Method: S 8021B
Date Analyzed: 2013-11-05
Sample Preparation: 2013-11-01

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	2	<0.00100	mg/L	1	0.00100
Toluene	u	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	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)			0.0875	mg/L	1	0.100	88	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0769	mg/L	1	0.100	77	70 - 130

Sample: 345415 - MW-7

Laboratory: Lubbock
Analysis: Cations
QC Batch: 106733
Prep Batch: 90324

Analytical Method: S 6010C
Date Analyzed: 2013-11-13
Sample Preparation: 2013-11-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	3000	mg/L	100	1.00
Dissolved Potassium		1	31.2	mg/L	10	1.00
Dissolved Magnesium		1	417	mg/L	10	1.00

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	706	mg/L	10	1.00

Sample: 345415 - MW-7

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106763	Date Analyzed:	2013-11-13	Analyzed By:	RL
Prep Batch:	90413	Sample Preparation:	2013-11-13	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	8050	mg/L	500	2.50

Sample: 345415 - MW-7

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)			9210	mg eq CaCO ₃ /L	1	0.00

Sample: 345415 - MW-7

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106467	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90132	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	6.33	s.u.	1	0.00

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Sample: 345415 - MW-7

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	61.2	mg/L	10	2.50

Sample: 345415 - MW-7

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2013-11-05	Analyzed By:	AR
QC Batch:	106608	Sample Preparation:	2013-11-04	Prepared By:	AR
Prep Batch:	90203				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	92300	mg/L	100	2.50

Method Blanks

Method Blank (1) QC Batch: 106532

QC Batch: 106532
Prep Batch: 90166

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-01

Analyzed By: AK
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: 106590

QC Batch: 106590
Prep Batch: 90232

Date Analyzed: 2013-11-07
QC Preparation: 2013-11-06

Analyzed By: AK
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)			0.0982	mg/L	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0987	mg/L	1	0.100	99	70 - 130

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Method Blank (1) QC Batch: 106607

QC Batch: 106607
Prep Batch: 90202

Date Analyzed: 2013-11-04
QC Preparation: 2013-11-03

Analyzed By: AR
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: 106608

QC Batch: 106608
Prep Batch: 90203

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-04

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 106628

QC Batch: 106628
Prep Batch: 90295

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-03

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 106631

QC Batch: 106631
Prep Batch: 90295

Date Analyzed: 2013-11-07
QC Preparation: 2013-11-03

Analyzed By: AR
Prepared By: AR

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

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method blank continued . . .

Parameter	Flag	Cert	MDL Result	Units	RL
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: 106733

QC Batch: 106733
Prep Batch: 90324

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-08

Analyzed By: RR
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
Prep Batch: 90412

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
Prepared By: RL

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

Method Blank (1) QC Batch: 106763

QC Batch: 106763
Prep Batch: 90413

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.365	mg/L	2.5

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Method Blank (1) QC Batch: 106763

QC Batch: 106763
Prep Batch: 90413

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
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
Prep Batch: 90492

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-15

Analyzed By: RL
Prepared By: RL

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

Method Blank (1) QC Batch: 106908

QC Batch: 106908
Prep Batch: 90525

Date Analyzed: 2013-11-19
QC Preparation: 2013-11-19

Analyzed By: RL
Prepared By: RL

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

Method Blank (1) QC Batch: 106908

QC Batch: 106908
Prep Batch: 90525

Date Analyzed: 2013-11-19
QC Preparation: 2013-11-19

Analyzed By: RL
Prepared By: RL

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

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Duplicates (1) Duplicated Sample: 345409

QC Batch: 106467
Prep Batch: 90132

Date Analyzed: 2013-10-31
QC Preparation: 2013-10-31

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	2	5.98	5.94	s.u.	1	1	10

Duplicates (1) Duplicated Sample: 345394

QC Batch: 106607
Prep Batch: 90202

Date Analyzed: 2013-11-04
QC Preparation: 2013-11-03

Analyzed By: AR
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: 345419

QC Batch: 106608
Prep Batch: 90203

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-04

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	3000	10200	mg/L	5	8	10

Duplicates (1) Duplicated Sample: 345393

QC Batch: 106628
Prep Batch: 90295

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-03

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	2	82.0	75.0	mg/L as CaCo3	1	9	20

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<i>duplicate continued ...</i>						
Param		Duplicate Result	Sample Result	Units	Dilution	RPD Limit
Total Alkalinity	2	82.0	75.0	mg/L as CaCo3	1	9 20

Duplicates (1) Duplicated Sample: 345410

QC Batch: 106631
Prep Batch: 90295

Date Analyzed: 2013-11-07
QC Preparation: 2013-11-03

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	2	205	187	mg/L as CaCo3	1	9	20
Total Alkalinity	2	205	187	mg/L as CaCo3	1	9	20

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 106532
Prep Batch: 90166

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-01

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0848	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	LCS 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	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS 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: 106590
Prep Batch: 90232

Date Analyzed: 2013-11-07
QC Preparation: 2013-11-06

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.102	mg/L	1	0.100	<0.000200	102	70 - 130
Toluene		2	0.100	mg/L	1	0.100	<0.000300	100	70 - 130
Ethylbenzene		2	0.0976	mg/L	1	0.100	<0.000400	98	70 - 130
Xylene		2	0.296	mg/L	1	0.300	<0.00120	99	70 - 130

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

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.104	mg/L	1	0.100	<0.000200	104	70 - 130	2	20
Toluene		2	0.103	mg/L	1	0.100	<0.000300	103	70 - 130	3	20
Ethylbenzene		2	0.0993	mg/L	1	0.100	<0.000400	99	70 - 130	2	20
Xylene		2	0.300	mg/L	1	0.300	<0.00120	100	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	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0970	0.0972	mg/L	1	0.100	97	97	70 - 130
4-Bromofluorobenzene (4-BFB)	0.103	0.102	mg/L	1	0.100	103	102	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 106607
Prep Batch: 90202

Date Analyzed: 2013-11-04
QC Preparation: 2013-11-03

Analyzed By: AR
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.

Param	F	C	LCS 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: 106608
Prep Batch: 90203

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-04

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	965	mg/L	1	1000	<2.50	96	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	1040	mg/L	1	1000	<2.50	104	90 - 110	8	10

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

Laboratory Control Spike (LCS-1)

QC Batch: 106733
Prep Batch: 90324

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-08

Analyzed By: RR
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
Prep Batch: 90412

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
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.

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Laboratory Control Spike (LCS-1)

QC Batch: 106763
Prep Batch: 90413

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
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	0.365	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	25.8	mg/L	1	25.0	0.365	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: 106763
Prep Batch: 90413

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	27.0	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	26.7	mg/L	1	25.0	<0.132	107	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: 106869
Prep Batch: 90492

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-15

Analyzed By: RL
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.

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Param	F	C	LCS 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: 106908
Prep Batch: 90525

Date Analyzed: 2013-11-19
QC Preparation: 2013-11-19

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.1	mg/L	1	25.0	<0.254	100	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	27.2	mg/L	1	25.0	<0.254	109	90 - 110	8	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: 106908
Prep Batch: 90525

Date Analyzed: 2013-11-19
QC Preparation: 2013-11-19

Analyzed By: RL
Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.4	mg/L	1	25.0	<0.132	102	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	25.0	mg/L	1	25.0	<0.132	100	90 - 110	2	20

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

Matrix Spike (MS-1) Spiked Sample: 345391

QC Batch: 106532
Prep Batch: 90166

Date Analyzed: 2013-11-05
QC Preparation: 2013-11-01

Analyzed By: AK
Prepared By: AK

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0861	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.

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 (TF1)	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: 345409

QC Batch: 106590
Prep Batch: 90232

Date Analyzed: 2013-11-07
QC Preparation: 2013-11-06

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Q*	Q*	2	0.528	mg/L	5	0.100	<0.00100	528
Toluene	Q*	Q*	2	0.511	mg/L	5	0.100	<0.00150	511
Ethylbenzene	Q*	Q*	2	0.472	mg/L	5	0.100	<0.00200	472
Xylene	Q*	Q*	2	1.42	mg/L	5	0.300	<0.00600	473

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	Q*	Q*	2	0.521	mg/L	5	0.100	<0.00100	521	70 - 130	1
Toluene	Q*	Q*	2	0.503	mg/L	5	0.100	<0.00150	503	70 - 130	2
Ethylbenzene	Q*	Q*	2	0.467	mg/L	5	0.100	<0.00200	467	70 - 130	1
Xylene	Q*	Q*	2	1.40	mg/L	5	0.300	<0.00600	467	70 - 130	1

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

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Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.496	0.479	mg/L	5	0.1	496	479	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	0.508	0.505	mg/L	5	0.1	508	505	70 - 130

Matrix Spike (MS-1) Spiked Sample: 345393

QC Batch: 106733
Prep Batch: 90324

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-08

Analyzed By: RR
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
Prep Batch: 90412

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
Prepared By: RL

Param			F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Q _s	Q _s	Q _s	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.

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Param	F		C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Q _s	Q _s	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: 345415

QC Batch: 106763
Prep Batch: 90413

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	22800	mg/L	500	12500	8050	118	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	22500	mg/L	500	12500	8050	116	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: 345415

QC Batch: 106763
Prep Batch: 90413

Date Analyzed: 2013-11-13
QC Preparation: 2013-11-13

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	<66.0	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
Sulfate		1	13700	mg/L	500	12500	<66.0	109	80 - 120	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: 345403

QC Batch: 106869
Prep Batch: 90492

Date Analyzed: 2013-11-15
QC Preparation: 2013-11-15

Analyzed By: RL
Prepared By: RL

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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.

Matrix Spike (MS-1) Spiked Sample: 345775

QC Batch: 106908
Prep Batch: 90525

Date Analyzed: 2013-11-19
QC Preparation: 2013-11-19

Analyzed By: RL
Prepared By: RL

Param			MS			Spike	Matrix		Rec.
	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	Qs	Qs	1	5760	mg/L	100	2500	2740	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	5580	mg/L	100	2500	2740	114	80 - 120	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: 345775

QC Batch: 106908
Prep Batch: 90525

Date Analyzed: 2013-11-19
QC Preparation: 2013-11-19

Analyzed By: RL
Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	3050	mg/L	100	2500	346	108	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	3000	mg/L	100	2500	346	106	80 - 120	2	20

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

Calibration Standards

Standard (ICV-1)

QC Batch: 106467

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	7.09	101	98 - 102	2013-10-31

Standard (CCV-1)

QC Batch: 106467

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	7.09	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

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0815	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 (CCV-1)

QC Batch: 106590

Date Analyzed: 2013-11-07

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	0.105	105	80 - 120	2013-11-07
Toluene		2	mg/L	0.100	0.104	104	80 - 120	2013-11-07
Ethylbenzene		2	mg/L	0.100	0.101	101	80 - 120	2013-11-07
Xylene		2	mg/L	0.300	0.304	101	80 - 120	2013-11-07

Standard (CCV-2)

QC Batch: 106590

Date Analyzed: 2013-11-07

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	0.105	105	80 - 120	2013-11-07

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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	0.103	103	80 - 120	2013-11-07
Ethylbenzene		2	mg/L	0.100	0.103	103	80 - 120	2013-11-07
Xylene		2	mg/L	0.300	0.309	103	80 - 120	2013-11-07

Standard (CCV-3)

QC Batch: 106590

Date Analyzed: 2013-11-07

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	0.102	102	80 - 120	2013-11-07
Toluene		2	mg/L	0.100	0.102	102	80 - 120	2013-11-07
Ethylbenzene		2	mg/L	0.100	0.0999	100	80 - 120	2013-11-07
Xylene		2	mg/L	0.300	0.301	100	80 - 120	2013-11-07

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

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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: 106631

Date Analyzed: 2013-11-07

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		-	2013-11-07
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	220		-	2013-11-07
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-07
Total Alkalinity		2	mg/L as CaCo3	250	234	94	90 - 110	2013-11-07

Standard (CCV-1)

QC Batch: 106631

Date Analyzed: 2013-11-07

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		-	2013-11-07
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	254		-	2013-11-07
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-07
Total Alkalinity		2	mg/L as CaCo3	250	259	104	90 - 110	2013-11-07

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

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
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-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

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Standard (CCV-1)

QC Batch: 106763

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: 106763

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: 106763

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	25.8	103	90 - 110	2013-11-13

Standard (CCV-2)

QC Batch: 106763

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	26.8	107	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106869

Date Analyzed: 2013-11-15

Analyzed By: RL

Report Date: November 20, 2013
114-6401632

Work Order: 13103142
Celero/Rock Queen #1 SWD

Page Number: 45 of 48
Chavez Co., NM

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
Sulfate		1	mg/L	25.0	27.1	108	90 - 110	2013-11-15

Standard (CCV-1)

QC Batch: 106908

Date Analyzed: 2013-11-19

Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.8	99	90 - 110	2013-11-19

Standard (CCV-1)

QC Batch: 106908

Date Analyzed: 2013-11-19

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	25.2	101	90 - 110	2013-11-19

Standard (CCV-2)

QC Batch: 106908

Date Analyzed: 2013-11-19

Analyzed By: RL

Report Date: November 20, 2013
114-6401632

Work Order: 13103142
Celero/Rock Queen #1 SWD

Page Number: 46 of 48
Chavez Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.9	104	90 - 110	2013-11-19

Standard (CCV-2)

QC Batch: 106908

Date Analyzed: 2013-11-19

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	2013-11-19

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock
2	NELAP	T104704392-13-7	Midland

Standard Flags

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

Result Comments

- 1 Dilution necessitated by limited sample due to previous analysis of sample failure caused by surrogate.

Attachments

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

13103142

Analysis Request of Chain of Custody Record

**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.:

114-6401632

PROJECT NAME:

Rock Queen #1 SWD

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE METHOD

HCL

HNO3

ICE

NONE

SAMPLE IDENTIFICATION

GRAB

COMP

MATRIX

TIME

DATE

LAB I.D. NUMBER

345409

10/29/13

1705

W

MW-1

MW-2

MW-3

MW-4

MW-5

MW-6

MW-7

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

PCBs 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

Suicides

PAGE: (

OF:)

ANALYSIS REQUEST

(Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 10/31/13 RECEIVED BY: (Signature) Date: 10/31/13

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RECEIVING LABORATORY:

ADDRESS:

CITY:

CONTACT:

STATE:

ZIP:

PHONE:

DATE:

TIME:

RECEIVED BY: (Signature) Date: 10/31/13

RECEIVED BY: (Signature) Date: 10/31/13

RECEIVED BY: (Signature) Date: 10/31/13

RECEIVED BY: (Signature) Date: 10/31/13

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RECEIVED BY: (Signature) Date: 10/31/13

RECEIVED BY: (Signature) Date: 10/31/13

TETRA TECH CONTACT PERSON:

FEDEX

HAND DELIVERED

BUS

UPS

SAMPLE SHIPPED BY: (Circle)

AIRBILL #:

OTHER:

Date:

Results by:

RUSH Charges

Authorized:

Yes

No

Date:

Time:

Date:

Time:

Date:

Time:

Date:

Time:

Date:

SAMPLE CONDITION WHEN RECEIVED:

1.80/180.29/2.5

Midland - BTEX/MS/pH/all

Lubbed - anom/cation

AS

Project Manager retains Pink copy - Accounting receives Gold copy.

Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech

Project Manager retains Pink copy - Accounting receives Gold copy.

Project Manager retains Pink copy - Accounting receives Gold copy.