1R - 1614

2007 – 2011 GWMR

10/13/2011



October 13, 2011

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: Comprehensive Groundwater Sampling Report for the Celero Energy II, LP, Rock Queen Unit Tract 13 Tank Battery, Located in Unit Letter G, Section 36, Township 13 South, Range 31 East, Chaves County, New Mexico (NMOCD 1RP#1614).

Mr. Von Gonten:

This report details the results of the groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Tract 13 Tank Battery (Site) from June 2007 through April 2011. 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 Tract 13 Tank Battery pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in late July to early 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 signs of impact. Approximately 400 cubic yards of soil were excavated and transported to Gandy-Marley, Inc. for disposal. The pit was

TETRA TECH

excavated to a point where the subsoil would support a soil boring rig.

On October 12, 2009, a report entitled Assessment Report and Workplan for a Pit located at the Rock Queen Unit Track 13 Tank Battery was submitted to the NMOCD. The report detailed the closure of the former pit area with proposed extension of the liner at the facility.

Groundwater Investigation

Between May 2007 and December 2010, Celero installed six 2-inch monitor wells (MW-1 through MW-6) to assess the groundwater quality at the Site. The lithology at the Site was relatively consistent, with limestone encountered to approximately 20 feet below ground surface (bgs) and very fine grain calcareous sands extending to approximately 45 feet bgs. From approximately 45 to 145 feet the soils are fine grain sands. From 145 to the terminus of the borings (approximately 160 to 180 feet) the soils are red cherty sand to red sandstone. One boring (MW-5) was extended to 180 feet with brown clay encountered at approximately 170 feet. See Appendix A for Boring Logs.

During the investigation, groundwater was encountered at depths of approximately 147 to 154 feet bgs. Monitor Well MW-1 was drilled to a depth of 162 feet bgs and installed with 60 feet of 0.02 inch slotted screen. Monitoring wells MW-2, MW-3, MW-4, and MW-6 were drilled to depths of ranging from 160 to 165 and installed with 30 feet of 0.02 inch slotted screen. Monitor well MW-5 was installed into the underlying clay to a depth of 180 feet bgs and installed with 40 feet of 0.02 inch slotted screen. From the top of the screens to the surface of the boring, the wells were completed with blank schedule 40 PVC casing. See Appendix B for monitor well installation diagrams.

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

Gauging and Monitor Well Sampling

On June 1, 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 and sampled with no PSH measured. Utilizing the water level elevation calculations, groundwater gradient maps were generated for all but the June 1, 2007 sampling event. The hydraulic gradient indicates a southeasterly direction. Groundwater gradient maps for the sampling events are included as Figures 4 through 8. Gauging data is summarized in Table 1.

TETRA TECH

During the sampling events, each of the wells was purged utilizing either a submersible pump or by hand bailing and subsequently sampled for BTEX utilizing method SW8021B, chlorides and sulfates utilizing method E 300.0, total dissolved solids (TDS) utilizing method SM2540C and periodically for general chemistry using methods SM2320B, SW6010B, SM4500-H+. The samples were properly preserved and submitted under proper chain-of-custody control to Trace Analysis Inc. of Lubbock, Texas. Water samples for monitor wells MW-1 (except June 1, 2007), MW-3, and MW-4 were below the NMWQCC standard of 250 mg/L chlorides. Chlorides for the sampling period ranged from 38.3 mg/L in monitor well MW-1 on July 12, 2010 to 17,700 mg/L in monitor well MW-5 on April 13, 2011. 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 9 through 13. Copies of the laboratory analyses are enclosed in Appendix C.

During the purging activities, it was noted that all six monitor wells did not pump dry.

CONCLUSIONS

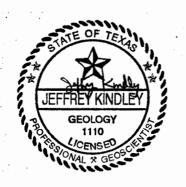
- On June 1, 2007, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged and sampled. The samples were preserved, delivered to Trace Analysis, Inc. of Midland, Texas and analyzed for BTEX utilizing method SW8021B, chlorides and sulfates utilizing method E 300.0, total dissolved solids (TDS) utilizing method SM2540C and periodically for general chemistry using methods SM2320B, SW6010B, SM4500-H+.
- 2. The hydraulic gradient indicates a southeasterly direction.
- 3. No PSH or dissolved phase separated hydrocarbons have been measured or detected in any of the onsite monitor wells above NMWQCC standards.
- 4. Water samples for monitor wells MW-1 (except June 1, 2007), MW-3, and MW-4 were below the NMWQCC standard of 250 mg/L chlorides. Chlorides for the sampling period ranged from 38.3 mg/L in monitor well MW-1 on July 12, 2010 to 17,700 mg/L in monitor well MW-5 on April 13, 2011.



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. A recovery well (RW-1) will be installed in the vicinity of the chloride plume.
- 4. Once the recovery well is installed, a remediation system consisting of either a low flow solar/electric pump or a windmill system will be installed in recovery well RW-1. The recovered fluids will be collected in an above ground tank and utilized for possible water flooding purposes in the surrounding oilfield.

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



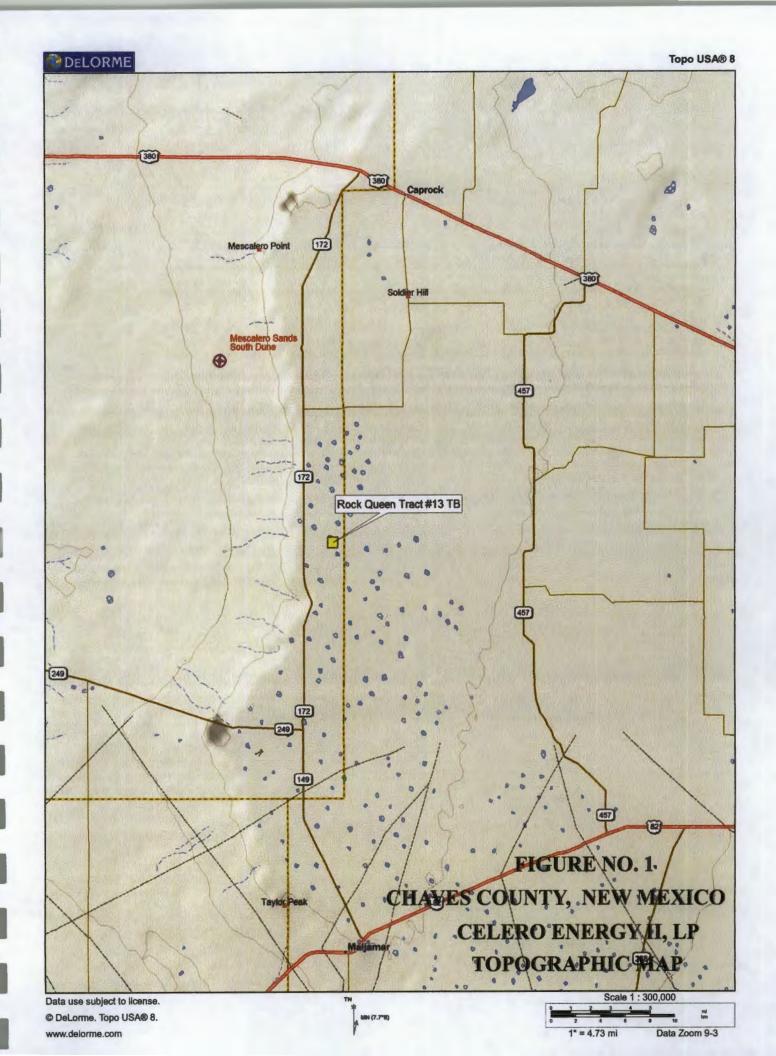
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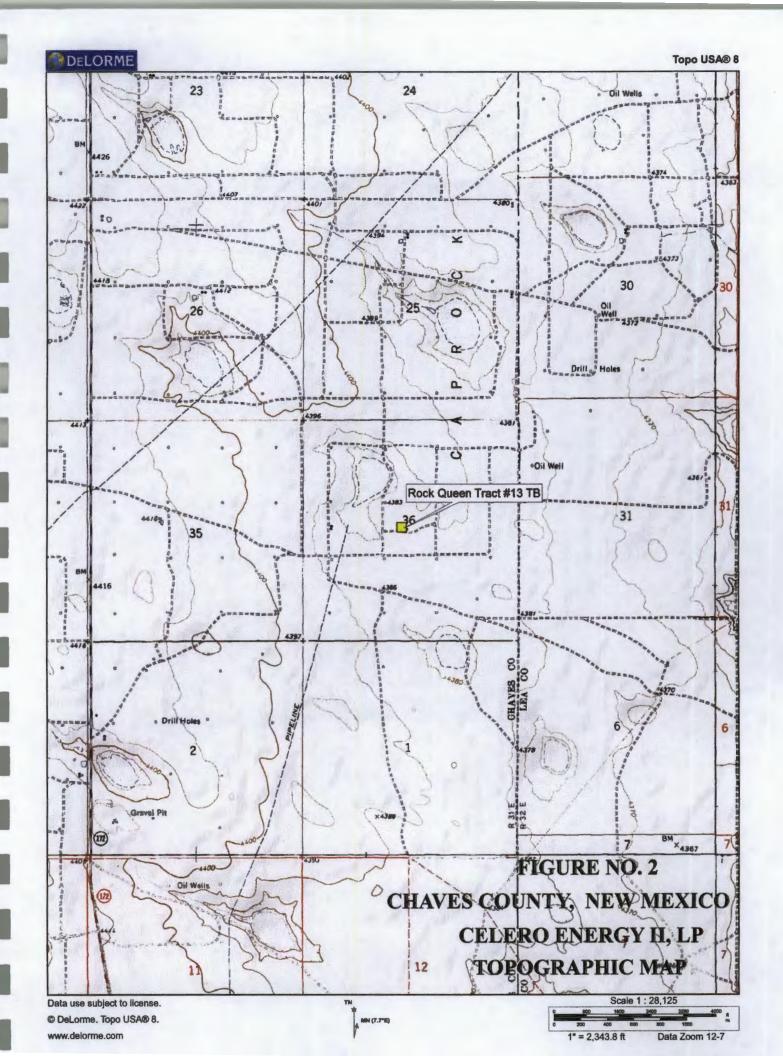
Respectfully submitted, Tetra Tech, Inc.

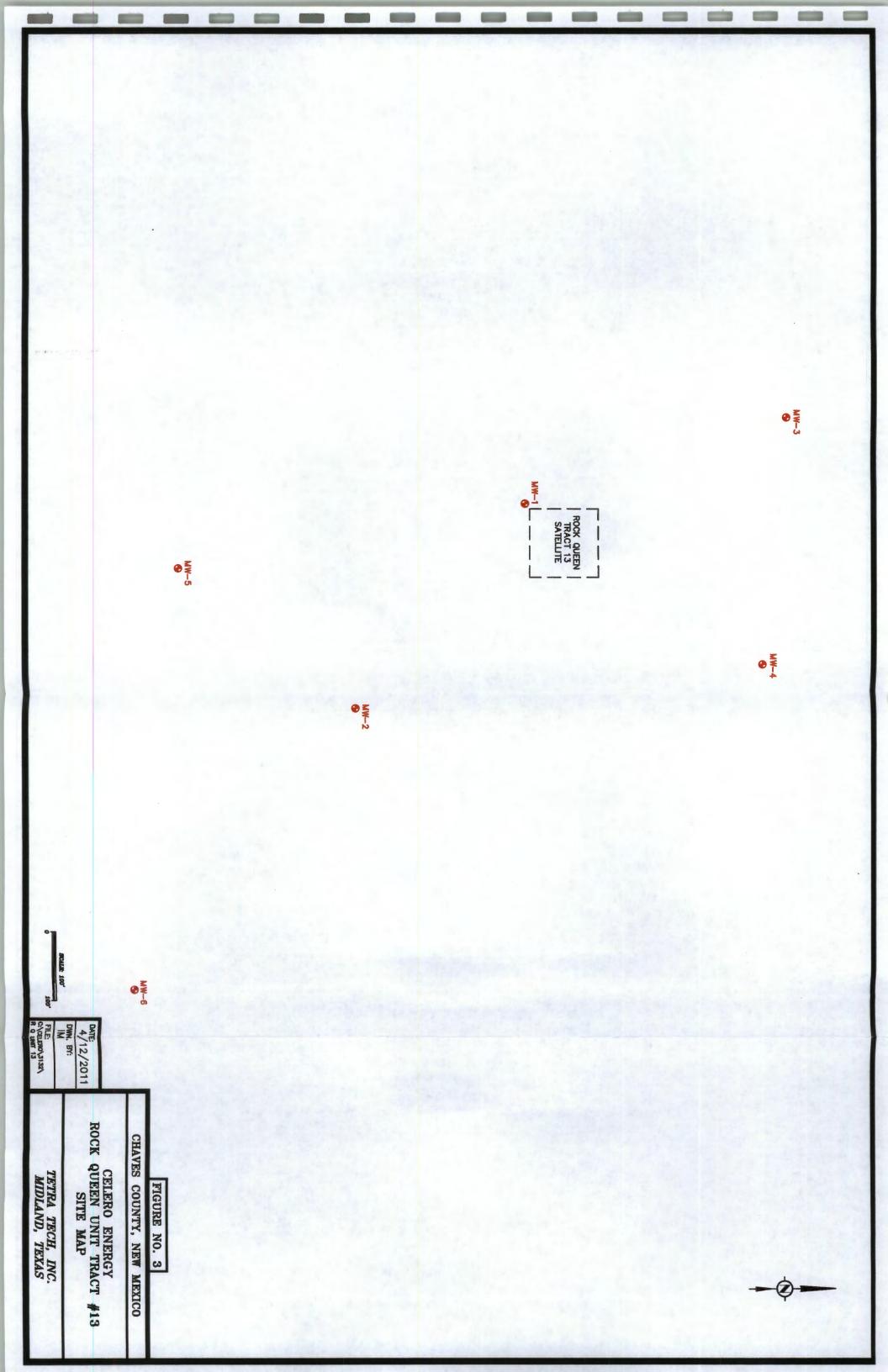
Julius Kndly Jeffrey Kindley, P.G. Senior Environmental Geologist

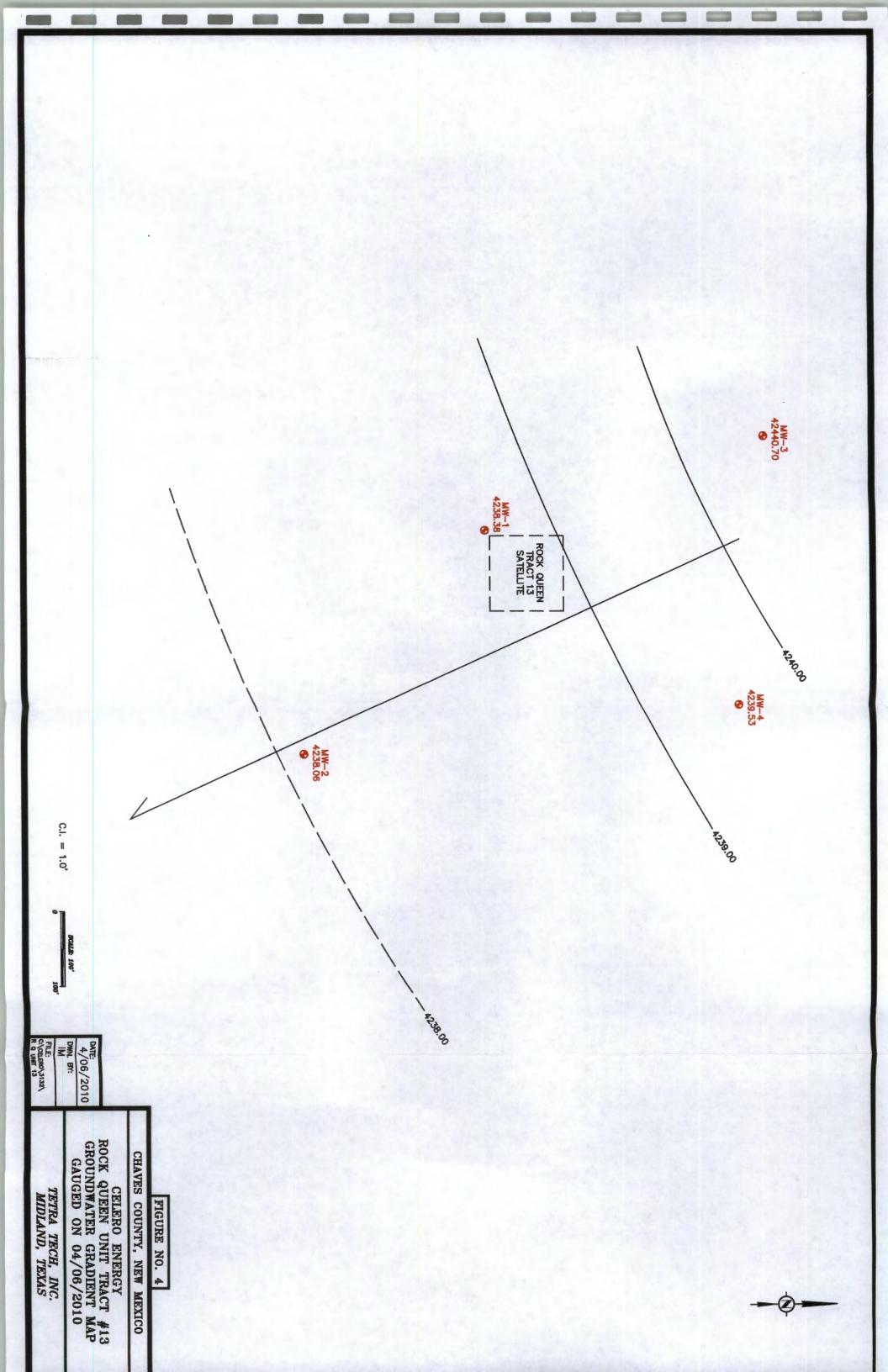
Bruce Woodard - Celero Energy II, LP

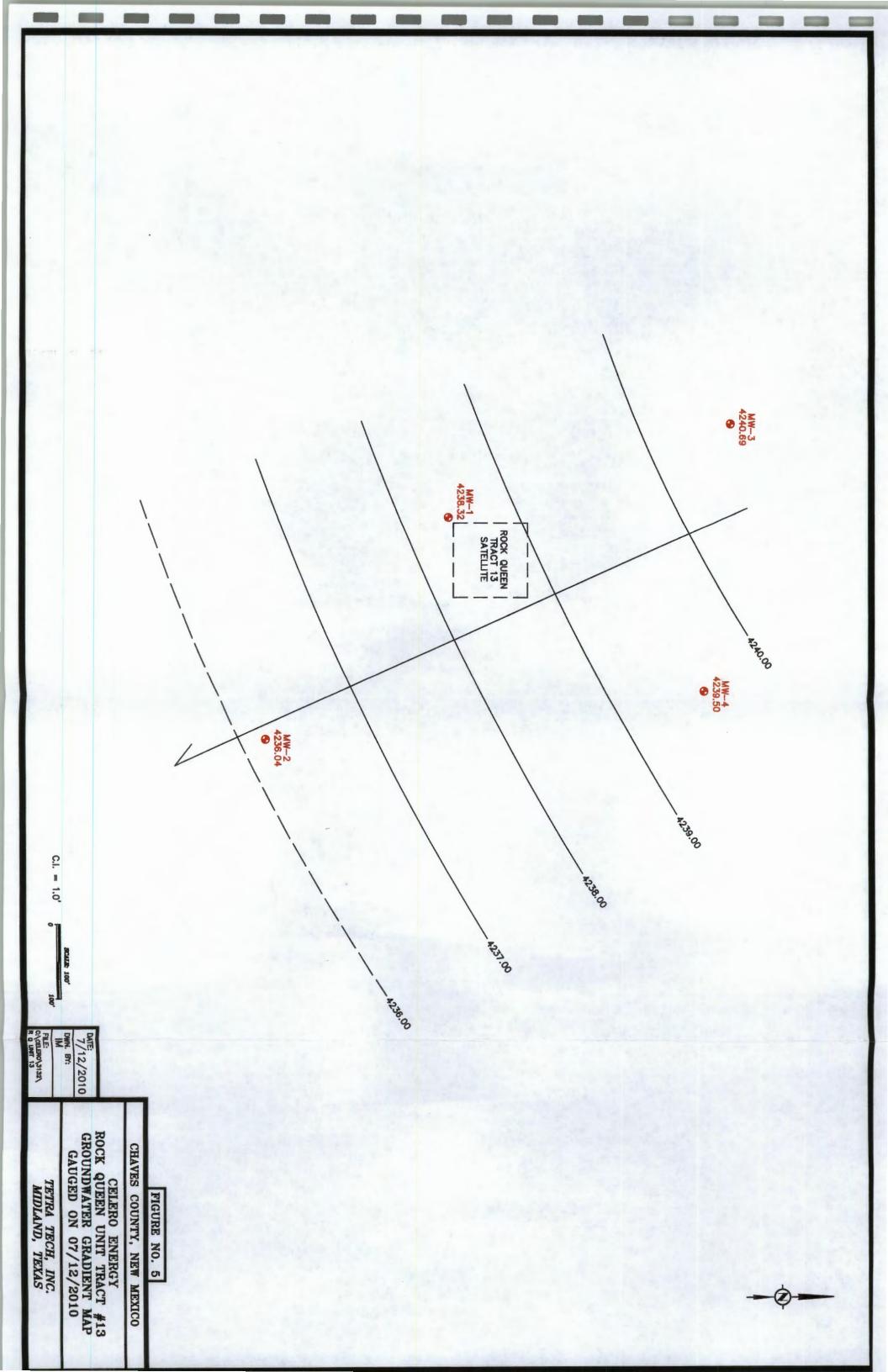
FIGURES

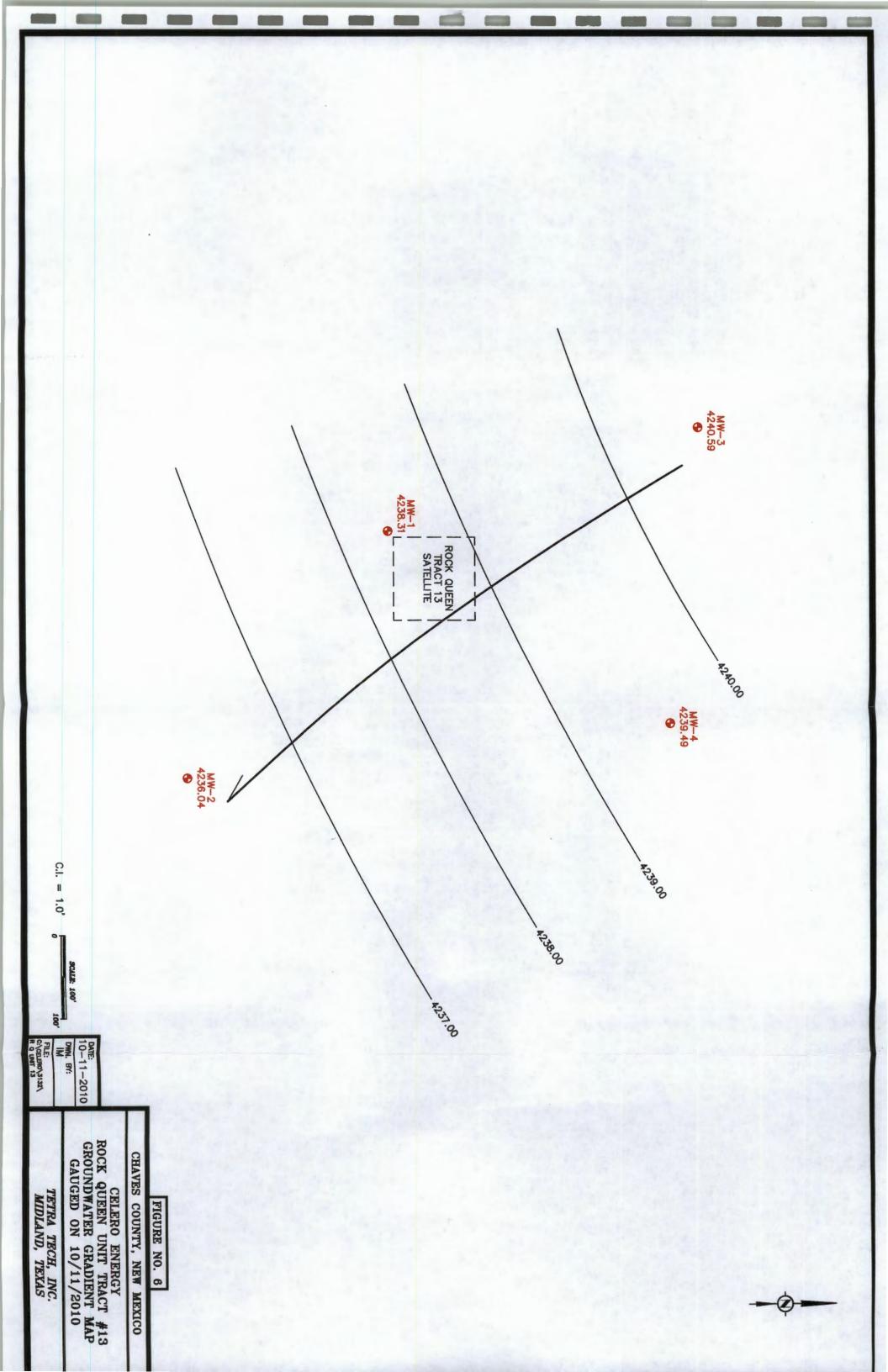


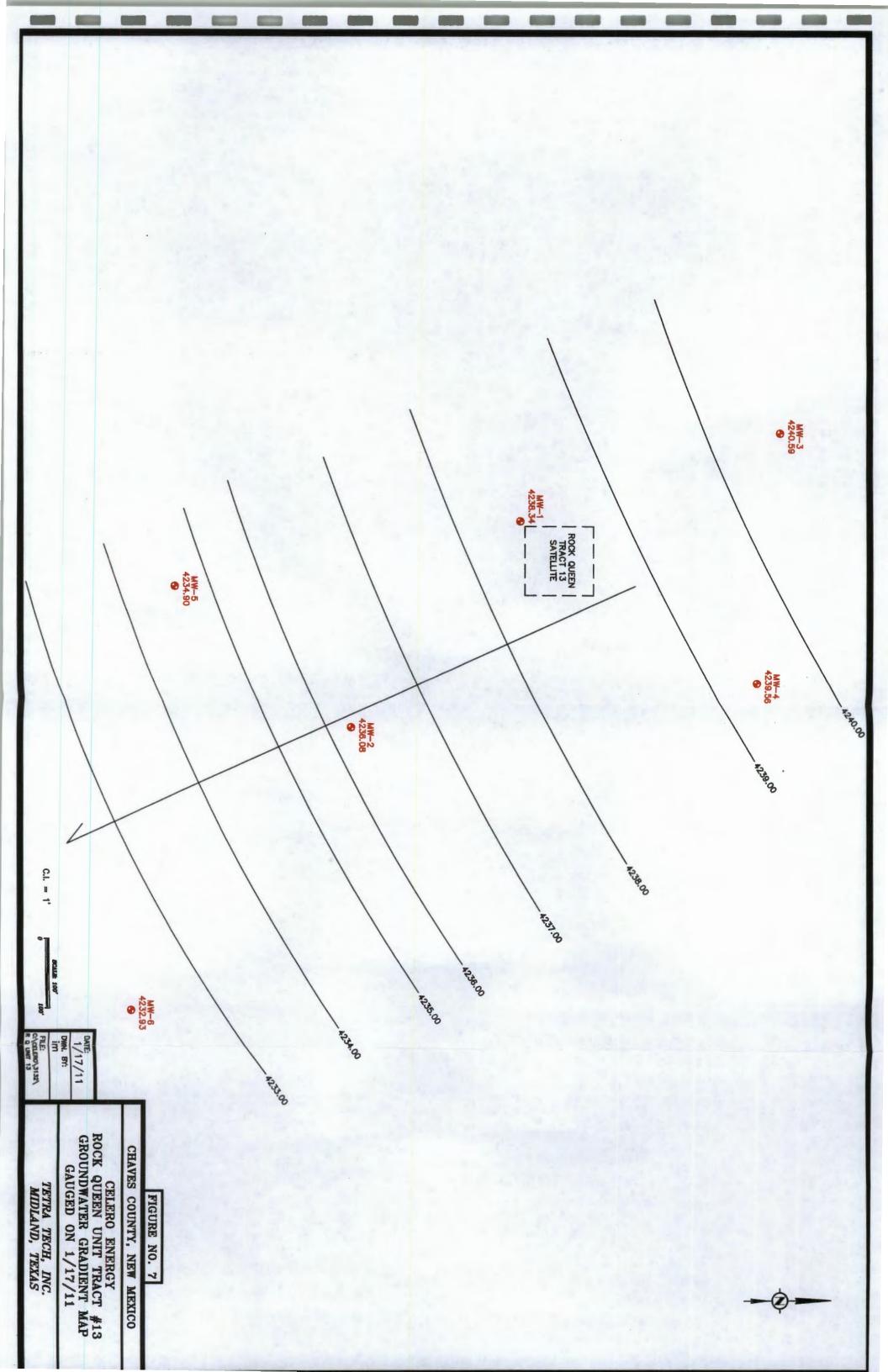


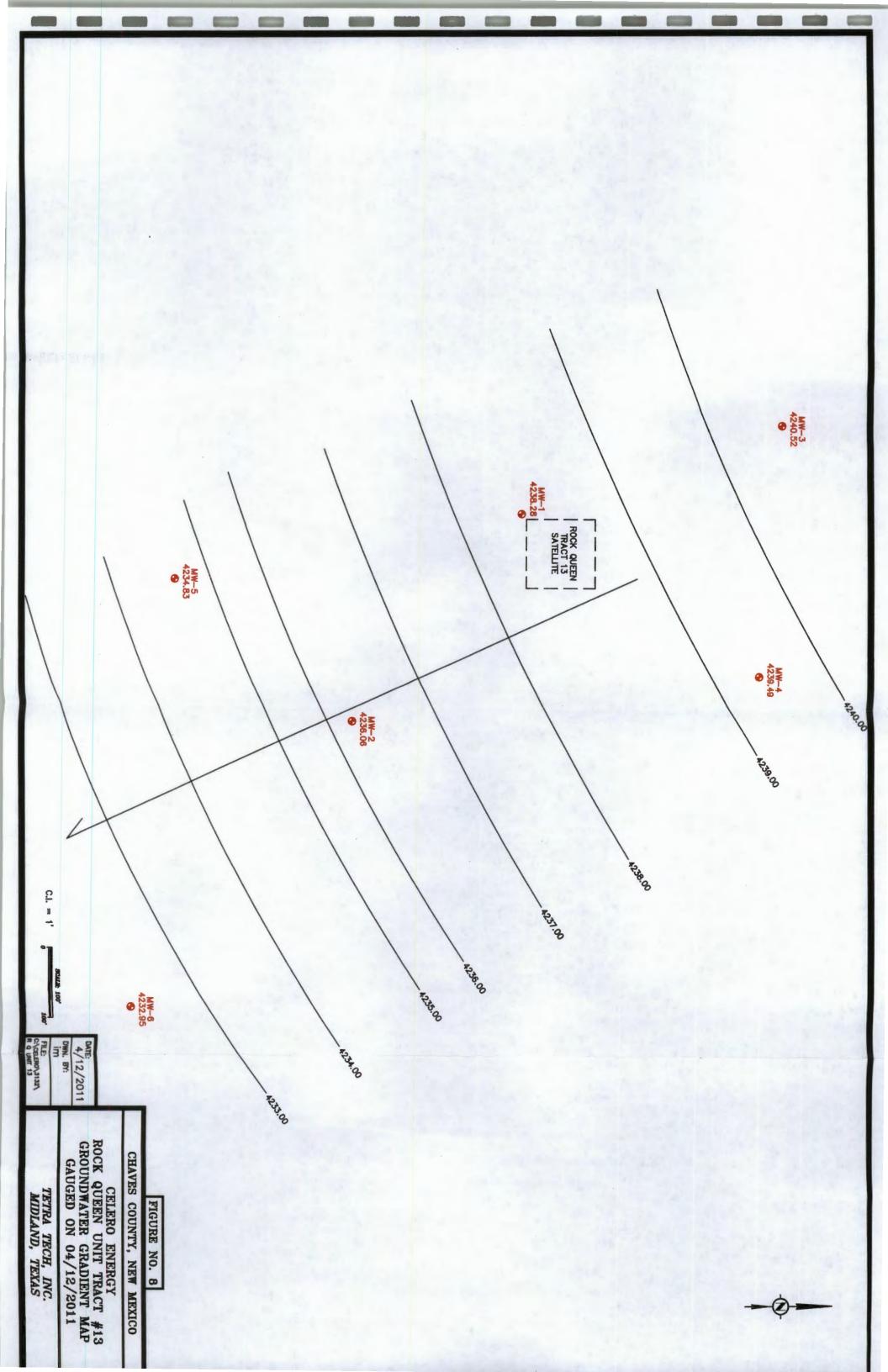


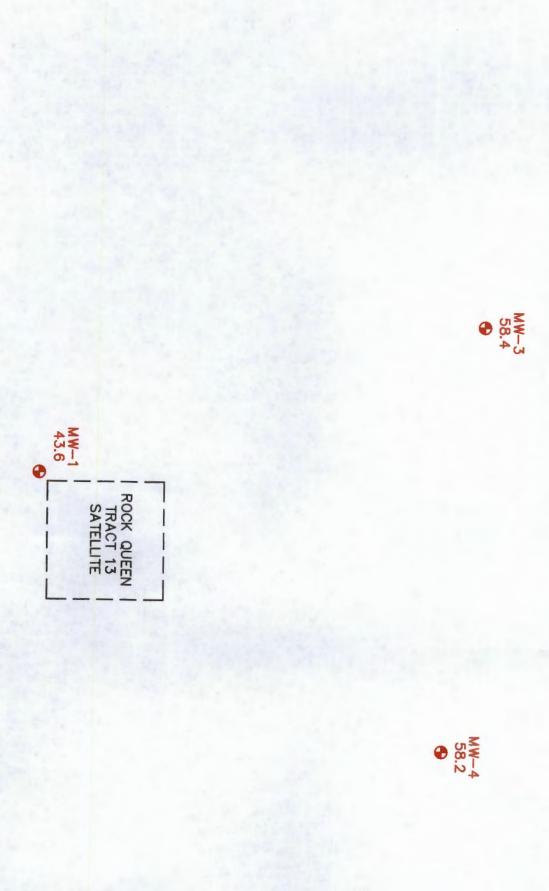












04/06/2010 DWN. BY: CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 4/06/2010 MIDLAND, TEXAS

RESULTS IN mg/L

SCALE: 100'

FILE: C:\CELERO\313Z\ R Q UNIT 13

CHAVES COUNTY, NEW MEXICO

FIGURE NO. 9

MW-2 2,250 **⊕**

ROCK QUEEN | RACT 13 | SAIELLITE | SAIELLI

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 7/12/2010

TETRA TECH, INC. MIDLAND, TEXAS CHAVES COUNTY, NEW MEXICO

FIGURE NO. 10

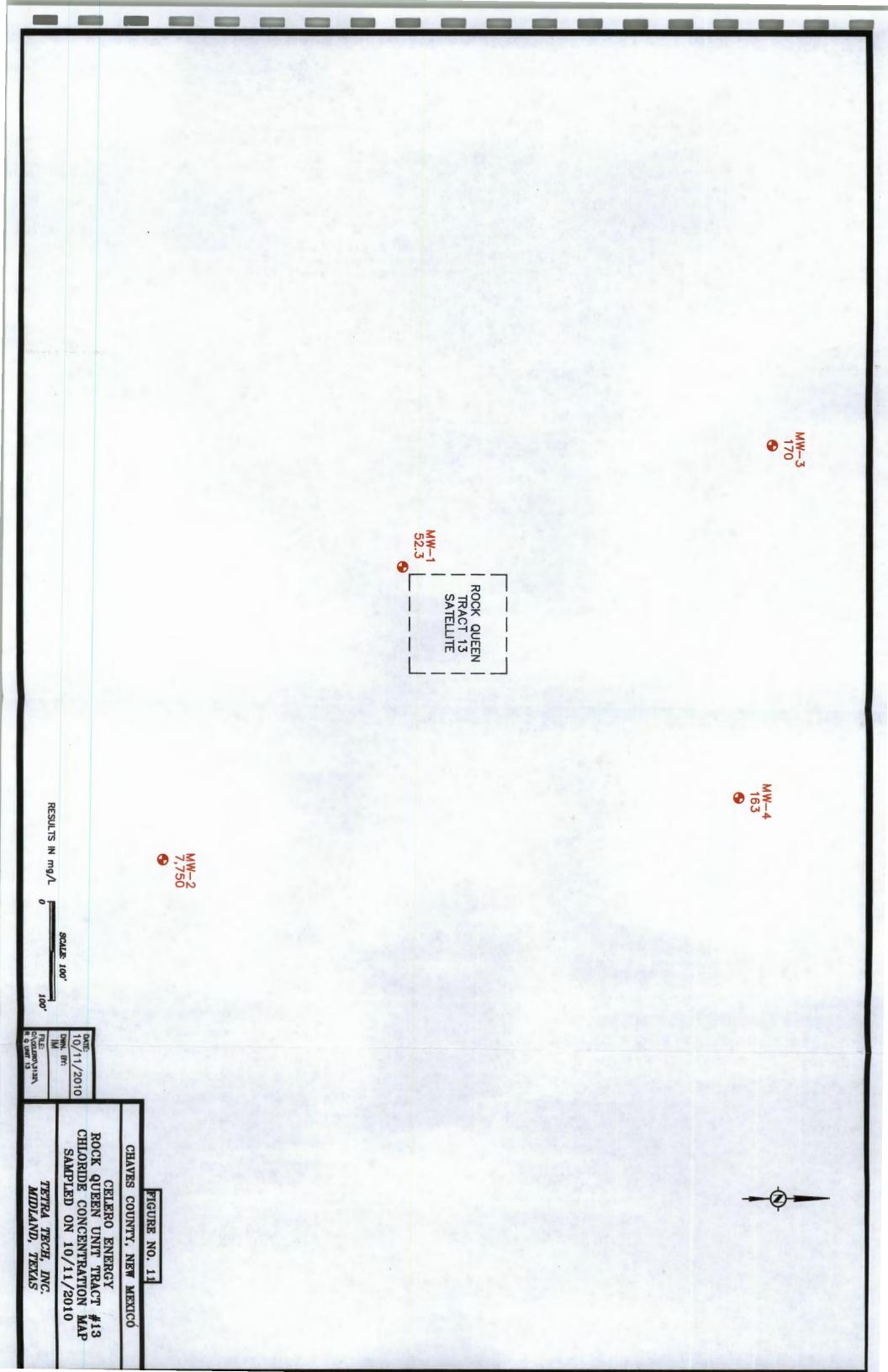
MW-1

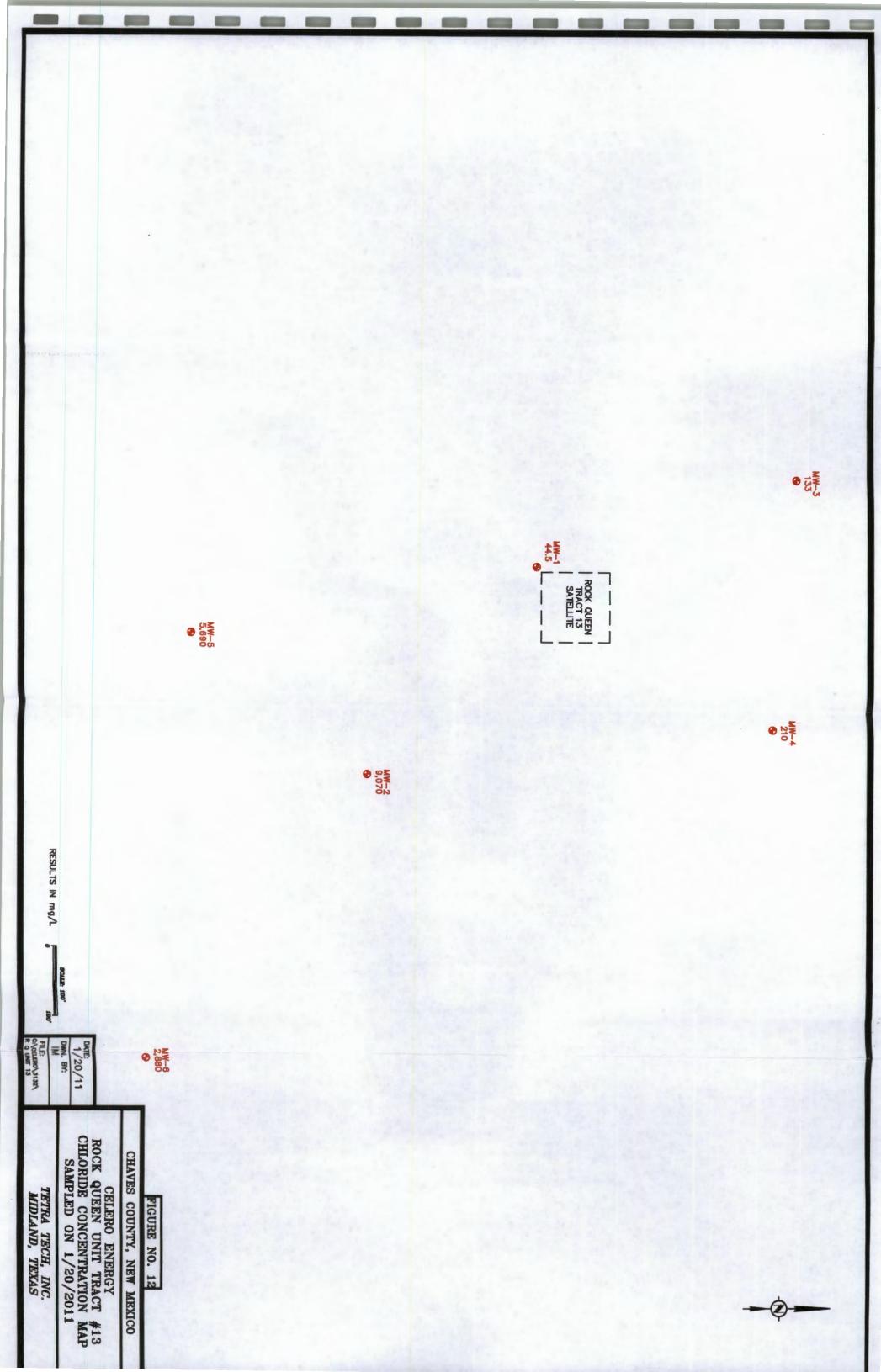
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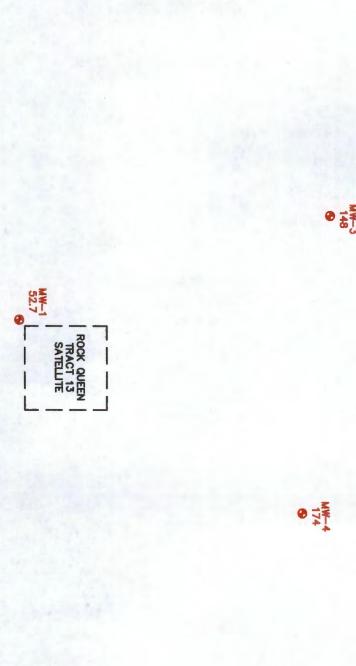
₩-3 83.6

MW-4 147.0

-0-







₩-2 9,380

₩-5 17,700

RESULTS IN mg/L

DATE: 4/13/11 DWN, BY: IM Q UNIT 13

MIDLAND, TEXAS

CHAVES COUNTY, NEW MEXICO

FIGURE NO. 13

₩-6 3,010

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 04/13/2011

TABLES

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract 13 Tank Battery
Chaves County. New Mexico

Monitor	Date	of Well	Elevation Depth of V	Depth of Well	Depth to Groundwater	Elevation
Well	Gauged	Installation	(ft)	(bgs in ft)	(ft)	(#)
MW-1	20/08/90	05/25/07	4,388.74	161.50	117.52	4,271.22
	05/31/07				127.74	4,261.00
	02/02/08				150.41	4,238.33
	04/06/10				150.36	4,238.38
	07/12/10				150.42	4,238.32
	10/11/10				150.43	4,238.31
	01/17/11				150.40	4,238.34
	04/12/11				150.46	4,238.28
MW-2	04/06/10	03/30/10	4,386.04	161.60	147.98	4,238.06
	07/12/10				150.00	4,236.04
	10/11/10				149.80	4,236.24
	01/17/11				149.96	4,236.08
	04/12/11				149.98	4,236.06
MW-3	04/06/10	03/31/10	4,388.48	161.90	147.78	4,240.70
	01/11/10				147.79	4,240.69
	10/11/10				147.89	4,240.59
	01/17/11		-		147.89	4,240.59
	04/12/11				147.96	4,240.52
MW-4	04/06/10	03/31/10	4,388.12	161.85	148.59	4,239.53
	07/12/10				148.62	4,239.50
	10/11/10				148.63	4,239.49
	01/17/11				148.56	4,239.56
	04/12/11				148.63	4,239.49
MW-5	01/11/11	12/02/10	4,383.81	177.60	148.91	4,234.90
	04/12/11				148.98	4,234.83
MW-6	01/17/11	12/03/10	4,387.81	169.65	154.88	4,232.93
	04/12/11				154.86	4,232.95

Groundwater Analytical Results Celero Energy II, LP

Rock Queen Unit Tract 13 Tank Battery

Chaves County, New Mexico

7.02 8.28

804 356

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Hardness (mg/L)

7.70

1,600

8.26

232

8.35

270

TDS (mg/L) 15,300 15,200 27,200 7,245 5,890 16,900 7,890 27,000 4,690 4,890 1,130 445 969 535 909 630 534 447 608 630 562 481 Chloride (mg/L) 163.0 17.700 7,750 9,070 170.0 133.0 148.0 147.0 210.0 5,690 2,880 3,010 3,270 9,870 9,380 174.0 43.6 38.8 52.3 44.5 2,250 58.4 83.6 58.2 52.7 Suffate (mg/L) 189.0 203.0 202.0 116.0 116.0 128.0 133.0 193.0 336.0 <250 85.2 49.6 64.0 84.5 62.0 48.5 50.8 48.8 56.4 42.7 52.4 Alkalinity (mg/L) Total 226 9 125 183 145 Bicarbonate Alkalinity (mg/L) 652 226 125 183 145 Carbonate **Alkalinity** (mg/L) <1.00 <1.00 <1.00 8.8 Hydroxide Alkalinity (mg/L) <1.00 4.00 <1.00 41.00 <1.00 Potassium Dissolved (mg/L) 4.33 5.96 15.5 20.1 3,34 Dissolved Sodium (mg/L) 2,020 11.40 925 40.5 78.7 Magnesium Dissolved (mg/L) 73.0 10.3 1.5 24.4 7.61 Dissolved Calcium (mg/L) 89.5 520 76.1 282 9 04/06/10 Derte Sampled 04/06/10 07/12/10 10/12/10 07/12/10 10/12/10 01/21/11 04/06/10 10/12/10 07/12/10 10/12/10 01/21/11 04/13/11 04/13/11 04/13/11 04/13/11 01/20/11 04/13/11

01/21/11

06/01/07

MW-1

Monitor Well

04/06/10

MW-2

07/12/10

MW-3

01/21/11

WW-4

NS - Not sampled

01/20/11

9-WM

MW-5

04/13/11

(-) Not Analyzed

Table 3 Celero Energy II, LP

Groundwater Analytical Results

Rock Queen Unit Tract 13 Tank Battery

Chaves County, New Mexico

		Benzene	Toluene	Ethyl-	Xylene	Total
Monitor Well	Date Sampled	in	in	Benzene	in	BTEX
	1	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	04/06/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/13/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	04/06/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/13/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-3	04/06/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/13/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-4	04/06/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/13/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-5	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/13/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-6	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/13/11	<0.001	<0.001	<0.001	<0.001	<0.001

NS - Not sampled

APPENDIX A BORING LOGS

Boring/Well MW-1

GPS N33.146819° W103.775642°

Project Number 115-6403132A

Client: Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter K, Section 36, Township 13 South, Range 31 East

Total Depth 160

Date Installed: 05/25/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Buff to tan sandy limestone
5-10		Buff to tan sandy limestone
10-15		Buff to tan sandy limestone with chert
15-20		Buff sandy limestone with chert
20-25	** =	Buff to tan calcareous sand
25-30		Buff to tan calcareous sand
30-35		Buff to tan calcareous sand
35-40		Buff to tan calcareous sand
40-45		Buff to tan calcareous sand
45-50		Tan fine sand - v.f. sand
50-55		Tan fine sand - v.f. sand
55-60		Tan fine sand - v.f. sand
63-65		Tan fine sand - v.f. sand
68-70		Tan fine sand - v.f. sand
73-75		Tan fine sand - v.f. sand
78-80		Tan fine sand - v.f. sand
83-85		Tan fine sand - v.f. sand
88-90		Tan fine sand - v.f. sand
93-95		Tan fine sand - v.f. sand
98-100		Tan fine sand - v.f. sand
103-105		Tan fine sand - v.f. sand
108-110		Tan fine sand - v.f. sand
113-115		Tan fine sand - v.f. sand

Boring/Well MW-1

GPS N33.146819° W103.775642°

Project Number 115-6403132A

Client: Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter K, Section 36, Township 13 South, Range 31 East

Total Depth 160

Date Installed: 05/25/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
118-120		Tan fine sand - v.f. sand
123-125		Tan fine sand - v.f. sand
128-130		Tan fine sand - v.f. sand
133-135		Tan fine sand - v.f. sand
138-140		Tan fine sand - v.f. sand
143-145		Tan fine sand - v.f. sand
148-150		Chert layer intermixed with red sand
1 53-155		Chert layer intermixed with red sand
158-160		Red sand

Total Depth: 160' Groundwater encountered at 117 feet

Boring/Well MW-2

GPS N33.146136° W103.774672°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter J, Section 36, Township 13 South, Range 31 East

Total Depth 160 Date Installed 03/30/10

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Hard limestone with some chert
5-10		Hard limestone with some chert
10-15		Hard limestone with some chert
15-20		Hard limestone with some chert
20-25		Buff to tan calcareous sand
25-30		Buff to tan calcareous sand
30-35		Buff to tan calcareous sand
35-40		Buff to tan calcareous sand
40-45		Buff to tan calcareous sand
45-50		Buff to tan calcareous sand
50-55		Buff to tan calcareous sand
55-60		Tan fine sand - v.f. sand
60-65		Tan fine sand - v.f. sand
65-70		Tan fine sand - v.f. sand
70-75		Tan fine sand - v.f. sand
80-85		Tan fine sand - v.f. sand
85-90		Tan fine sand - v.f. sand
90-95		Tan fine sand - v.f. sand
95-100		Tan fine sand - v.f. sand
100-105		Tan fine sand - v.f. sand
105-110		Tan fine sand - v.f. sand
110-115		Tan fine sand - v.f. sand
115-120		Tan fine sand - v.f. sand

Boring/Well MW-2

GPS N33.146136° W103.774672°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter J, Section 36, Township 13 South, Range 31 East

Total Depth 160

Date Installed 03/30/10

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
120-125		Tan fine sand - v.f. sand
125-130		Tan fine sand - v.f. sand
130-135		Tan fine sand - v.f. sand
133-135		Tan fine sand - v.f. sand
135-140		Tan fine sand - v.f. sand
140-145		Tan fine sand - v.f. sand
145-150		Tan fine sand - v.f. sand
150-155		Tan fine sand - v.f. sand with some chert and limestone pieces
155-160		Tan fine sand - v.f. sand with some chert and limestone pieces

Total Depth: 160'

Boring/Well MW-3

GPS N33.147867° W103.776047°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter F, Section 36, Township 13 South, Range 31 East

Total Depth 160
Date Installed 03/31/10

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Hard limestone with some chert
5-10		Hard limestone with some chert
10-15		Hard limestone with some chert
15-20		Hard limestone with some chert
20-25		Buff to tan calcareous sand
25-30		Buff to tan calcareous sand
30-35		Buff to tan calcareous sand
35-40		Buff to tan calcareous sand
40-45		Buff to tan calcareous sand
45-50		Buff to tan calcareous sand
50-55		Buff to tan calcareous sand
55-60		Tan fine sand - v.f. sand
60-65		Tan fine sand - v.f. sand
65-70		Tan fine sand - v.f. sand
70-75		Tan fine sand - v.f. sand
80-85		Tan fine sand - v.f. sand
85-90		Tan fine sand - v.f. sand
90-95		Tan fine sand - v.f. sand
95-100		Tan fine sand - v.f. sand
100-105		Tan fine sand - v.f. sand
105-110		Tan fine sand - v.f. sand
110-115		Tan fine sand - v.f. sand
115-120		Tan fine sand - v.f. sand

Boring/Well MW-3

GPS N33.147867° W103.776047°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter F, Section 36, Township 13 South, Range 31 East

Total Depth 160
Date Installed 03/31/10

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
120-125		Tan fine sand - v.f. sand
125-130		Tan fine sand - v.f. sand
130-135		Tan fine sand - v.f. sand
133-135		Tan fine sand - v.f. sand
135-140		Tan fine sand - v.f. sand
140-145		Tan fine sand - v.f. sand
145-150		Tan fine sand - v.f. sand
150-155		Tan fine sand - v.f. sand with some chert and limestone pieces
155-160		Tan fine sand - v.f. sand with some chert and limestone pieces

Total Depth: 160'

Boring/Well MW-4

GPS N33.147867° W103.776047°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter G, Section 36, Township 13 South, Range 31 East

Total Depth 160
Date Installed 03/31/10

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Hard limestone with some chert
5-10		Hard limestone with some chert
10-15		Hard limestone with some chert
15-20		Hard limestone with some chert
20-25		Buff to tan calcareous sand
25-30		Buff to tan calcareous sand
30-35		Buff to tan calcareous sand
35-40		Buff to tan calcareous sand
40-45		Buff to tan calcareous sand
45-50		Buff to tan calcareous sand
50-55		Buff to tan calcareous sand
55-60		Tan fine sand - v.f. sand
60-65		Tan fine sand - v.f. sand
65-70		Tan fine sand - v.f. sand
70-75		Tan fine sand - v.f. sand
80-85		Tan fine sand - v.f. sand
85-90		Tan fine sand - v.f. sand
90-95		Tan fine sand - v.f. sand
95-100		Tan fine sand - v.f. sand
100-105		Tan fine sand - v.f. sand
105-110		Tan fine sand - v.f. sand
110-115		Tan fine sand - v.f. sand
115-120		Tan fine sand - v.f. sand

Boring/Well MW-4

GPS N33.147867° W103.776047°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Tract 13 Tank Battery

Site Location Chaves County, New Mexico

Letter G, Section 36, Township 13 South, Range 31 East

Total Depth 160
Date Installed 03/31/10

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
120-125		Tan fine sand - v.f. sand
125-130		Tan fine sand - v.f. sand
130-135		Tan fine sand - v.f. sand
133-135		Tan fine sand - v.f. sand
135-140		Tan fine sand - v.f. sand
140-145		Tan fine sand - v.f. sand
145-150		Tan fine sand - v.f. sand (inter bedded with limestone)
150-155		Tan fine sand - v.f. sand (inter bedded with limestone)
155-160		Tan fine sand - v.f. sand (inter bedded with limestone)

Total Depth:

160'

Boring/ Well MW-5

GPS N33.14564° W103.77608°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Unit Tract #13 Tank Battery

Site Location Chaves, New Mexico

Letter K, Section 36, Township 13 South, Range 31 East

Total Depth 180' Date Installed 12/02/10

Depth (Ft)	OVM	Sample Description
5-6'		Caliche and 15% Chert
10-11'		Caliche and 30% Chert
15-16'		Caliche and 50% Chert
20-21'		Caliche and 30% Chert
25-26'		Buff Tan Fine Grained Well Sorted Sand
30-31'		Buff Tan Fine Grained Well Sorted Sand
35-36'		Buff Tan Fine Grained Well Sorted Sand
40-41'		Buff Tan Fine Grained Well Sorted Sand
45-46'		Buff Tan Fine Grained Well Sorted Sand
50-51'		Light Brown Fine Grain Well Sorted Sand
55-56'		Light Brown Fine Grain Well Sorted Sand
60-61'		Light Brown Fine Grain Well Sorted Sand
65-66'		Light Brown Fine Grain Well Sorted Sand
70-71'		Light Brown Fine Grain Well Sorted Sand
75-76'		Light Brown Fine Grain Well Sorted Sand
80-81'		Light Brown Fine Grain Well Sorted Sand
85-86'		Light Brown Fine Grain Well Sorted Sand
90-91'		Light Brown Fine Grain Well Sorted Sand
95-96'		Light Brown Fine Grain Well Sorted Sand with 40% White Clay
100-101'		Light Brown Fine Grain Well Sorted Sand with 40% White Clay
105-106'		Light Brown Fine Grain Well Sorted Sand with 30% White Clay
110-111'		Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
115-116'		Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
120-121'		Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
125-126'		Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
130-131'		Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
135-136'	**	Light Brown Fine Grain Well Sorted Sand with Buff Sandstone

Boring/ Well MW-5

GPS N33.14564° W103.77608°

Project Number 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Unit Tract #13 Tank Battery

Site Location Chaves, New Mexico

Letter K, Section 36, Township 13 South, Range 31 East

Total Depth 180'
Date Installed 12/02/10

140-141'	 Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
145-146'	 Light Brown Fine Grain Well Sorted Sand with Buff Sandstone
150-151'	 Buff Tan Fine Grained Sandstone
155-156'	 Buff Tan Fine Grained Sandstone
160-161'	 Buff Tan Fine Grained Sandstone
165-166'	 Buff Tan Fine Grained Sandstone
170-171'	 Buff Tan Sandstone with 35% Brown Clay
175-176'	 Brown Clay with 20% Red Bed
180'	 Brown Clay with 40% Red Bed

Total Depth: 180' Ground water depth not encountered while drilling.

Boring/ Well MW-6

GPS N33.14564° W103.77608°

Project Number: 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Unit Tract #13 Tank Battery

Site Location Chaves, New Mexico

Letter J, Section 36, Township 13 South, Range 31 East

Total Depth 165'
Date Installed 12/03/10

Depth (Ft)	OVM	Sample Description
5-6'		Caliche and 15% Chert
10-11'		Caliche and 20% Chert
15-16'		Caliche and 10% Chert
20-21'		Caliche and 5% Chert
25-26'		Buff Tan Fine Grained Well Sorted Sand
30-31'		Buff Tan Fine Grained Well Sorted Sand
35-36'		Buff Tan Fine Grained Well Sorted Sand
40-41'		Buff Tan Fine Grained Well Sorted Sand
45-46'		Buff Tan Fine Grained Well Sorted Sand
50-51'		Light Brown Fine Grain Well Sorted Sand
55-56'		Light Brown Fine Grain Well Sorted Sand
60-61'		Light Brown Fine Grain Well Sorted Sand
65-66'		Light Brown Fine Grain Well Sorted Sand
70-71'		Light Brown Fine Grain Well Sorted Sand
75-76'		Light Brown Fine Grain Well Sorted Sand
80-81'		Light Brown Fine Grain Well Sorted Sand
85-86'		Light Brown Fine Grain Well Sorted Sand
90-91'		Light Brown Fine Grain Well Sorted Sand
95-96'		Light Brown Fine Grain Well Sorted Sand
100-101'		Light Brown Fine Grain Well Sorted Sand
105-106'		Light Brown Fine Grain Well Sorted Sand
110-111'		Light Brown Fine Grain Well Sorted Sand
115-116'		Light Brown Fine Grain Well Sorted Sand
120-121'		Light Brown Fine Grain Well Sorted Sand with 40% Buff Sandstone
125-126'		Light Brown Fine Grain Well Sorted Sand with 20% Buff Sandstone
130-131'		Light Brown Fine Grain Well Sorted Sand with 20% Buff Sandstone
135-136'		Light Brown Fine Grain Well Sorted Sand with 20% Buff Sandstone

Boring/ Well MW-6

GPS N33.14564° W103.77608°

Project Number: 115-6403132A

Client Celero Energy II, LP

Site Name Rock Queen Unit Tract #13 Tank Battery

Site Location Chaves, New Mexico

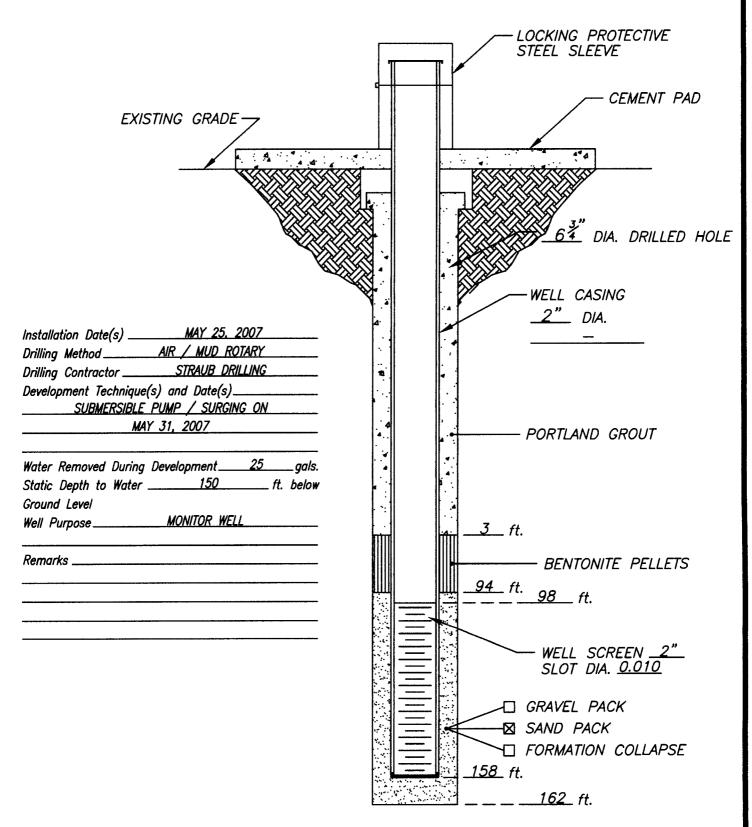
Letter J, Section 36, Township 13 South, Range 31 East

Total Depth 165'
Date Installed 12/03/10

140-141'	 Light Brown Fine Grain Well Sorted Sand with 15% Buff Sandstone
145-146'	 Light Brown Fine Grain Well Sorted Sand with 15% Buff Sandstone
150-151'	 Light Brown Fine Grain Well Sorted Sand with 10% Buff Sandstone
155-156'	 Light Brown Fine Grain Well Sorted Sand with 10% Buff Sandstone
160-161'	 Light Brown Fine Grain Well Sorted Sand with 10% Buff Sandstone
165'	 Light Brown Fine Grain Well Sorted Sand with 10% Buff Sandstone

Total Depth: 165' Ground water depth not encountered while drilling.

APPENDIX B MONITOR WELL INSTALLATION DIAGRAMS



DATE: 5/25/07

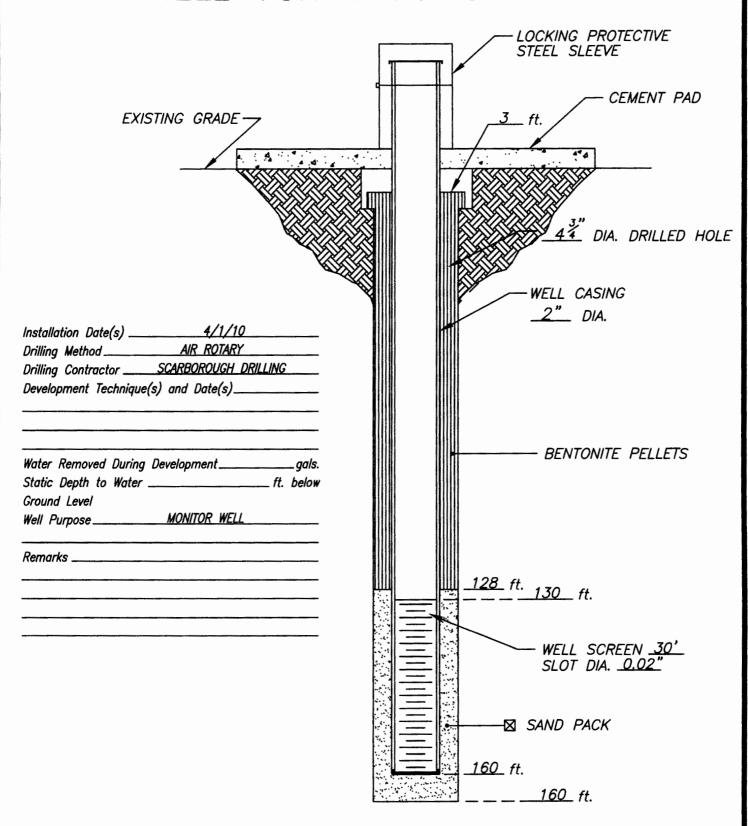
TETRA TECH, INC. MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LP

PROJECT: ROCK QUEEN UNIT TRACT 13 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.



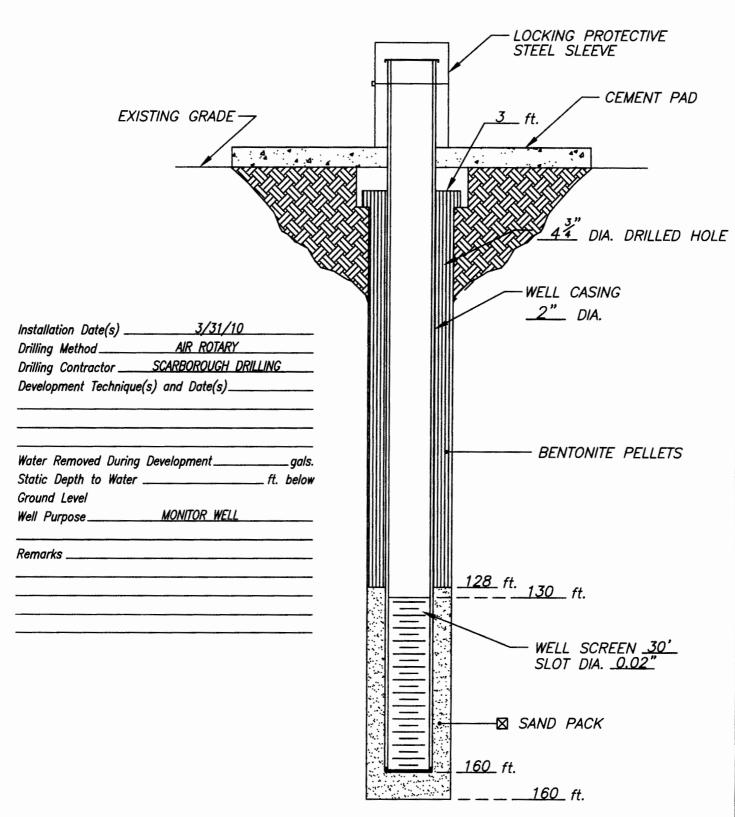
DATE: 4/1/10

TETRA TECH INC. MIDLAND, TEXAS CLIENT: CELERO ENERGY II LLC

PROJECT: ROCK QUEEN TRACT 13 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.



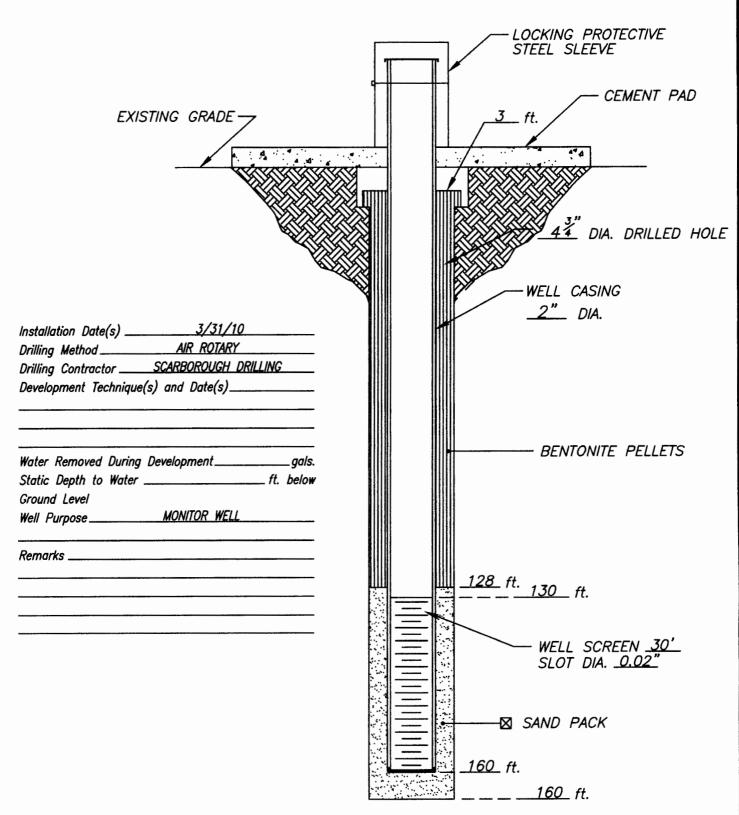
DATE: 4/1/10

TETRA TECH INC. MIDLAND, TEXAS CLIENT: CELERO ENERGY II LLC

PROJECT: ROCK QUEEN TRACT 13 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.



DATE: 4/1/10

TETRA TECH INC. MIDLAND, TEXAS CLIENT: CELERO ENERGY II LLC

PROJECT: ROCK QUEEN TRACT 13 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.

WELL CONSTRUCTION LOG LOCKING PROTECTIVE STEEL SLEEVE - CEMENT PAD EXISTING GRADE -<u>6¾</u>" DIA. DRILLED HOLE WELL CASING <u>2"</u> DIA. Installation Date(s) 12/2/10 Drilling Method AIR ROTARY Drilling Contractor SCARBOROUGH DRILLING Development Technique(s) and Date(s)_ HANDBAILED ON DECEMBER 14, 2010 - BENTONITE PELLETS Water Removed During Development_____gals. Static Depth to Water ______ft. below Ground Level Well Purpose MONITOR WELL Remarks _____ <u>133</u> ft. <u>135</u> ft. - WELL SCREEN <u>40'</u> SLOT DIA. 0.02" -⊠ SAND PACK <u>175</u> ft.

DATE: 12/2/10

TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC

PROJECT: ROCK QUEEN TRACT 13 TB

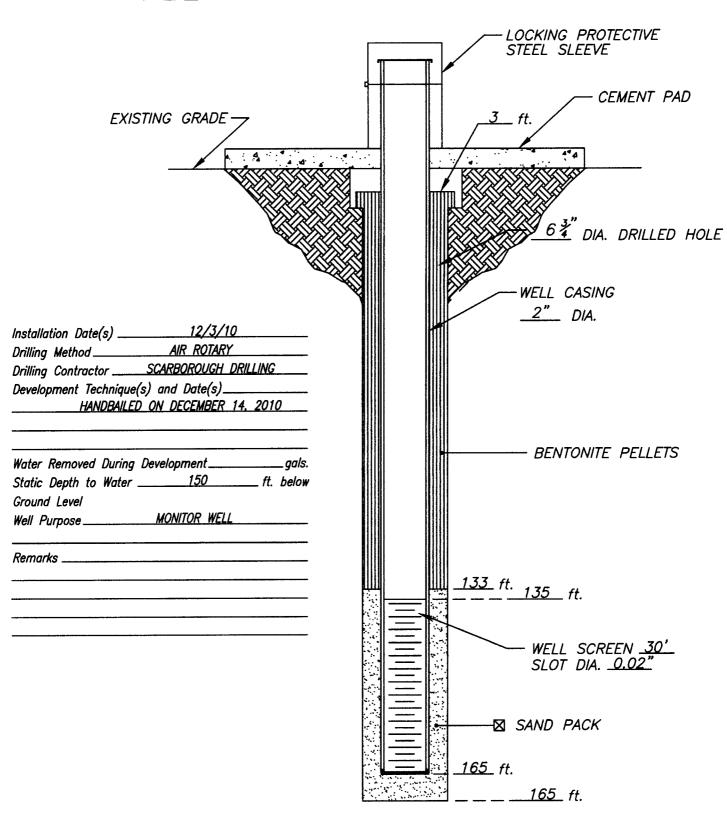
LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-5

115-8403132A

180 ft.



TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC

PROJECT: ROCK QUEEN TRACT 13 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-6

115-6403132A

APPENDIX C LABORATORY ANALYSIS



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1

El Paso, Texas 79922 Midland, Texas 79703

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6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Gary Miller Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: June 15, 2007

Work Order: 7060508

Project Location: Chaves Co. NM

Project Name:

Celero Energy-Rock Queen ESA

Project Number:

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

			Date	${f Time}$	\mathbf{Date}
Sample	Description	Matrix	Taken	Taken	Received
126448	RQU Tract 11 MW-1	water	2007-05-31	16:45	2007-06-04
126449	RQU Tract 13 MW-1	water	2007-06-01	14:30	2007-06-04

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 16 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Work Order: 7060508 Celero Energy-Rock Queen ESA

Analytical Report

Sample: 1	126448 -	\mathbf{RQU}	Tract	11	MW-1
-----------	----------	----------------	-------	----	------

Analysis: Alkalinity
QC Batch: 38159
Prep Batch: 33038

Analytical Method: SM 2320B Date Analyzed: 2007-06-14 Sample Preparation: 2007-06-14 Prep Method: N/A Analyzed By: JS Prepared By: JS

Page Number: 2 of 16

Chaves Co. NM

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		< 1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		110	mg/L as CaCo3	1	4.00
Total Alkalinity		110	mg/L as CaCo3	1	4.00

Sample: 126448 - RQU Tract 11 MW-1

Analysis: Ca, Dissolved QC Batch: 38113 Prep Batch: 32823 Analytical Method: S 6010B Date Analyzed: 2007-06-13 Sample Preparation: 2007-06-06 Prep Method: S 3005A Analyzed By: TP Prepared By: TS

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Dissolved Calcium		1300	mg/L	20	0.500

Sample: 126448 - RQU Tract 11 MW-1

Analysis: Chloride (IC) QC Batch: 38153 Prep Batch: 33031 Analytical Method: E 300.0
Date Analyzed: 2007-06-13
Sample Preparation: 2007-06-13

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

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		37800	mg/L	5000	0.500

Sample: 126448 - RQU Tract 11 MW-1

Analysis: Hardness
QC Batch: 38113
Prep Batch: 32823

Analytical Method: S 6010B
Date Analyzed: 2007-06-13
Sample Preparation: 2007-06-06

Prep Method: N/A Analyzed By: TP Prepared By: TS

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Hardness (by ICP)		7570	mg eq CaCO3/L	1	0.00

Report Date: June 15, 2007 Work Order: 7060508 Page Number: 3 of 16
2972 Celero Energy-Rock Queen ESA Chaves Co. NM

Sample: 126448 - RQU Tract 11 MW-1

Analysis: K, Dissolved Analytical Method: S 6010B Prep Method: S 3005A QC Batch: 38113 Date Analyzed: 2007-06-13 Analyzed By: TP

Prep Batch: 32823 Sample Preparation: 2007-06-06 Prepared By: TS

RL

Sample: 126448 - RQU Tract 11 MW-1

Analysis: Mg, Dissolved Analytical Method: S 6010B Prep Method: S 3005A QC Batch: 38113 Date Analyzed: 2007-06-13 Analyzed By: TP

QC Batch: 38113 Date Analyzed: 2007-06-13 Analyzed By: TP
Prep Batch: 32823 Sample Preparation: 2007-06-06 Prepared By: TS

RL

Sample: 126448 - RQU Tract 11 MW-1

Analysis: Na, Dissolved Analytical Method: S 6010B Prep Method: S 3005A QC Batch: 38113 Date Analyzed: 2007-06-13 Analyzed By: TP

Prep Batch: 32823 Sample Preparation: 2007-06-06 Prepared By: TS

RL

Sample: 126448 - RQU Tract 11 MW-1

Analysis: pH Analytical Method: SM 4500-H+ Prep Method: N/A QC Batch: 37918^a Date Analyzed: 2007-06-05 Analyzed By: JS

Prep Batch: 32839 Sample Preparation: 2007-06-05 Prepared By: JS

asamples were ran in the lab

Sample: 126448 - RQU Tract 11 MW-1

Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 38153 Date Analyzed: 2007-06-13 Analyzed By: ERPrep Batch: 33031 Sample Preparation: 2007-06-13 Prepared By: ER

Work Order: 7060508 Celero Energy-Rock Queen ESA Page Number: 4 of 16 Chaves Co. NM

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate	1 1006	1080	mg/L	50	0.500

Sample: 126448 -	RQU Tract 11 MV	V-1			
Analysis: TDS		Analytical Method: Si	M 2540C	Prep Method:	N/A
QC Batch: 38061		Date Analyzed: 20	007-06-11	Analyzed By:	ER.
Prep Batch: 32957		Sample Preparation: 20	007-06-06	Prepared By:	ER
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solid	ls	59400	mg/L	200	10.00
Sample: 126449 -	RQU Tract 13 MV	V-1			
Analysis: Alkalir	nity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch: 38159		Date Analyzed:	2007-06-14	Analyzed By:	JS
Prep Batch: 33038		Sample Preparation:	2007-06-14	Prepared By:	JS
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		8.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalini	ty	652	mg/L as CaCo3	1	4.00
Total Alkalinity		660	mg/L as CaCo3	1	4.00
Sample: 126449 -	RQU Tract 13 MV	V-1			
Analysis: Ca. Di	ssolved	Analytical Method:	S 6010B	Prep Method: S	3005A
	ssolved	Analytical Method: Date Analyzed:	S 6010B 2007-06-13		
-	issolved	Analytical Method: Date Analyzed: Sample Preparation:		-	P
QC Batch: 38113	issolved	Date Analyzed:	2007-06-13	Analyzed By: T	P
QC Batch: 38113	issolved Flag	Date Analyzed: Sample Preparation:	2007-06-13	Analyzed By: T	P
QC Batch: 38113 Prep Batch: 32823		Date Analyzed: Sample Preparation: RL	2007-06-13 2007-06-06	Analyzed By: T Prepared By: T	P S
QC Batch: 38113 Prep Batch: 32823 Parameter Dissolved Calcium		Date Analyzed: Sample Preparation: RL Result 282	2007-06-13 2007-06-06 Units	Analyzed By: T Prepared By: T Dilution	P S RL
QC Batch: 38113 Prep Batch: 32823 Parameter Dissolved Calcium Sample: 126449 -	Flag RQU Tract 13 MV	Date Analyzed: Sample Preparation: RL Result 282	2007-06-13 2007-06-06 Units	Analyzed By: T Prepared By: T Dilution	P S RL 0.500
QC Batch: 38113 Prep Batch: 32823 Parameter Dissolved Calcium Sample: 126449 -	Flag	Date Analyzed: Sample Preparation: RL Result 282	2007-06-13 2007-06-06 Units mg/L	Analyzed By: T Prepared By: T Dilution 5	P S RL 0.500
QC Batch: 38113 Prep Batch: 32823 Parameter Dissolved Calcium Sample: 126449 - Analysis: Chloric	Flag RQU Tract 13 MV	Date Analyzed: Sample Preparation: RL Result 282 V-1 Analytical Method:	2007-06-13 2007-06-06 Units mg/L E 300.0 2007-06-13	Analyzed By: T Prepared By: T Dilution 5	P S RL 0.500
QC Batch: 38113 Prep Batch: 32823 Parameter Dissolved Calcium Sample: 126449 - Analysis: Chloric QC Batch: 38153	Flag RQU Tract 13 MV	Date Analyzed: Sample Preparation: RL Result 282 V-1 Analytical Method: Date Analyzed:	2007-06-13 2007-06-06 Units mg/L E 300.0 2007-06-13	Analyzed By: T Prepared By: T Dilution 5 Prep Method: Analyzed By:	P S RL 0.500
QC Batch: 38113 Prep Batch: 32823 Parameter Dissolved Calcium Sample: 126449 - Analysis: Chloric QC Batch: 38153	Flag RQU Tract 13 MV	Date Analyzed: Sample Preparation: RL Result 282 V-1 Analytical Method: Date Analyzed: Sample Preparation:	2007-06-13 2007-06-06 Units mg/L E 300.0 2007-06-13	Analyzed By: T Prepared By: T Dilution 5 Prep Method: Analyzed By:	P S RL 0.500

Report Date: June 15, 2007 Work Order: 7060508 Page Number: 5 of 16 Chaves Co. NM 2972 Celero Energy-Rock Queen ESA Sample: 126449 - RQU Tract 13 MW-1 Prep Method: N/AAnalysis: Hardness Analytical Method: S 6010B TP QC Batch: Date Analyzed: 2007-06-13 Analyzed By: 38113

2007-06-06

Sample Preparation:

Prepared By:

TS

Sample: 126449 - RQU Tract 13 MW-1

32823

Prep Batch:

Analysis: K. Dissolved Analytical Method: S 6010B Prep Method: S 3005A QC Batch: 38113 Date Analyzed: 2007-06-13 Analyzed By: TP Prep Batch: 32823 Sample Preparation: 2007-06-06 Prepared By: RL

Sample: 126449 - RQU Tract 13 MW-1

Prep Method: S 3005A Analysis: Mg, Dissolved Analytical Method: S 6010B QC Batch: Analyzed By: TP 38113 Date Analyzed: 2007-06-13 Prepared By: Prep Batch: 32823 Sample Preparation: 2007-06-06

Sample: 126449 - RQU Tract 13 MW-1

Analytical Method: Prep Method: S 3005A Analysis: Na, Dissolved S 6010B QC Batch: 38113 Date Analyzed: 2007-06-13 Analyzed By: TP Prep Batch: 32823 Sample Preparation: 2007-06-06 Prepared By:

Sample: 126449 - RQU Tract 13 MW-1

SM 4500-H+ Prep Method: N/AAnalysis: pН Analytical Method: Analyzed By: JS QC Batch: 37918^{a} Date Analyzed: 2007-06-05 32839 Sample Preparation: 2007-06-05 Prepared By: JS Prep Batch:

asamples were ran in the lab

Prep Batch: 32823

Work Order: 7060508 Celero Energy-Rock Queen ESA Page Number: 6 of 16 Chaves Co. NM

Prepared By: TS

			RL			
Parameter		Flag	Result	Units	Dilution	RL
рН			7.02	s.u.	1	0.00
Sample: 12	6449 - RQ	U Tract 13 MW	-1			
Analysis:	SO4 (IC)		Analytical Method	d: E 300.0	Prep Method:	N/A
QC Batch:	38204		Date Analyzed:	2007-06-15	Analyzed By:	ER
Prep Batch:	33077		Sample Preparation		Prepared By:	ER
			RL			
Parameter		Flag	Result	Units	Dilution	RL
Sulfate		<u> </u>	91.1	mg/L	5	0.500
Sample: 12	6449 - RQ	U Tract 13 MW	-1			
Analysis:	TDS		Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	38061		Date Analyzed:	2007-06-11	Analyzed By:	ER
Prep Batch:	32957		Sample Preparation		Prepared By:	ER
			RL			
Parameter		Flag	Result	Units	Dilution	RL
Total Dissolv	red Solids		7245	mg/L	5	10.00
Method Bla QC Batch: Prep Batch:	38061 32957	QC Batch: 38061	Date Analyzed: QC Preparation:	2007-06-11 2007-06-06	Analyzed By: Prepared By:	
				MDL		
Parameter		F	lag	Result	Units	RL
Total Dissolv	red Solids			<5.000	mg/L	10
Method Bla	ank (1)	QC Batch: 38113	1			
QC Batch:	38113		Date Analyzed:	2007-06-13	Analyzed By:	
Prep Batch:	32823		QC Preparation:	2007-06-06	Prepared By:	TS
Donon-t		D1 -		MDL Powelt	I'mia.	Dź
Parameter Dissolved Ca	loium	Flag		Result < 0.0290	Units	$\frac{\text{RL}}{0.5}$
Dissolved Ca	acrum	A CONTRACTOR OF THE PARTY OF TH		<0.0290	mg/L	0.3
Method Bla	ank (1)	QC Batch: 38113				
QC Batch:	38113		Date Analyzed:	2007-06-13	Analyzed By:	\mathbf{TP}

QC Preparation: 2007-06-06

Work Order: 7060508 Celero Energy-Rock Queen ESA Page Number: 7 of 16 Chaves Co. NM

			MDL			
Parameter	Flag		Result	Units		RL
Dissolved Potassium			< 0.307	mg/L		0.5
Method Blank (1)	QC Batch: 38113					
QC Batch: 38113		Date Analyzed:	2007-06-13		Analyzed By:	TP
Prep Batch: 32823		QC Preparation:	2007-06-13		Prepared By:	TS
Trop Batom 02020		q c 1 roparación.	2007 00 00		ropara Ly.	
Parameter	Flag	:	MDL Result	Units		RL
Dissolved Magnesium		· · · · · · · · · · · · · · · · · · ·	< 0.0740	mg/L		0.5
Method Blank (1) QC Batch: 38113	QC Batch: 38113	Data Analyzad	2007-06-13		Analyzad Ryy	TP
Prep Batch: 32823		Date Analyzed: QC Preparation:	2007-06-13		Analyzed By: Prepared By:	TS
Prep Batch: 32823		QC Preparation:			Frepared by:	13
	T)		MDL	** **		DI
Parameter Dissolved Sodium	Flag		Result <0.529	Units		$\frac{\mathrm{RL}}{0.5}$
Dissorved Sourum			₹0.529	mg/L		0.0
Method Blank (1) QC Batch: 38153 Prep Batch: 33031	QC Batch: 38153	Date Analyzed: QC Preparation:	2007-06-13 2007-06-13		Analyzed By: Prepared By:	ER ER
Parameter	Flag		IDL sult	Units		RL
Chloride	8		.172	mg/L		0.5
Method Blank (1) QC Batch: 38153 Prep Batch: 33031	QC Batch: 38153	Date Analyzed: QC Preparation:	2007-06-13 2007-06-13		Analyzed By: Prepared By:	ER ER
Parameter	Flag		IDL sult	Units		RL
Sulfate	Tag		.777	mg/L		0.5
			A 44 A 4			
Method Blank (1)	QC Batch: 38159					
QC Batch: 38159 Prep Batch: 33038		Date Analyzed: QC Preparation:	2007-06-14 2007-06-14		Analyzed By: Prepared By:	JS JS

Work Order: 7060508 Celero Energy-Rock Queen ESA

Parameter	Flag	$egin{array}{c} ext{MDL} \ ext{Result} \end{array}$	Units	R.L
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1
Carbonate Alkalinity		< 1.00	mg/L as CaCo3	1
Bicarbonate Alkalinity		< 4.00	mg/L as CaCo3	4
Total Alkalinity		< 4.00	mg/L as CaCo3	4

Method Blank (1)

QC Batch: 38204

QC Batch: 38204 Prep Batch: 33077 Date Analyzed: 2007-06-15 QC Preparation: 2007-06-14 Analyzed By: ER Prepared By: ER

Page Number: 8 of 16

Chaves Co. NM

		MDL		
Parameter	Flag	Result	Units	RL
Sulfate		< 0.777	nıg/L	0.5

Duplicates (1)

QC Batch: 37918 Prep Batch: 32839 Date Analyzed: 2007-06-05 QC Preparation: 2007-06-05 Analyzed By: JS Prepared By: JS

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
pΗ	7.09	7.06	S.11.	1	0	0.8

Duplicates (1)

QC Batch: 38061 Prep Batch: 32957 Date Analyzed: 2007-06-11 QC Preparation: 2007-06-06

Analyzed By: ER Prepared By: ER

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	596.0	582.0	mg/L	2	2	17.2

Duplicates (1)

QC Batch: 38159 Prep Batch: 33038 Date Analyzed: 2007-06-14 QC Preparation: 2007-06-14 Analyzed By: JS Prepared By: JS

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	< 1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	928	764	mg/L as CaCo3	1	19	20
Total Alkalinity	928	764	mg/L as CaCo3	1	19	20

Report Date: June 15, 2007

2972

Work Order: 7060508 Celero Energy-Rock Queen ESA Page Number: 9 of 16 Chaves Co. NM

Laboratory Control Spike (LCS-1)

QC Batch:

38113

Date Analyzed:

2007-06-13

Analyzed By: TP

Prep Batch: 32823

QC Preparation:

2007-06-06

Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Calcium	50.4	mg/L	1	50.0	< 0.0290	101	79.1 - 121

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Calcium	51.0	mg/L	1	50.0	< 0.0290	102	79.1 - 121	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:

38113

Date Analyzed:

2007-06-13

Analyzed By: TP

Prep Batch: 32823

QC Preparation: 2007-06-06

Prepared By:

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Potassium	51.4	mg/L	1	50.0	< 0.307	103	78.8 - 114

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Potassium	51.9	mg/L	1	50.0	< 0.307	104	78.8 - 114	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:

38113

Date Analyzed:

2007-06-13

Analyzed By: TP

Prep Batch:

32823

QC Preparation:

2007-06-06

Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Magnesium	50.1	mg/L	1	50.0	< 0.0740	100	80.2 - 120

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Magnesium	50.6	mg/L	1	50.0	< 0.0740	101	80.2 - 120	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: 38113 Prep Batch: 32823 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-06

Analyzed By: TP Prepared By: TS

Work Order: 7060508 Celero Energy-Rock Queen ESA

LCS Rec. Spike Matrix Limit Param Result Units Dil. Amount Result Rec. Dissolved Sodium 106 79.4 - 123 53.1mg/L 50.0 < 0.529

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Sodium	53.3	mg/L	1	50.0	< 0.529	107	79.4 - 123	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: 38153 Prep Batch: 33031 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-13 Analyzed By: ER Prepared By: ER

Page Number: 10 of 16

Chaves Co. NM

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 90 - 110 Chloride 12.2 mg/L 12.5 < 0.17298

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	12.1	mg/L	1	12.5	< 0.172	97	90 - 110	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 38153 Prep Batch: 33031 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-13 Analyzed By: ER Prepared By: ER

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	12.4	mg/L	1	12.5	< 0.777	99	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	11.6	mg/L	1	12.5	< 0.777	93	90 - 110	7	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: 38204 Prep Batch: 33077 Date Analyzed: 2007-06-15 QC Preparation: 2007-06-14 Analyzed By: ER Prepared By: ER

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	11.3	mg/L	1	12.5	< 0.777	90	90 - 110

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

Work Order: 7060508 Celero Energy-Rock Queen ESA

LCSD Rec. RPD Spike Matrix Param Result Units Dil. Amount Result Rec. Limit RPD Limit Sulfate 12.0mg/L 12.5< 0.77796 90 - 110 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: 126448

QC Batch: 38113 Prep Batch: 32823 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-06 Analyzed By: TP Prepared By: TS

Page Number: 11 of 16

Chaves Co. NM

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Dissolved Calcium 1290 mg/L 50.0 1300 -20 69 - 130

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Calcium	2 1290	mg/L	1	50.0	1300	-20	69 - 130	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: 126448

QC Batch: 38113 Prep Batch: 32823 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-06

Analyzed By: TP Prepared By: TS

MS Spike Matrix Rec. Units Param Result Dil. Amount Result Rec. Limit Dissolved Potassium 446 50.0 mg/L 416 60 76.8 - 117

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Potassium	468	mg/L	1	50.0	416	104	76.8 - 117	5	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: 126448

QC Batch: 38113 Prep Batch: 32823 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-06

Analyzed By: TP Prepared By: TS

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Magnesium	4	1050	nıg/L	1	50.0	1050	0	77.9 - 122

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

¹ Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

²Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

³Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁴Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Work Order: 7060508 Celero Energy-Rock Queen ESA Page Number: 12 of 16 Chaves Co. NM

		Med			Conillea	Matrice		Dag		RPD
		MSD			\mathbf{Spike}	Matrix		Rec .		RF D
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Magnesium	5	1040	mg/L	1	50.0	1050	-20	77.9 - 122	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: 126448

QC Batch: 38113 Prep Batch: 32823 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-06 Analyzed By: TP

Prepared By: TS

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Sodium	6	19400	mg/L	1	50.0	19400	0	84.2 - 120

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

		MSD			\mathbf{Spike}	Matrix		${ m Rec.}$		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Sodium	7	19900	mg/L	1	50.0	19400	1000	84.2 - 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: 126147

QC Batch: 38153 Prep Batch: 33031 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-13 Analyzed By: ER Prepared By: ER

Spike MS Matrix Rec. Dil. Result Rec. Limit Result Units Amount Param 185.563 98 10 - 188 798 50 625 Chloride mg/L

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	787	mg/L	50	625	185.563	96	10 - 188	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: 126147

QC Batch: 38153 Prep Batch: 33031 Date Analyzed: 2007-06-13 QC Preparation: 2007-06-13

Analyzed By: ER Prepared By: ER

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	671	mg/L	50	625	<38.8	107	83.1 - 114

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

⁵Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁶Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁷Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Report Date: June 15, 2007

2972

Work Order: 7060508 Celero Energy-Rock Queen ESA

MSD RPD Spike Rec. Matrix Param RPD Result Dil. Limit Limit Units Amount Result Rec. Sulfate 670 20 <38.8 107 83.1 - 114 mg/L50 6250

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

Matrix Spike (MS-1) Spiked Sample: 126449

 QC Batch:
 38204
 Date Analyzed:
 2007-06-15

 Prep Batch:
 33077
 QC Preparation:
 2007-06-14

Analyzed By: ER Prepared By: ER

Page Number: 13 of 16

Chaves Co. NM

	MS			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	159	mg/L	5	62.5	91.0693	109	83.1 - 114

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

	MSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	151	mg/L	5	62.5	91.0693	96	83.1 - 114	5	20

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

Standard (ICV-1)

QC Batch: 37918 Date Analyzed: 2007-06-05 Analyzed By: JS

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pH		s.u.	7.00	7.10	101	98 - 102	2007-06-05

Standard (CCV-1)

QC Batch: 37918 Date Analyzed: 2007-06-05 Analyzed By: JS

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	7.14	102	98 - 102	2007-06-05

Standard (ICV-1)

QC Batch: 38061 Date Analyzed: 2007-06-11 Analyzed By: ER

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Dissolved Solids		mg/L	1000	1006	101	90 - 110	2007-06-11

Standard (CCV-1)

QC Batch: 38061 Date Analyzed: 2007-06-11 Analyzed By: ER

Report Date: June 15, 2007

Work Order: 7060508 Celero Energy-Rock Queen ESA

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Dissolved Solids		mg/L	1000	981.0	98	90 - 110	2007-06-11

Standard (ICV-1)

2972

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

Page Number: 14 of 16

Chaves Co. NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	50.0	49.5	99	90 - 110	2007-06-13

Standard (ICV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Potassium		mg/L	50.0	49.9	100	90 - 110	2007-06-13

Standard (ICV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Magnesium		mg/L	50.0	49.3	99	90 - 110	2007-06-13

Standard (ICV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Sodium		mg/L	50.0	51.5	103	90 - 110	2007-06-13

Standard (CCV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	50.0	51.6	103	90 - 110	2007-06-13

Work Order: 7060508 Celero Energy-Rock Queen ESA Page Number: 15 of 16 Chaves Co. NM

Standard (CCV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Potassium		mg/L	50.0	52.8	106	90 - 110	2007-06-13

Standard (CCV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Magnesium		mg/L	50.0	51.7	103	90 - 110	2007-06-13

Standard (CCV-1)

QC Batch: 38113

Date Analyzed: 2007-06-13

Analyzed By: TP

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Sodium		mg/L	50.0	52.7	105	90 - 110	2007-06-13

Standard (ICV-1)

QC Batch: 38153

Date Analyzed: 2007-06-13

Analyzed By: ER.

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		m mg/L	12.5	12.1	97	90 - 110	2007-06-13

Standard (ICV-1)

QC Batch: 38153

Date Analyzed: 2007-06-13

Analyzed By: ER

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	12.5	11.7	94	90 - 110	2007-06-13

Standard (CCV-1)

QC Batch: 38153

Date Analyzed: 2007-06-13

Analyzed By: ER

Work Order: 7060508 Celero Energy-Rock Queen ESA

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	12.3	98	90 - 110	2007-06-13

Standard (CCV-1)

QC Batch: 38153

Date Analyzed: 2007-06-13

Analyzed By: ER

Page Number: 16 of 16

Chaves Co. NM

			CCVs	CCVs	CCVs	Percent	_
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate	· · · · · · · · · · · · · · · · · · ·	mg/L	12.5	12.6	101	90 - 110	2007-06-13

Standard (ICV-1)

QC Batch: 38159

Date Analyzed: 2007-06-14

Analyzed By: JS

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Alkalinity		mg/L as CaCo3	250	242	97	90 - 110	2007-06-14

Standard (CCV-1)

QC Batch: 38159

Date Analyzed: 2007-06-14

Analyzed By: JS

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Alkalinity		mg/L as CaCo3	250	240	96	90 - 110	2007-06-14

Standard (ICV-1)

QC Batch: 38204

Date Analyzed: 2007-06-15

Analyzed By: ER

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	12.5	11.6	93	90 - 110	2007-06-15

Standard (CCV-1)

QC Batch: 38204

Date Analyzed: 2007-06-15

Analyzed By: ER

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	12.5	11.3	90	90 - 110	2007-06-15

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6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1

Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703

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Certifications

WBENC: 237019

HUB:

1752439743100-86536 NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX

LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: April 26, 2010

Work Order: 10040809

Project Location:

Chavez County, NM

Project Name:

Celero/Rock Queen Tract #13 TB

Project Number:

115-6403132A

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

			Date	Time	\mathbf{Date}
Sample	Description	Matrix	Taken	Taken	Received
227830	MW-1	water	2010-04-06	14:50	2010-04-07
227831	MW-2	water	2010-04-06	14:25	2010-04-07
227832	MW-3	water	2010-04-06	15:00	2010-04-07
227833	MW-4	water	2010-04-06	14:35	2010-04-07

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 22 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project Celero/Rock Queen Tract #13 TB were received by TraceAnalysis, Inc. on 2010-04-07 and assigned to work order 10040809. Samples for work order 10040809 were received intact without headspace and at a temperature of 3.3 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Alkalinity	SM 2320B	59015	2010-04-09 at 09:08	68950	2010-04-09 at 11:08
BTEX	S 8021B	59064	2010-04-11 at 15:00	69005	2010-04-09 at 17:06
Ca, Dissolved	S 6010B	59090	2010-04-13 at 07:57	69039	2010-04-13 at 11:01
Chloride (IC)	E 300.0	58994	2010-04-08 at 11:46	68948	2010-04-09 at 10:23
Hardness	S 6010B	59090	2010-04-13 at 07:57	69039	2010-04-13 at 11:01
K, Dissolved	S 6010B	59090	2010-04-13 at 07:57	69039	2010-04-13 at 11:01
Mg, Dissolved	S 6010B	59090	2010-04-13 at 07:57	69039	2010-04-13 at 11:01
Na, Dissolved	S 6010B	59090	2010-04-13 at 07:57	69039	2010-04-13 at 11:01
pН	SM 4500-H+	58993	2010-04-08 at 10:34	68931	2010-04-08 at 12:36
SO4 (IC)	E 300.0	58994	2010-04-08 at 11:46	68948	2010-04-09 at 10:23
TDS	SM 2540C	59010	2010-04-09 at 09:18	69374	2010-04-23 at 13:21

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10040809 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: April 26, 2010

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 4 of 22 Chavez County, NM

Analytical Report

Sample: 227830 - MW-1

Laboratory: Midland

Analysis: Alkalinity QC Batch: 68950 Prep Batch: 59015

Analytical Method: SM 2320B
Date Analyzed: 2010-04-09

Sample Preparation: 2010-04-09

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

RLDilution RLResult Units Parameter Flag mg/L as CaCo3 1.00 Hydroxide Alkalinity < 1.00 1 mg/L as CaCo3 1.00 Carbonate Alkalinity < 1.001 mg/L as CaCo3 4.00 Bicarbonate Alkalinity 2261 Total Alkalinity 226 mg/L as CaCo3 1 4.00

Sample: 227830 - MW-1

Laboratory: Midland

Analysis: BTEX QC Batch: 69005 Prep Batch: 59064 Analytical Method: S 8021B Date Analyzed: 2010-04-09 Sample Preparation: 2010-04-11

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

RLResult Units Dilution RLFlag Parameter 0.00100 mg/L Benzene < 0.00100 1 0.00100 Toluene < 0.00100 mg/L 1 mg/L 1 0.00100Ethylbenzene < 0.00100 mg/L 1 0.00100 Xylene < 0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	6	0.0909	mg/L	1	0.100	91	65.2 - 130.3
4-Bromofluorobenzene (4-BFB)		0.0742	mg/L	1	0.100	74	51.1 - 121.7

Sample: 227830 - MW-1

Laboratory: Lubbock

Analysis: Cations QC Batch: 69039 Prep Batch: 59090 Analytical Method: S 6010B
Date Analyzed: 2010-04-13
Sample Preparation: 2010-04-13

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

continued ...

Report Date: April 26, 2010 115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 5 of 22

Chavez County, NM

AR

AR

sample 227830 continued ...

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Dissolved Potassium		5.96	mg/L	1	1.00
Dissolved Magnesium		7.61	mg/L	1	1.00
Dissolved Sodium		11.4	mg/L	1	1.00

Sample: 227830 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 68948 Date Analyzed: 2010-04-09 Analyzed By: ARPrep Batch: 58994 Sample Preparation: 2010-04-08 Prepared By: AR

RLParameter Result Flag Units Dilution RLChloride 43.6 mg/L 0.500 5

Sample: 227830 - MW-1

Laboratory: Lubbock

Analysis: Hardness Analytical Method: S 6010B Prep Method: N/A QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RRPrep Batch: 59090 Sample Preparation: 2010-04-13 Prepared By: KV

RLParameter Flag Result Units RLDilution Hardness (by ICP) 356 mg eq CaCO3/L 0.00

Sample: 227830 - MW-1

Laboratory: Midland

Analysis: Hq Analytical Method: SM 4500-H+ Prep Method: N/A QC Batch: 68931 Date Analyzed: 2010-04-08 Analyzed By: Prep Batch: 58993 Sample Preparation: 2010-04-08 Prepared By:

RLParameter Flag Result Units Dilution RLpН 8.28 s.u. 0.00

Work Order: 10040809 Page Number: 6 of 22 Report Date: April 26, 2010 Celero/Rock Queen Tract #13 TB 115-6403132A Chavez County, NM Sample: 227830 - MW-1 Laboratory: Midland Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 68948 Analyzed By: Date Analyzed: 2010-04-09 ARPrep Batch: 58994 Sample Preparation: 2010-04-08 Prepared By: ARRLParameter Result Units Dilution RLFlag 42.7 Sulfate mg/L 5 0.500 Sample: 227830 - MW-1 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/AQC Batch: 69374 Date Analyzed: 2010-04-23 Analyzed By: ARPrep Batch: 59010 Prepared By: Sample Preparation: 2010-04-09 ARRLUnits Dilution RLParameter Flag Result Total Dissolved Solids 699 10.0 mg/L Sample: 227831 - MW-2 Laboratory: Midland SM 2320B Prep Method: N/A Analysis: Alkalinity Analytical Method: QC Batch: 68950 Date Analyzed: 2010-04-09 Analyzed By: ARPrep Batch: 59015 Sample Preparation: 2010-04-09 Prepared By: ARRLParameter Flag Result Units Dilution RLmg/L as CaCo3 Hydroxide Alkalinity < 1.00 1 1.00 Carbonate Alkalinity mg/L as CaCo3 1 1.00 < 1.00 mg/L as CaCo3 1 Bicarbonate Alkalinity 125 4.00Total Alkalinity 125 mg/L as CaCo3 1 4.00

Sample: 227831 - MW-2

Laboratory: Midland

Analytical Method: Analysis: BTEX S 8021B Prep Method: S 5030B QC Batch: 69005 Date Analyzed: 2010-04-09 Analyzed By: AG 2010-04-11 Prep Batch: 59064 Sample Preparation: Prepared By: AG

Report Date: April 26, 2010

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 7 of 22 Chavez County, NM

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

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0872	mg/L	1	0.100	87	65.2 - 130.3
4-Bromofluorobenzene (4-BFB)		0.0672	mg/L	1	0.100	67	51.1 - 121.7

Sample: 227831 - MW-2

Laboratory: Lubbock

Analysis: Cations QC Batch: 69039 Prep Batch: 59090 Analytical Method: S 6010B Date Analyzed: 2010-04-13 Sample Preparation: 2010-04-13 Prep Method: S 3005A Analyzed By: RR Prepared By: KV

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Dissolved Calcium		520	mg/L	10	1.00
Dissolved Potassium		15.5	mg/L	1	1.00
Dissolved Magnesium		73.0	mg/L	1	1.00
Dissolved Sodium		925	mg/L	10	1.00

Sample: 227831 - MW-2

Laboratory: Midland

Analysis: Chloride (IC) QC Batch: 68948 Prep Batch: 58994 Analytical Method: E 300.0
Date Analyzed: 2010-04-09
Sample Preparation: 2010-04-08

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

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		2250	mg/L	500	0.500

Sample: 227831 - MW-2

Laboratory: Lubbock

Analysis: Hardness Analytical Method: S 6010B Prep Method: N/A QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RR Prep Batch: 59090 Sample Preparation: 2010-04-13 Prepared By: KV

Report Date: April 26, 2010

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 8 of 22 Chavez County, NM

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Hardness (by ICP)		1600	mg eq CaCO3/L	1	0.00

Sample: 227831 - MW-2

Laboratory: Midland

Analysis: pH QC Batch: 68931 Prep Batch: 58993

 \overline{pH}

Analytical Method: SM 4500-H+ Date Analyzed: 2010-04-08 Sample Preparation: 2010-04-08 Prep Method: N/A
Analyzed By: AR
Prepared By: AR

RL

0.00

Parameter Flag Ro

7.70

RL

Units Dilution s.u. 1

Sample: 227831 - MW-2

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 68948 Prep Batch: 58994 Analytical Method: E 300.0 Date Analyzed: 2010-04-09 Sample Preparation: 2010-04-08

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

RL arameter Flag Result

 $\begin{array}{ccccc} Parameter & Flag & Result & Units \\ Sulfate & \textbf{133} & mg/L \end{array}$

 Dilution
 RL

 5
 0.500

Sample: 227831 - MW-2

Laboratory: Midland

Analysis: TDS QC Batch: 69374 Prep Batch: 59010 Analytical Method: SM 2540C Date Analyzed: 2010-04-23 Sample Preparation: 2010-04-09

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

Sample: 227832 - MW-3

Laboratory: Midland

Analysis: Alkalinity Analytical Method: SM 2320B QC Batch: 68950 Date Analyzed: 2010-04-09 Prep Batch: 59015 Sample Preparation: 2010-04-09 Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Report Date: April 26, 2010 115-6403132A Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 9 of 22 Chavez County, NM

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		< 1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		183	mg/L as CaCo3	1	4.00
Total Alkalinity		183	mg/L as CaCo3	1	4.00

Sample: 227832 - MW-3

Laboratory: Midland

Analysis: **BTEX** Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 69005 Date Analyzed: 2010-04-09 Analyzed By: \mathbf{AG} Prepared By: Prep Batch: 59064 Sample Preparation: 2010-04-11 AG

RL Flag Result Units Dilution Parameter RLBenzene < 0.00100 mg/L 0.00100 1 Toluene < 0.00100 mg/L1 0.00100Ethylbenzene mg/L1 < 0.00100 0.00100Xylene < 0.00100 mg/L 1 0.00100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0929	mg/L	1	0.100	93	65.2 - 130.3
4-Bromofluorobenzene (4-BFB)		0.0729	mg/L	1	0.100	73	51.1 - 121.7

Sample: 227832 - MW-3

Laboratory: Lubbock

Analytical Method: S 6010B Analysis: Cations Prep Method: S 3005A QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RRPrep Batch: 59090 Sample Preparation: 2010-04-13 Prepared By:

RLResult Parameter Flag Units Dilution RLDissolved Calcium 76.1 mg/L 1.00 Dissolved Potassium 4.33 mg/L 1 1.00 Dissolved Magnesium 10.3 mg/L 1 1.00 Dissolved Sodium 78.7 mg/L 1 1.00

115-6403132A Chavez County, NM Celero/Rock Queen Tract #13 TB Sample: 227832 - MW-3 Laboratory: Midland Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 68948 Analyzed By: ARDate Analyzed: 2010-04-09 58994 Sample Preparation: Prep Batch: 2010-04-08 Prepared By: AR RLParameter Flag Result Units Dilution RLChloride 58.4 mg/L 0.500 5 Sample: 227832 - MW-3 Laboratory: Lubbock Prep Method: N/A Analysis: Hardness Analytical Method: S 6010B QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RRPrep Batch: 59090 Sample Preparation: Prepared By: KV 2010-04-13 RLDilution RLParameter Flag Result Units Hardness (by ICP) 232 mg eq CaCO3/L 0.00 Sample: 227832 - MW-3 Laboratory: Midland Prep Method: N/A Analysis: pН Analytical Method: SM 4500-H+ QC Batch: 68931 Date Analyzed: 2010-04-08 Analyzed By: ARPrep Batch: 58993 Sample Preparation: Prepared By: AR 2010-04-08 RLDilution RLParameter Flag Result Units 8.26 0.00 pHs.u. 1 Sample: 227832 - MW-3 Midland Laboratory: SO4 (IC) Prep Method: N/A Analysis: Analytical Method: E 300.0 QC Batch: 68948 Analyzed By: ARDate Analyzed: 2010-04-09 Prepared By: AR Prep Batch: 58994 Sample Preparation: 2010-04-08 RLParameter Flag Result Units Dilution RL0.500Sulfate 116 mg/L

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Report Date: April 26, 2010

Report Date: April 26, 2010 Work Order: 10040809 Page Number: 11 of 22 115-6403132A Celero/Rock Queen Tract #13 TB Chavez County, NM

Sample: 227832 - MW-3

Laboratory: Midland

Analysis: TDS Analytical Method: SM 2540C Prep Method: N/AQC Batch: 69374 Date Analyzed: 2010-04-23 Analyzed By: ARPrep Batch: 59010 Sample Preparation: 2010-04-09 Prepared By: AR

Sample: 227833 - MW-4

Laboratory: Midland

Prep Method: Analysis: Alkalinity Analytical Method: SM 2320B N/AQC Batch: 68950 Date Analyzed: 2010-04-09 Analyzed By: AR Prep Batch: 59015 Sample Preparation: 2010-04-09 Prepared By: AR

RLFlag Units Dilution RLParameter Result Hydroxide Alkalinity < 1.00 mg/L as CaCo3 1.001 Carbonate Alkalinity mg/L as CaCo3 < 1.00 1 1.00 Bicarbonate Alkalinity 145 mg/L as CaCo3 4.00 1 mg/L as CaCo3 Total Alkalinity 145 1 4.00

Sample: 227833 - MW-4

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 69005 Date Analyzed: 2010-04-09 Analyzed By: AG Sample Preparation: 2010-04-11 Prepared By: AG Prep Batch: 59064

RLResult Parameter Flag Units Dilution RLBenzene < 0.00100 mg/L 0.00100 Toluene mg/L 1 0.00100 < 0.00100 Ethylbenzene < 0.00100 mg/L 1 0.00100Xylene < 0.00100 mg/L 1 0.00100

					Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0909	mg/L	1	0.100	91	65.2 - 130.3
4-Bromofluorobenzene (4-BFB)		0.0696	$_{ m mg/L}$	1	0.100	70	51.1 - 121.7

Report Date: April 26, 2010 Work Order: 10040809 Page Number: 12 of 22 115-6403132A Celero/Rock Queen Tract #13 TB Chavez County, NM

Sample: 227833 - MW-4

Laboratory: Lubbock

Analysis: Cations Analytical Method: S 6010B Prep Method: S 3005A QC Batch: 69039 Analyzed By: Date Analyzed: 2010-04-13 RRPrep Batch: 59090 Sample Preparation: 2010-04-13 Prepared By: KV

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Dissolved Calcium		89.5	mg/L	1	1.00
Dissolved Potassium		3.34	$\mathrm{mg/L}$	1	1.00
Dissolved Magnesium		11.5	mg/L	1	1.00
Dissolved Sodium		40.5	mg/L	1	1.00

Sample: 227833 - MW-4

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 68948 Date Analyzed: 2010-04-09 Analyzed By: ARPrep Batch: 58994 Sample Preparation: 2010-04-08 Prepared By: AR

RL

RL

Sample: 227833 - MW-4

Laboratory: Lubbock

Analysis: Hardness Analytical Method: S 6010B Prep Method: N/A QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RR Prep Batch: 59090 Sample Preparation: 2010-04-13 Prepared By: KV

Sample: 227833 - MW-4

Laboratory: Midland

Analysis: Prep Method: N/A pН Analytical Method: SM 4500-H+ QC Batch: 68931 Date Analyzed: 2010-04-08 Analyzed By: ARPrep Batch: 58993 Sample Preparation: 2010-04-08 Prepared By: AR

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Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 13 of 22 Chavez County, NM

		RL			
Parameter	Flag	Result	Units	Dilution	RL
pH		8.35	s.u.	1	0.00

DI

Sample: 227833 - MW-4

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 68948 Prep Batch: 58994 Analytical Method: E 300.0
Date Analyzed: 2010-04-09
Sample Preparation: 2010-04-08

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

Sample: 227833 - MW-4

Laboratory: Midland

Analysis: TDS QC Batch: 69374 Prep Batch: 59010 Analytical Method: SM 2540C Date Analyzed: 2010-04-23 Sample Preparation: 2010-04-09

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

Method Blank (1) QC Batch: 68948

QC Batch: 68948 Prep Batch: 58994 Date Analyzed: 2010-04-09 QC Preparation: 2010-04-08 Analyzed By: AR Prepared By: AR

Method Blank (1) QC Batch: 68948

 QC Batch:
 68948
 Date Analyzed:
 2010-04-09

 Prep Batch:
 58994
 QC Preparation:
 2010-04-08

Analyzed By: AR Prepared By: AR

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 14 of 22 Chavez County, NM

		MDL		
Parameter	Flag	Result	Units	RL
Sulfate		< 0.217	mg/L	0.5

Method Blank (1)

QC Batch: 68950

QC Batch: 68950 Prep Batch: 59015 Date Analyzed: 2010-04-09 QC Preparation: 2010-04-09 Analyzed By: AR Prepared By: AR

		MDL		
Parameter	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1
Carbonate Alkalinity		< 1.00	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.00	mg/L as CaCo3	4
Total Alkalinity		<4.00	mg/L as CaCo3	4

Method Blank (1)

QC Batch: 69005

QC Batch: 69005 Prep Batch: 59064

Date Analyzed: 2010-04-09 QC Preparation: 2010-04-11 Analyzed By: AG Prepared By: AG

		MDL		
Parameter	Flag	Result	Units	RL
Benzene		< 0.000300	mg/L	0.001
Toluene		< 0.000200	$_{ m mg/L}$	0.001
Ethylbenzene		< 0.000200	m mg/L	0.001
Xylene		< 0.000900	$_{ m mg/L}$	0.001

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0924	mg/L	1	0.100	92	73.6 - 126.6
4-Bromofluorobenzene (4-BFB)		0.0803	mg/L	1	0.100	80	62.6 - 117.5

Method Blank (1)

QC Batch: 69039

QC Batch: 69039 Prep Batch: 59090 Date Analyzed: 2010-04-13 QC Preparation: 2010-04-13

Analyzed By: RR Prepared By: KV

		MDL		
Parameter	Flag	Result	Units	RL
Dissolved Calcium		< 0.117	mg/L	1
				4. 1

continued ...

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 15 of 22 Chavez County, NM

method blank continued ...

		MDL		
Parameter	Flag	Result	Units	RL
Dissolved Potassium		< 0.172	mg/L	1
Dissolved Magnesium		< 0.160	mg/L	1
Dissolved Sodium		< 0.0500	mg/L	1

Method Blank (1) QC Batch: 69374

QC Batch: 69374 Prep Batch: 59010 Date Analyzed: 2010-04-23 QC Preparation: 2010-04-09 Analyzed By: AR Prepared By: AR

MDL Parameter Flag Result

Duplicates (1) Duplicated Sample: 227833

QC Batch: 68931 Prep Batch: 58993 Date Analyzed: 2010-04-08 QC Preparation: 2010-04-08

Analyzed By: AR Prepared By: AR

Duplicate Sample RPD Param Result Result Units Dilution RPD Limit 8.33 8.35 pHs.u. 0 1.5 1

Duplicates (1) Duplicated Sample: 227833

QC Batch: 68950 Prep Batch: 59015 Date Analyzed: 2010-04-09 QC Preparation: 2010-04-09

Analyzed By: AR Prepared By: AR

Analyzed By: AR

AR

Prepared By:

Duplicate Sample RPD Param Result Result Units Dilution RPD Limit Hydroxide Alkalinity mg/L as CaCo3 < 1.00< 1.001 0 20 < 1.00 Carbonate Alkalinity <1.00 mg/L as CaCo3 1 0 20 Bicarbonate Alkalinity mg/L as CaCo3 1 20 144 1451 Total Alkalinity mg/L as CaCo3 1 144 145 1 20

Duplicates (1) Duplicated Sample: 227831

 QC Batch:
 69374
 Date Analyzed:
 2010-04-23

 Prep Batch:
 59010
 QC Preparation:
 2010-04-09

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Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 16 of 22 Chavez County, NM

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	6200	5890	mg/L	5	5	10

Laboratory Control Spike (LCS-1)

QC Batch:

68948

Date Analyzed:

2010-04-09

Analyzed By: AR

Prep Batch: 58994

QC Preparation:

2010-04-08

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	25.8	mg/L	1	25.0	< 0.475	103	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	25.9	mg/L	1	25.0	< 0.475	104	90 - 110	0	

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:

68948

Date Analyzed:

2010-04-09

Analyzed By: AR

Prep Batch: 58994

QC Preparation: 2010-04-08

Prepared By: AR

	$_{ m LCS}$			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.4	mg/L	1	25.0	< 0.217	98	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	24.4	mg/L	1	25.0	< 0.217	98	90 - 110	0	

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:

Prep Batch: 59064

69005

Date Analyzed:

2010-04-09

QC Preparation: 2010-04-11

Analyzed By: AG

Prepared By: AG

	LCS			\mathbf{Spike}	Matrix		$\operatorname{Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.0958	mg/L	1	0.100	< 0.000300	96	79.4 - 112.4
Toluene	0.0938	mg/L	1	0.100	< 0.000200	94	79.3 - 110

continued ...

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 17 of 22 Chavez County, NM

control spikes continued . . .

	LCS			Spike	Matrix		$\mathrm{Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Ethylbenzene	0.0926	mg/L	1	0.100	< 0.000200	93	73.8 - 113.1
Xylene	0.279	m mg/L	1	0.300	< 0.000900	93	73.9 - 113.6

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.0955	mg/L	1	0.100	< 0.000300	96	79.4 - 112.4	0	20
Toluene	0.0942	mg/L	1	0.100	< 0.000200	94	79.3 - 110	0	20
Ethylbenzene	0.0925	mg/L	1	0.100	< 0.000200	92	73.8 - 113.1	0	20
Xylene	0.281	mg/L	1	0.300	< 0.000900	94	73.9 - 113.6	1	20

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

	LCS	LCSD			\mathbf{Spike}	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.0920	0.0870	mg/L	1	0.100	92	87	73.2 - 129.6
4-Bromofluorobenzene (4-BFB)	0.0977	0.0933	mg/L	1	0.100	98	93	77.9 - 119.8

Laboratory Control Spike (LCS-1)

QC Batch: 69039 Prep Batch: 59090 Date Analyzed: 2010-04-13 QC Preparation: 2010-04-13 Analyzed By: RR Prepared By: KV

	LCS			\mathbf{Spike}	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Calcium	50.3	mg/L	1	50.0	< 0.117	101	85 - 115
Dissolved Potassium	49.0	mg/L	1	50.0	< 0.172	98	85 - 115
Dissolved Magnesium	50.2	mg/L	1	50.0	< 0.160	100	85 - 115
Dissolved Sodium	47.6	mg/L	1	50.0	< 0.0500	95	85 - 115

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

	$_{ m LCSD}$			Spike	Matrix		Rec .		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Calcium	51.3	mg/L	1	50.0	< 0.117	103	85 - 115	2	20
Dissolved Potassium	49.7	mg/L	1	50.0	< 0.172	99	85 - 115	1	20
Dissolved Magnesium	51.4	mg/L	1	50.0	< 0.160	103	85 - 115	2	20
Dissolved Sodium	48.9	mg/L	1	50.0	< 0.0500	98	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 69374 Prep Batch: 59010 Date Analyzed: 2010-04-23 QC Preparation: 2010-04-09

Analyzed By: AR Prepared By: AR

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 18 of 22 Chavez County, NM

	LCS			Spike	Matrix		Rec.
Param	Result	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids	1030	m 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.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids	1020	mg/L	1	1000	< 9.75	102	90 - 110	1	10

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

Matrix Spike (MS-1) Spiked Sample: 227831

QC Batch: 68948 Prep Batch: 58994 Date Analyzed: 2010-04-09 QC Preparation: 2010-04-08 Analyzed By: AR Prepared By: AR

	MS			Spike	Matrix		Rec.
Param	Result	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit
Chloride	3890	mg/L	50	1380	2470	103	90 - 110

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

	MSD			\mathbf{Spike}	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	3890	mg/L	50	1380	2470	103	90 - 110	0	

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

Matrix Spike (MS-1) Spiked Sample: 227831

QC Batch: 68948 Prep Batch: 58994 Date Analyzed: 2010-04-09 QC Preparation: 2010-04-08

Analyzed By: AR Prepared By: AR

	MS			Spike	Matrix		Rec.
Param	\mathbf{Result}	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	1490	mg/L	50	1380	197	94	90 - 110

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	1500	mg/L	50	1380	197	95	90 - 110	1	

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

Matrix Spike (MS-1) Spiked Sample: 227833

QC Batch: 69005 Date Analyzed: 2010-04-09 Analyzed By: AG
Prep Batch: 59064 QC Preparation: 2010-04-11 Prepared By: AG

Report Date: April 26, 2010 115-6403132A Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 19 of 22

Chavez County, NM

Analyzed By: RR

Prepared By: KV

MS Rec. Spike Matrix Limit Param Result Units Dil. Amount Result Rec. 77.3 - 117.4 Benzene 0.0952 mg/L 1 0.100< 0.000300 95 Toluene 0.0933mg/L 1 0.100< 0.000200 93 75 - 111.8 92 78.8 - 106.6 Ethylbenzene 0.0923mg/L 1 0.100< 0.000200 Xylene 0.278mg/L 1 0.300< 0.000900 93 68.9 - 114

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.0966	mg/L	1	0.100	< 0.000300	97	77.3 - 117.4	1	20
Toluene	0.0954	mg/L	1	0.100	< 0.000200	95	75 - 111.8	2	20
Ethylbenzene	0.0930	mg/L	1	0.100	< 0.000200	93	78.8 - 106.6	1	20
Xylene	0.282	mg/L	1	0.300	< 0.000900	94	68.9 - 114	1	20

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

	MS	MSD			Spike	MS	MSD	Rec .
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.0845	0.0786	mg/L	1	0.1	84	79	76.3 - 129.8
4-Bromofluorobenzene (4-BFB)	0.0905	0.0841	mg/L	1	0.1	90	84	75.2 - 112.8

Matrix Spike (MS-1) Spiked Sample: 227830

 QC Batch:
 69039
 Date Analyzed:
 2010-04-13

 Prep Batch:
 59090
 QC Preparation:
 2010-04-13

Rec. MS Spike Matrix Param Result Units Dil. Amount Result Rec. Limit Dissolved Calcium 178 mg/L 1 50.0 130 96 75 - 125 75 - 125 Dissolved Potassium 50.05.9684 48.0mg/L 1 50.0 7.61 101 75 - 125 Dissolved Magnesium 58.0 mg/L 1 75 - 125 83 Dissolved Sodium 52.71 50.0 11.4 mg/L

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

	MSD			\mathbf{Spike}	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Calcium	177	mg/L	1	50.0	130	94	75 - 125	1	20
Dissolved Potassium	47.0	mg/L	1	50.0	5.96	82	75 - 125	2	20
Dissolved Magnesium	58.4	mg/L	1	50.0	7.61	102	75 - 125	1	20
Dissolved Sodium	55.0	mg/L	1	50.0	11.4	87	75 - 125	4	20

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

Standard (ICV-1)

QC Batch: 68931 Date Analyzed: 2010-04-08 Analyzed By: AR

115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 20 of 22 Chavez County, NM

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pH		s.u.	7.00	6.92	99	98 - 102	2010-04-08

Standard (CCV-1)

QC Batch: 68931

Date Analyzed: 2010-04-08

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	6.88	98	98 - 102	2010-04-08

Standard (ICV-1)

QC Batch: 68948

Date Analyzed: 2010-04-09

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	23.7	95	90 - 110	2010-04-09

Standard (ICV-1)

QC Batch: 68948

Date Analyzed: 2010-04-09

Analyzed By: AR

			ICVs	ICVs	ICVs	$\mathbf{Percent}$	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.9	100	90 - 110	2010-04-09

Standard (CCV-1)

QC Batch: 68948

Date Analyzed: 2010-04-09

Analyzed By: AR

			\mathbf{CCVs}	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	23.8	95	90 - 110	2010-04-09

Standard (CCV-1)

QC Batch: 68948

Date Analyzed: 2010-04-09

Analyzed By: AR

Report Date: April 26, 2010 115-6403132A

Work Order: 10040809 Celero/Rock Queen Tract #13 TB Page Number: 21 of 22 Chavez County, NM

			CCVs True	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.7	99	90 - 110	2010-04-09

Standard (ICV-1)

QC Batch: 68950

Date Analyzed: 2010-04-09

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2010-04-09
Carbonate Alkalinity		mg/L as CaCo3	0.00	210		0 - 200	2010-04-09
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	38.0		0 - 200	2010-04-09
Total Alkalinity		mg/L as CaCo3	250	248	99	90 - 110	2010-04-09

Standard (CCV-1)

QC Batch: 68950

Date Analyzed: 2010-04-09

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2010-04-09
Carbonate Alkalinity		mg/L as CaCo3	0.00	220		0 - 200	2010-04-09
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	25.0		0 - 200	2010-04-09
Total Alkalinity		mg/L as CaCo3	250	245	98	90 - 110	2010-04-09

Standard (CCV-2)

QC Batch: 69005

Date Analyzed: 2010-04-09

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0892	89	80 - 120	2010-04-09
Toluene		mg/L	0.100	0.0874	87	80 - 120	2010-04-09
Ethylbenzene		mg/L	0.100	0.0861	86	80 - 120	2010-04-09
Xylene		mg/L	0.300	0.259	86	80 - 120	2010-04-09

Standard (CCV-3)

QC Batch: 69005 Date Analyzed: 2010-04-09 Analyzed By: AG

Report Date: April 26, 2010 Work Order: 10040809

Page Number: 22 of 22 Chavez County, NM 115-6403132A Celero/Rock Queen Tract #13 TB

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0933	93	80 - 120	2010-04-09
Toluene		$_{ m mg/L}$	0.100	0.0917	92	80 - 120	2010-04-09
Ethylbenzene		mg/L	0.100	0.0895	90	80 - 120	2010-04-09
Xylene		mg/L	0.300	0.272	91	80 - 120	2010-04-09

Standard (ICV-1)

QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	51.0	51.6	101	90 - 110	2010-04-13
Dissolved Potassium		mg/L	55.0	55.9	102	90 - 110	2010-04-13
Dissolved Magnesium		${ m mg/L}$	51.0	52.8	104	90 - 110	2010-04-13
Dissolved Sodium		mg/L	51.0	52.5	103	90 - 110	2010-04-13

Standard (CCV-1)

QC Batch: 69039 Date Analyzed: 2010-04-13 Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	51.0	54.4	107	90 - 110	2010-04-13
Dissolved Potassium		$\mathrm{mg/L}$	55.0	57.6	105	90 - 110	2010-04-13
Dissolved Magnesium		mg/L	51.0	54.5	107	90 - 110	2010-04-13
Dissolved Sodium		mg/L	51.0	54.4	107	90 - 110	2010-04-13

T NUMBER OF CONTA



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Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703

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Certifications

WBENC: 237019

HUB:

1752439743100-86536 NCTRCA WFWB38444Y0909

DBE: VN 20657

Report Date: July 27, 2010

10071414

Work Order:

NELAP Certifications

Lubbock: T104704219-08-TX

LELAP-02003

El Paso: T104704221-08-TX **LELAP-02002**

Midland: T104704392-08-TX

Kansas E-10317

Analytical and Quality Control Report

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

Project Location: Chavez County, NM

Project Name: Celero/Rock Queen #13 TB

Project Number: 115-6403122

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

			Date	\mathbf{Time}	Date
Sample	Description	Matrix	Taken	Taken	Received
237458	MW-1	water	2010-07-12	16:40	2010-07-14
237459	MW-2	water	2010-07-12	16:30	2010-07-14
237460	MW-3	water	2010-07-12	17:00	2010-07-14
237461	MW-4	water	2010-07-12	16:50	2010-07-14

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 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

Standard Flags

 $\boldsymbol{B}\,$ - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project Celero/Rock Queen #13 TB were received by TraceAnalysis, Inc. on 2010-07-14 and assigned to work order 10071414. Samples for work order 10071414 were received intact without headspace and at a temperature of 3.9 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	61451	2010-07-14 at 16:00	71724	2010-07-14 at 16:42
Chloride (IC)	E 300.0	61482	2010-07-15 at 09:54	71929	2010-07-16 at 03:27
SO4 (IC)	E 300.0	61482	2010-07-15 at 09:54	71929	2010-07-16 at 03:27
TDS	SM 2540C	61516	2010-07-15 at 10:29	72039	2010-07-26 at 12:30

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 10071414 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.

115-6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 4 of 14 Chavez County, NM

Analytical Report

Sample: 237458 - MW-1

Laboratory: Midland

Analysis: **BTEX** QC Batch: 71724Prep Batch: 61451

Analytical Method: S 8021B Date Analyzed: 2010-07-14 Sample Preparation: 2010-07-14

Prep Method: S 5030B Analyzed By: \mathbf{AG} Prepared By: AG

RL

		1017			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	m mg/L	1	0.00100
Ethylbenzene		< 0.00100	mg/L	1	0.00100
Xylene		< 0.00100	mg/L	1	0.00100

					Spike	$\mathbf{Percent}$	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.102	$_{ m mg/L}$	1	0.100	102	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0852	${ m mg/L}$	1	0.100	85	51.1 - 128

Sample: 237458 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) QC Batch: 71929 Prep Batch: 61482

Analytical Method: E 300.0 Date Analyzed: 2010-07-16 Sample Preparation: 2010-07-15

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

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		38.8	mg/L	5	2.50

Sample: 237458 - MW-1

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 71929 Prep Batch: 61482

Analytical Method: E 300.0 Date Analyzed: 2010-07-16 Sample Preparation: 2010-07-15

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

Parameter	Flag	Result	Units	Dilution	RL
Sulfate	-	37.2	mg/L	5	2.50

Report Date: July 27, 2010 115-6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 5 of 14 Chavez County, NM

Sample: 237458 - MW-1

Laboratory: Midland

Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 72039 Date Analyzed: 2010-07-26 Analyzed By: AR Prep Batch: 61516 Sample Preparation: 2010-07-16 Prepared By: AR

RL

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		1130	mg/L	1	10.0

Sample: 237459 - MW-2

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 71724 Date Analyzed: 2010-07-14 Analyzed By: AG Prep Batch: 61451 Sample Preparation: 2010-07-14 Prepared By: AG

RL

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	m mg/L	1	0.00100
Ethylbenzene		< 0.00100	mg/L	1	0.00100
$\mathbf{X}\mathbf{y}$ lene		< 0.00100	m mg/L	1	0.00100

					\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0987	mg/L	1	0.100	99	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0818	mg/L	1	0.100	82	51.1 - 128

Sample: 237459 - MW-2

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 71929 Date Analyzed: 2010-07-16 Analyzed By: ARPrep Batch: 61482 Sample Preparation: 2010-07-15 Prepared By: AR

Parameter	Flag	Result	Units	Dilution	RL
Chloride		9870	mg/L	1000	2.50

115-6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 6 of 14 Chavez County, NM

Sample: 237459 - MW-2

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 71929 Prep Batch: 61482

Analytical Method: Date Analyzed: Sample Preparation: 2010-07-15

E 300.0 2010-07-16 Prep Method: N/A Analyzed By:

ARPrepared By: AR

RL

Parameter Flag Result Units Dilution RLSulfate 189 mg/L 5 2.50

Sample: 237459 - MW-2

Laboratory:

Midland

Analysis: TDS QC Batch: 72039 Prep Batch: 61516

Analytical Method: Date Analyzed:

Sample Preparation:

SM 2540C 2010-07-26 2010-07-16 Prep Method: N/A Analyzed By:

ARPrepared By: AR

RL

Result Dilution RLParameter Flag Units Total Dissolved Solids 27200 mg/L 100 10.0

Sample: 237460 - MW-3

Laboratory: Midland

Analysis: BTEX QC Batch: 71724 Prep Batch: 61451

Analytical Method: S 8021B Date Analyzed: 2010-07-14 Sample Preparation: 2010-07-14

Prep Method: S 5030B Analyzed By: AGPrepared By: \mathbf{AG}

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

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0948	mg/L	1	0.100	95	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0768	mg/L	1	0.100	77	51.1 - 128

115-6403122	e: July 27, 2010		Work Order Celero/Rock Q	Page Number: 7 of Chavez County, N			
Sample: 23	87460 - MW-3						
Laboratory:	Midland						
Analysis:	Chloride (IC)		Analytical Metho	d: E 300.0	Prep Method:	N/A	
QC Batch:	71929		Date Analyzed:	2010-07-16	Analyzed By:	m AR	
Prep Batch:	61482		Sample Preparati	on: 2010-07-15	Prepared By:	AR	
			RL				
Parameter	Flag	Ţ.	Result	Units	Dilution	RL	
Chloride			83.6	mg/L	5	2.50	
Sample: 23 Laboratory: Analysis: QC Batch: Prep Batch:	Midland SO4 (IC) 71929 61482		Analytical Method: Date Analyzed: Sample Preparation RL	2010-07-16	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Parameter	Flag	g	Result	Units	Dilution	RL	
Sulfate		ź	64.0	mg/L	5	2.50	
Laboratory: Analysis: QC Batch:	7460 - MW-3 Midland TDS 72039 61516		Analytical Method: Date Analyzed: Sample Preparation	SM 2540C 2010-07-26 : 2010-07-16	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
Sample: 23 Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 72039		Date Analyzed: Sample Preparation	2010-07-26	Analyzed By:	AR	
Laboratory: Analysis: QC Batch:	Midland TDS 72039	Flag	Date Analyzed:	2010-07-26	Analyzed By:	AR	
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 72039 61516	Flag	Date Analyzed: Sample Preparation RL	2010-07-26 : 2010-07-16	Analyzed By: Prepared By:	AR AR RL	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Total Dissolv Sample: 23 Laboratory: Analysis: QC Batch:	Midland TDS 72039 61516	Flag	Date Analyzed: Sample Preparation RL Result	2010-07-26 : 2010-07-16 Units	Analyzed By: Prepared By: Dilution 2 Prep Method: S Analyzed By: A	AR AR RL	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Total Dissolv	Midland TDS 72039 61516 ved Solids 7461 - MW-4 Midland BTEX 71724	Flag	Date Analyzed: Sample Preparation RL Result 562 Analytical Method: Date Analyzed:	2010-07-26 : 2010-07-16 : Units mg/L S 8021B 2010-07-14	Analyzed By: Prepared By: Dilution 2 Prep Method: S Analyzed By: A	AR AR RL 10.0	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Total Dissolv Sample: 23 Laboratory: Analysis: QC Batch:	Midland TDS 72039 61516 ved Solids 7461 - MW-4 Midland BTEX 71724 61451		Date Analyzed: Sample Preparation RL Result 562 Analytical Method: Date Analyzed: Sample Preparation:	2010-07-26 : 2010-07-16 : Units mg/L S 8021B 2010-07-14	Analyzed By: Prepared By: Dilution 2 Prep Method: S Analyzed By: A	AR AR RL 10.0	
Laboratory: Analysis: QC Batch: Prep Batch: Parameter Total Dissolv Sample: 23 Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 72039 61516 ved Solids 7461 - MW-4 Midland BTEX 71724		Date Analyzed: Sample Preparation RL Result 562 Analytical Method: Date Analyzed: Sample Preparation: RL	2010-07-26 : 2010-07-16 Units mg/L S 8021B 2010-07-14 2010-07-14	Analyzed By: Prepared By: Dilution 2 Prep Method: S Analyzed By: A Prepared By: A Dilution	AR AR RL 10.0 5030B .G .G	

continued ...

115-6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 8 of 14 Chavez County, NM

sample 237461 continued ...

			RI	ı				
Parameter	Flag		Result	t	Units	Dil	ution	RL
Ethylbenzene			< 0.00100)	mg/L		1	0.00100
Xylene			< 0.00100)	mg/L		1	0.00100
						Spike	Percent	Recovery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.115	mg/L	1	0.100	115	67.8 - 126
4-Bromofluorobenzene (4-B	FB)		0.0945	mg/L	1	0.100	94	51.1 - 128

Sample: 237461 - MW-4

Laboratory: Midland

Analysis: Chloride (IC) QC Batch: 71929 Prep Batch: 61482 Analytical Method: E 300.0 Date Analyzed: 2010-07-16 Sample Preparation: 2010-07-15

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

Sample: 237461 - MW-4

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 71929 Prep Batch: 61482 Analytical Method: E 300.0 Date Analyzed: 2010-07-16 Sample Preparation: 2010-07-15

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

Sample: 237461 - MW-4

Laboratory: Midland

Analysis: TDS QC Batch: 72039 Prep Batch: 61516 Analytical Method: SM 2540C Date Analyzed: 2010-07-26 Sample Preparation: 2010-07-16

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

Work Order: 10071414 Page Number: 9 of 14 Report Date: July 27, 2010 115-6403122 Celero/Rock Queen #13 TB Chavez County, NM QC Batch: 71724 Method Blank (1) Analyzed By: AG QC Batch: Date Analyzed: 2010-07-14 71724 Prepared By: AG Prep Batch: 61451 QC Preparation: 2010-07-14 MDL Parameter Flag Result Units RL< 0.000600 0.001 Benzene mg/L Toluene < 0.000600 mg/L 0.001Ethylbenzene < 0.000800 mg/L 0.001< 0.000767 mg/L 0.001Xylene Spike Percent Recovery Dilution Surrogate Flag Result Units Amount Recovery Limits Trifluorotoluene (TFT) 0.0973 mg/L 0.100 97 70.2 - 118 1 47.3 - 116 4-Bromofluorobenzene (4-BFB) 0.0848 mg/L 1 0.10085 QC Batch: 71929 Method Blank (1) QC Batch: 71929 Date Analyzed: 2010-07-16 Analyzed By: AR Prep Batch: 61482 QC Preparation: 2010-07-15 Prepared By: AR MDL Parameter Flag Result Units RL2.5 Chloride 0.462 mg/L Method Blank (1) QC Batch: 71929 QC Batch: 71929 Date Analyzed: 2010-07-16 Analyzed By: AR Prep Batch: 61482 QC Preparation: 2010-07-15 Prepared By: AR MDL Units Parameter Flag Result RLSulfate < 0.177mg/L 2.5 Method Blank (1) QC Batch: 72039 QC Batch: Date Analyzed: 2010-07-26 Analyzed By: AR72039

QC Preparation:

Flag

2010-07-15

MDL

Result

10.0

Prepared By:

Units

mg/L

AR

RL

10

Prep Batch: 61516

Total Dissolved Solids

Parameter

115 - 6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 10 of 14 Chavez County, NM

Duplicates (2) Duplicated Sample: 237468

QC Batch: 72039 Prep Batch: 61516 Date Analyzed: 2010-07-26 QC Preparation: 2010-07-15 Analyzed By: AR Prepared By: AR

	Duplicate	\mathbf{Sample}				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	109000	5910	mg/L	100	7	10
Total Dissolved Solids	109000	102000	mg/L	100	7	10

Laboratory Control Spike (LCS-1)

QC Batch: 71724 Prep Batch: 61451 Date Analyzed: 2010-07-14 QC Preparation: 2010-07-14 Analyzed By: AG Prepared By: AG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.100	mg/L	1	0.100	< 0.000600	100	82.9 - 108
Toluene	0.0992	$_{ m mg/L}$	1	0.100	< 0.000600	99	82.7 - 107
Ethylbenzene	0.0949	${ m mg/L}$	1	0.100	< 0.000800	95	78.8 - 106
Xylene	0.287	mg/L	1	0.300	< 0.000767	96	79.3 - 106

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.101	mg/L	1	0.100	< 0.000600	101	82.9 - 108	1	20
Toluene	0.101	mg/L	1	0.100	< 0.000600	101	82.7 - 107	2	20
Ethylbenzene	0.0967	mg/L	1	0.100	< 0.000800	97	78.8 - 106	2	20
Xylene	0.292	mg/L	1	0.300	< 0.000767	97	79.3 - 106	2	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.103	0.0996	mg/L	1	0.100	103	100	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.0966	0.0941	mg/L	1	0.100	97	94	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch: 71929 Prep Batch: 61482 Date Analyzed: 2010-07-16 QC Preparation: 2010-07-15 Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	25.6	mg/L	1	25.0	< 0.265	102	90 - 110

115-6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 11 of 14 Chavez County, NM

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

	LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	25.1	mg/L	1	25.0	< 0.265	100	90 - 110	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch:

71929

Date Analyzed:

2010-07-16

Analyzed By: AR

Prep Batch:

61482

QC Preparation:

2010-07-15

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.9	mg/L	1	25.0	< 0.177	100	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	25.0	mg/L	1	25.0	< 0.177	100	90 - 110	0	20

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

Laboratory Control Spike (LCS-2)

QC Batch:

72039

Date Analyzed:

2010-07-26

Analyzed By: AR Prepared By: AR

Prep Batch: 61516

QC Preparation: 2010-07-15

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Dissolved Solids < 9.75 103 90 - 110 1030 1000 mg/L

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

	LCSD			\mathbf{Spike}	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids	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.

Matrix Spike (MS-1) Spiked Sample: 237430

QC Batch: Prep Batch: 61451 Date Analyzed: 2010-07-14 QC Preparation: 2010-07-14

Analyzed By: AG Prepared By: AG

115-6403122

Work Order: 10071414 Celero/Rock Queen #13 TB

Param		$rac{ ext{MS}}{ ext{Result}}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		0.100	mg/L	1	0.100	0.0031	97	77.9 - 114
Toluene		0.0800	mg/L	1	0.100	< 0.000600	80	78.3 - 111
Ethylbenzene	1	0.0695	mg/L	1	0.100	< 0.000800	70	75.3 - 110
Xylene	2	0.211	mg/L	1	0.300	< 0.000767	70	75.7 - 109

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

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
Benzene		0.0908	mg/L	1	0.100	0.0031	88	77.9 - 114	10	20
Toluene	3	0.0719	mg/L	1	0.100	< 0.000600	72	78.3 - 111	11	20
Ethylbenzene	4	0.0623	mg/L	1	0.100	< 0.000800	62	75.3 - 110	11	20
Xylene	5	0.189	mg/L	1	0.300	< 0.000767	63	75.7 - 109	11	20

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

		MS	MSD			\mathbf{Spike}	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	6 7	0.0434	0.0551	mg/L	1	0.1	43	55	68.3 - 107
4-Bromofluorobenzene (4-BFB)	8 9	0.0418	0.0525	mg/L	1	0.1	42	52	60.1 - 135

Matrix Spike (MS-1) Spiked Sample: 237459

QC Batch: 71929 Prep Batch: 61482 Date Analyzed: 2010-07-16 QC Preparation: 2010-07-15 Analyzed By: AR Prepared By: AR

Page Number: 12 of 14

Chavez County, NM

		MS			Spike	Matrix		${ m Rec.}$
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	10	15500	mg/L	100	2750	12350	114	90 - 110

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

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	11	15500	mg/L	100	2750	12350	114	90 - 110	0	20

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

¹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

²Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

³MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

⁴MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly. ⁵MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

⁶Surrogate TFT out due to matrix interference. Sample was not reran due to lack of sample.

⁷Surrogate TFT out due to matrix interference. Sample was not reran due to lack of sample.

⁸Surrogate 4-BFB out due to matrix interference. Sample was not reran due to lack of sample.

⁹Surrogate 4-BFB out due to matrix interference. Sample was not reran due to lack of sample.

¹⁰Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

¹¹MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

115 - 6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 13 of 14 Chavez County, NM

Matrix Spike (MS-1) Spiked Sample: 237459

QC Batch: 71929 Prep Batch: 61482 Date Analyzed: 2010-07-16 QC Preparation: 2010-07-15 Analyzed By: AR Prepared By: AR

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	12	2500	mg/L	100	2750	181	84	90 - 110

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

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	13	2500	mg/L	100	2750	181	84	90 - 110	0	20

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

Standard (CCV-1)

QC Batch: 71724

Date Analyzed: 2010-07-14

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0986	99	80 - 120	2010-07-14
Toluene		m mg/L	0.100	0.0974	97	80 - 120	2010-07-14
Ethylbenzene		${ m mg/L}$	0.100	0.0912	91	80 - 120	2010-07-14
Xylene		${ m mg/L}$	0.300	0.274	91	80 - 120	2010-07-14

Standard (CCV-2)

QC Batch: 71724

Date Analyzed: 2010-07-14

Analyzed By: AG

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0999	100	80 - 120	2010-07-14
Toluene		mg/L	0.100	0.100	100	80 - 120	2010-07-14
Ethylbenzene		mg/L	0.100	0.0966	97	80 - 120	2010-07-14
Xylene		mg/L	0.300	0.292	97	80 - 120	2010-07-14

Standard (ICV-1)

QC Batch: 71929

Date Analyzed: 2010-07-16

¹²Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

¹³MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occurred properly.

115 - 6403122

Work Order: 10071414 Celero/Rock Queen #13 TB Page Number: 14 of 14 Chavez County, NM

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	$\operatorname{Recovery}$	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	27.3	109	90 - 110	2010-07-16

Standard (ICV-1)

QC Batch: 71929

Date Analyzed: 2010-07-16

Analyzed By: AR

			ICVs True	ICVs Found	$egin{array}{l} ext{ICVs} \ ext{Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	23.9	96	90 - 110	2010-07-16

Standard (CCV-1)

QC Batch: 71929

Date Analyzed: 2010-07-16

Analyzed By: AR

			$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	26.9	108	90 - 110	2010-07-16

Standard (CCV-1)

QC Batch: 71929

Date Analyzed: 2010-07-16

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	26.4	106	90 - 110	2010-07-16

ş RUSH Charge: Authorized: メ Results by: Major Aniona/Cationa, pH, (DS) 9 E AIRBILL #:__ OTHER (Circle or Specify Method No.) ANALYSIS REQUEST PAGE: SAMPLE SHIPPED BY: (Circle)
FEDEX
HAND DELIVERED UPS
TETRA TECH CONTACT PERSON: GC.MS Semi. Vol. 8270/626 12-ff 121mlhy GC.MS Vol. 8240/8260/624 SAMPLED BY: (Print & Initial) TCLP Semi Volatiles is Ag As Ba Cd Vr Pd Hg Se RCRA Metals Ag As Ba Cd Cr Pb Hg Se (Ext. to C35) **TX1005** 8015 MOD. НФГ BTEX 8021B PRESERVATIVE METHOD NONE Analysis Request of Chain of Custody Record CE Time:
Date:
Time:
Time: EONH × **T**OH FILTERED (YM) TIME NUMBER OF CONTAINERS tests-Midland (432) 682-4559 • Fax (432) 682-3946 RECEIVED BY: (Signature) SAMPLE IDENTIFICATION RECEIVED BY: (Signature) **TETRA TECH** 1910 N. Big Spring St. Midland, Texas 79705 Order #: Inothill Rock Queen # 13 Chavez Co, No SITE MANAGER: Jeff Kindley DATE Date: 7/11/1/2019 エフ・エ MU- 7 ME-3 3 Please fill out all copies - Laboratory ij. PROJECT NAME Time: Date: **BARD** COMP 3 **XINTAM** D TIME 1700 1070 SAMPLE CONDITION WHEN RECEIVED. 459 112/10 Regio 1650 RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature) 460 71210 46 121/2 RECEIVING LABORATORY:
ADDRESS:
CITY:
CONTACT: 337458 7/2/10 DATE CLIENT NAME: F 2216 047 - 311 PROJECT NO.: LAB I.D. NUMBER 3,9

- Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703 800 • 378 • 1296 888 • 588 • 3443 806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

Vorth, Texas 76132 817 • 20

817 • 201 • 5260

E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536

NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX

LELAP-02003

LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX

LELAP-02002

Midland: T104704392-08-TX

DBE: VN 20657

Analytical and Quality Control Report

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

neport Date.

Report Date: November 10, 2010

Work Order: 10101403

Project Location: Chavez County, NM

Project Name: Celero/Rock Queen Tract #13 TB

Project Number: 115-6403132A

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

			Date	11116	Date
Sample	Description	Matrix	Taken	Taken	Received
247493	MW-1	water	2010-10-12	15:40	2010-10-13
247494	MW-2	water	2010-10-12	15:20	2010-10-13
247495	MW-3	water	2010-10-12	15:50	2010-10-13
247496	MW-4	water	2010-10-12	15:30	2010-10-13

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 15 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

Standard Flags

 ${\bf B}$ - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project Celero/Rock Queen Tract #13 TB were received by TraceAnalysis, Inc. on 2010-10-13 and assigned to work order 10101403. Samples for work order 10101403 were received intact without headspace and at a temperature of 3.5 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	63840	2010-10-14 at 13:40	74557	2010-10-14 at 18:04
Chloride (IC)	E 300.0	64180	2010-10-26 at 14:38	74818	2010-10-26 at 17:25
SO4 (IC)	E 300.0	64180	2010-10-26 at 14:38	74818	2010-10-26 at 17:25
SO4 (IC)	E 300.0	64528	2010-11-09 at 10:35	75227	2010-11-09 at 18:09
TDS	SM 2540C	63873	2010-10-15 at 10:25	74622	2010-10-21 at 14:52

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 10101403 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: November 10, 2010

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 4 of 15 Chavez County, NM

Analytical Report

Sample: 247493 - MW-1

Laboratory: Midland

Analysis: BTEX QC Batch: 74557 Prep Batch: 63840 Analytical Method: S 8021B
Date Analyzed: 2010-10-14
Sample Preparation: 2010-10-14

 21B
 Prep Method:
 S 5030B

 10-14
 Analyzed By:
 AG

 10-14
 Prepared By:
 AG

RL

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	$\mathrm{mg/L}$	1	0.00100
Ethylbenzene		< 0.00100	$\mathrm{mg/L}$	1	0.00100
Xylene		< 0.00100	$\mathrm{mg/L}$	1	0.00100

					\mathbf{S} pike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0939	mg/L	1	0.100	94	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0849	$_{ m mg/L}$	1	0.100	85	39 - 138

Sample: 247493 - MW-1

Laboratory: Lubbock

Analysis: Chloride (IC) QC Batch: 74818 Prep Batch: 64180 Analytical Method: E 300.0 Date Analyzed: 2010-10-26 Sample Preparation: 2010-10-26

Prep Method: N/A
Analyzed By: PG
Prepared By: SS

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		52.3	mg/L	5	2.50

Sample: 247493 - MW-1

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 74818 Prep Batch: 64180 Analytical Method: E 300.0 Date Analyzed: 2010-10-26 Sample Preparation: 2010-10-26

Prep Method: N/A
Analyzed By: PG
Prepared By: SS

Parameter	Flag	Result	Units	Dilution	m RL
Sulfate		49.6	mg/L	5	2.50

Report Date: November 10, 2010 Work Order: 10101403 Page Number: 5 of 15 115-6403132A Celero/Rock Queen Tract #13 TB Chavez County, NM

Sample: 247493 - MW-1

Laboratory: Midland

Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 74622 Date Analyzed: 2010-10-21 Analyzed By: AR Prep Batch: 63873 Sample Preparation: 2010-10-15 Prepared By: AR

RL

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		445	mg/L	1	10.0

Sample: 247494 - MW-2

Laboratory: Midland

Analysis: **BTEX** Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 74557 Date Analyzed: 2010-10-14 Analyzed By: AGPrep Batch: 63840 Sample Preparation: 2010-10-14 Prepared By: AG

RLParameter Flag Result Units Dilution RLBenzene < 0.00100 mg/L 1 0.00100 Toluene < 0.00100 mg/L 1 0.00100 Ethylbenzene < 0.00100 mg/L 1 0.00100Xylene < 0.00100 mg/L 1 0.00100

					\mathbf{Spike}	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	\mathbf{Units}	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0916	mg/L	1	0.100	92	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0849	mg/L	1	0.100	85	39 - 138

Sample: 247494 - MW-2

Laboratory: Lubbock

Chloride (IC) Prep Method: N/A Analysis: Analytical Method: E 300.0 QC Batch: 74818 Date Analyzed: 2010-10-26 Analyzed By: PG Prep Batch: 64180 Sample Preparation: 2010-10-26 Prepared By: SS

Report Date: November 10, 2010

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 6 of 15 Chavez County, NM

Sample: 247494 - MW-2

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 75227 Prep Batch: 64528

Analytical Method: Date Analyzed: Sample Preparation:

E 300.0 2010-11-09 2010-11-09 Prep Method: N/A Analyzed By: PGPrepared By: PG

RL

Parameter Flag Result Units Dilution RLSulfate 203 mg/L $\overline{5}$ 2.50

Sample: 247494 - MW-2

Laboratory: Midland

Analysis: TDS QC Batch: 74622 Prep Batch: 63873 Analytical Method: SM 2540C Date Analyzed: 2010-10-21 Sample Preparation: 2010-10-15 Prep Method: N/A Analyzed By: AR Prepared By: AR

RLFlag Parameter Result Total Dissolved Solids 15300

Units Dilution RL100 mg/L 10.0

Sample: 247495 - MW-3

Laboratory: Midland

Analysis: BTEX QC Batch: 74557 Prep Batch: 63840

Analytical Method: S 8021B Date Analyzed: 2010-10-14 Sample Preparation: 2010-10-14

RL

Prep Method: S 5030B Analyzed By: AGPrepared By: AG

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	$_{ m mg/L}$	1	0.00100
Ethylbenzene		< 0.00100	m mg/L	1	0.00100
Xylene		< 0.00100	mg/L	1	0.00100

					$\mathbf{S}_{\mathbf{pike}}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0926	mg/L	1	0.100	93	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0826	mg/L	1	0.100	83	39 - 138

Report Date: November 10, 2010 Work Order: 10101403 Page Number: 7 of 15 115-6403132A Celero/Rock Queen Tract #13 TB Chavez County, NM Sample: 247495 - MW-3 Laboratory: Lubbock Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/AQC Batch: 74818 Analyzed By: Date Analyzed: 2010-10-26 PG Prep Batch: 64180 Sample Preparation: 2010-10-26 Prepared By: SS RL Parameter Result Flag Units Dilution RL Chloride 170 mg/L 2.50 Sample: 247495 - MW-3 Laboratory: Lubbock Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 75227 Date Analyzed: 2010-11-09 Analyzed By: PG Prep Batch: 64528 Sample Preparation: 2010-11-09 Prepared By: PGRL Parameter Flag Result Units Dilution RLSulfate 84.5 mg/L 2.50Sample: 247495 - MW-3 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 74622 Date Analyzed: AR 2010-10-21 Analyzed By: Prep Batch: 63873 Sample Preparation: Prepared By: 2010-10-15 AR RLFlag Parameter Result Units Dilution RLTotal Dissolved Solids 608 10.0 mg/L 2 Sample: 247496 - MW-4

Sample: 24/490 - WW-4

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B QC Batch: 74557 Date Analyzed: 2010-10-14 Prep Batch: 63840 Sample Preparation: 2010-10-14

Method: S 8021B Prep Method: S 5030B zed: 2010-10-14 Analyzed By: AG paration: 2010-10-14 Prepared By: AG

RL Parameter Flag Result Units RLDilution Benzene < 0.00100 mg/L 0.00100 1 Toluene < 0.00100 mg/L 1 0.00100

continued ...

Report Date: November 10, 2010

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 8 of 15 Chavez County, NM

sample 247496 continued ...

			RI	,				
Parameter	Flag		Result	5	Units	Dil	ution	RL
Ethylbenzene			< 0.00100)	mg/L		1	0.00100
Xylene			< 0.00100)	mg/L		1	0.00100
						Spike	Percent	Recovery
Surrogate	Fl	lag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0933	mg/L	1	0.100	93	66.2 - 107
4-Bromofluorobenzene (4-B	FB)		0.0828	mg/L	1	0.100	83	39 - 138

Sample: 247496 - MW-4

Laboratory: Lubbock

Analysis: Chloride (IC) QC Batch: 74818 Prep Batch: 64180 Analytical Method: E 300.0 Date Analyzed: 2010-10-26 Sample Preparation: 2010-10-26 Prep Method: N/A
Analyzed By: PG
Prepared By: SS

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		163	mg/L	10	2.50

Sample: 247496 - MW-4

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 74818 Prep Batch: 64180 Analytical Method: E 300.0 Date Analyzed: 2010-10-26 Sample Preparation: 2010-10-26

Prep Method: N/A Analyzed By: PG Prepared By: SS

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Sulfate		56.4	mg/L	10	2.50

Sample: 247496 - MW-4

Laboratory: Midland

Analysis: TDS QC Batch: 74622 Prep Batch: 63873 Analytical Method: SM 2540C Date Analyzed: 2010-10-21 Sample Preparation: 2010-10-15 Prep Method: N/A Analyzed By: AR Prepared By: AR

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		616	mg/L	2	10.0

Report Date: November 115-6403132A	er 10, 2010	V Celero,		Page Number: 9 of 15 Chavez County, NM				
Method Blank (1)	QC Batch: 74557							
QC Batch: 74557		Date Anal	•	010-10-14		Analyz		
Prep Batch: 63840		QC Prepai	ration: 2	010-10-14		Prepar	ed By:	\mathbf{AG}
			M	DL				
Parameter	Flag		Res		Uni	ts		RL
Benzene			< 0.000		mg/			0.001
Toluene			< 0.000		mg/			0.001
Ethylbenzene			<0.000		mg/			0.001
Xylene			< 0.000	400	mg/	L		0.001
Surrogate	Flag	Result	Units	Dilution	Spike	Percent		covery
Trifluorotoluene (TFT)		0.0893	mg/L	1	Amount 0.100	Recovery 89		mits 5 - 106
4-Bromofluorobenzene		0.0784	mg/L	1	0.100	78		- 129
Method Blank (1) QC Batch: 74622 Prep Batch: 63873 Parameter Total Dissolved Solids Method Blank (1) QC Batch: 74818	QC Batch: 74622 Fla QC Batch: 74818	Date Analy	ation: 20	010-10-21 010-10-15 MDL Result 11.0		Analyz Prepare nits g/L Analyz	ed By:	AR AR RL 10
Prep Batch: 64180		QC Prepar		010-10-26		Prepare	ed By:	PG
Parameter	Flag		MD Resu		Unit	·g		RL
Chloride	1108		< 0.035		mg/			2.5
Method Blank (1)	QC Batch: 74818							
QC Batch: 74818		Date Analy		010-10-26		Analyze		PG
Prep Batch: 64180		QC Prepar	ation: 20)10-10-26		Prepare	ed By:	PG
			MDI	.				
Parameter	Flag		Result		Unit	s		RL
Sulfate				•	0	~		1017

Report Date: November 10, 2010 115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 10 of 15 Chavez County, NM

Method Blank (1)

QC Batch: 75227

QC Batch: 75227 Prep Batch: 64528 Date Analyzed: 2010-11-09 QC Preparation: 2010-11-09 Analyzed By: PG Prepared By: PG

MDL

Parameter	Flag	Result	Units	RL
Sulfate		< 0.596	mg/L	2.5

Duplicated Sample: 247533 Duplicates (2)

QC Batch: 74622 Date Analyzed: 2010-10-21 Analyzed By: AR Prepared By: AR

Prep Batch: 63873

QC Preparation: 2010-10-15

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	46600	11700	mg/L	100	4	10
Total Dissolved Solids	46600	48400	mg/L	100	4	10

Laboratory Control Spike (LCS-1)

QC Batch: 74557 Prep Batch: 63840 Date Analyzed: 2010-10-14 QC Preparation: 2010-10-14 Analyzed By: AG Prepared By: AG

	LCS			\mathbf{Spike}	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene 🍨	0.0939	mg/L	1	0.100	< 0.000400	94	80.7 - 117
Toluene	0.0947	$\mathrm{mg/L}$	1	0.100	< 0.000800	95	80.5 - 117
Ethylbenzene	0.0947	mg/L	1	0.100	< 0.000400	95	79.2 - 117
Xylene	0.277	mg/L	1	0.300	< 0.000400	92	74.1 - 120

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.0950	mg/L	1	0.100	< 0.000400	95	80.7 - 117	1	20
Toluene	0.0975	mg/L	1	0.100	< 0.000800	98	80.5 - 117	3	20
Ethylbenzene	0.0968	mg/L	1	0.100	< 0.000400	97	79.2 - 117	2	20
Xylene	0.286	mg/L	1	0.300	< 0.000400	95	74.1 - 120	3	20

	LCS	LCSD			Spike	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.0875	0.0904	mg/L	1	0.100	88	90	72.5 - 126
4-Bromofluorobenzene (4-BFB)	0.0805	0.0847	${ m mg/L}$	1	0.100	80	85	48.3 - 135

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 11 of 15 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 63873

74622

Date Analyzed: QC Preparation:

2010-10-21 2010-10-15 Analyzed By: AR

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids	979	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.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids	994	mg/L	1	1000	< 9.75	99	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: 74818 Prep Batch: 64180 Date Analyzed: QC Preparation: 2010-10-26

2010-10-26

Analyzed By: PG Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	24.0	mg/L	1	25.0	< 0.0350	96	90 - 110

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

	LCSD			\mathbf{Spike}	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	23.9	mg/L	1	25.0	< 0.0350	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: 74818 Prep Batch: 64180 Date Analyzed: 2010-10-26 QC Preparation: 2010-10-26

Analyzed By: PG Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.5	mg/L	1	25.0	< 0.596	98	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	24.9	mg/L	1	25.0	< 0.596	100	90 - 110	2	20

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 12 of 15 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 64528

75227

Date Analyzed: QC Preparation: 2010-11-09

2010-11-09

Analyzed By: PG

Prepared By: PG

	LCS			\mathbf{Spike}	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	25.6	mg/L	1	25.0	< 0.596	102	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	25.2	mg/L	1	25.0	< 0.596	101	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: 247532

QC Batch: 74557 Prep Batch: 63840 Date Analyzed: 2010-10-14 QC Preparation: 2010-10-14 Analyzed By: AG Prepared By: AG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
Benzene	0.107	mg/L	1	0.100	0.0048	102	60.9 - 132
Toluene	0.0929	$_{ m mg/L}$	1	0.100	< 0.000800	93	65.7 - 129
Ethylbenzene	0.0881	$_{ m mg/L}$	1	0.100	< 0.000400	88	51.5 - 134
Xylene	0.332	mg/L	1	0.300	< 0.000400	111	62.6 - 124

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

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1	0.0817	mg/L	1	0.100	0.0048	77	60.9 - 132	27	20
Toluene	2	0.0712	mg/L	1	0.100	< 0.000800	71	65.7 - 129	26	20
Ethylbenzene	3	0.0645	mg/L	1	0.100	< 0.000400	64	51.5 - 134	31	20
Xylene		0.283	mg/L	1	0.300	< 0.000400	94	62.6 - 124	16	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT) 4 5	0.317	0.331	mg/L	1	0.1	317	331	75.1 - 117
4-Bromofluorobenzene (4-BFB)	0.0577	0.0585	mg/L	1	0.1	58	58	31.3 - 143

¹MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

²MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

³MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁴ High surrogate recovery due to peak interference.

⁵High surrogate recovery due to peak interference.

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 13 of 15 Chavez County, NM

Matrix Spike (MS-1) Spiked Sample: 247502

QC Batch: Prep Batch:

74818 64180

Date Analyzed: QC Preparation:

2010-10-26 2010-10-26 Analyzed By: PG Prepared By: PG

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Chloride 244000 10000 250000 16700 91 90 - 110 mg/L

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	248000	mg/L	10000	250000	16700	92	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: 247502

QC Batch: 74

Prep Batch:

74818 64180 Date Analyzed: QC Preparation:

2010-10-26 2010-10-26 Analyzed By: PG

PG

Prepared By:

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 244000 10000 90 - 110 Sulfate 250000 < 5960 98 mg/L

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	244000	mg/L	10000	250000	< 5960	98	90 - 110	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: 247504

QC Batch: 75227 Prep Batch: 64528 Date Analyzed: QC Preparation:

2010-11-09 2010-11-09 Analyzed By: PG Prepared By: PG

MSRec. Spike Matrix Limit Param Result Units Dil. Amount Result Rec. < 2.98 90 - 110 394 Sulfate 493 125 mg/L

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

continued ...

⁶matrix spikes run with batch but spiked sample was reported in another run •

115-6403132A

Work Order: 10101403 Celero/Rock Queen Tract #13 TB Page Number: 14 of 15 Chavez County, NM

matria	omikaa	continued	
muutrix	svikes	commuea	

Param		$\begin{array}{c} \text{MSD} \\ \text{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	7	484	mg/L	5	125	< 2.98	387	90 - 110	2	20

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

Standard (CCV-1)

QC Batch: 74557

Date Analyzed: 2010-10-14

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0953	95	80 - 120	2010-10-14
Toluene		mg/L	0.100	0.0980	98	80 - 120	2010-10-14
Ethylbenzene		mg/L	0.100	0.0945	94	80 - 120	2010-10-14
Xylene		mg/L	0.300	0.280	93	80 - 120	2010-10-14

Standard (CCV-2)

QC Batch: 74557

Date Analyzed: 2010-10-14

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	D (
			${f True}$	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0941	94	80 - 120	2010-10-14
Toluene		mg/L	0.100	0.0958	96	80 - 120	2010-10-14
Ethylbenzene		mg/L	0.100	0.0935	94	80 - 120	2010-10-14
Xylene		mg/L	0.300	0.275	92	80 - 120	2010-10-14

Standard (CCV-1)

QC Batch: 74818

Date Analyzed: 2010-10-26

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	24.2	97	90 - 110	2010-10-26

⁷matrix spikes run with batch but spiked sample was reported in another run •

Work Order: 10101403 Page Number: 15 of 15 Report Date: November 10, 2010 115-6403132A Celero/Rock Queen Tract #13 TB Chavez County, NM Standard (CCV-1) Analyzed By: PG QC Batch: 74818 Date Analyzed: 2010-10-26 **CCVs CCVs CCVs** Percent Found Percent Recovery Date True Analyzed Param Flag Units Conc. Conc. Recovery Limits 2010-10-26 25.0 24.6 98 90 - 110 Sulfate mg/L Standard (CCV-2) QC Batch: 74818 Date Analyzed: 2010-10-26 Analyzed By: PG **CCVs CCVs CCVs** Percent True Found Percent Recovery Date Units Conc. Conc. Recovery Limits Analyzed Param Flag 2010-10-26 25.0 23.6 90 - 110 94 Chloride mg/L Standard (CCV-2) Analyzed By: PG QC Batch: 74818 Date Analyzed: 2010-10-26 **CCVs** CCVsCCVsPercent True Found Percent Recovery Date Flag Units Conc. Conc. Recovery Limits Analyzed Param 90 - 110 24.42010-10-26 Sulfate mg/L25.098 Standard (CCV-1) QC Batch: 75227 Date Analyzed: 2010-11-09 Analyzed By: PG **CCVs CCVs CCVs** Percent True Found Percent Recovery Date Units Conc. Recovery Limits Analyzed Param Flag Conc. 25.0 24.9 90 - 110 2010-11-09 100 Sulfate mg/L

QC Batch:	75227		Date An	alyzed: 2010-1	Anal	Analyzed By: PG		
			CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	\mathbf{Date}	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Sulfate		mg/L	25.0	23.7	95	90 - 110	2010-11-09	

Standard (CCV-2)

FROJECT NAME: STE MANAGER: 1910 N. Big Sprin Midland, Texas 78 (432) 682-4559 • Fax (432) 6	RACORD PAGE OF	ANALYSIS REQUEST (Circle or Specify Method No.)	(Ext. to C35)	80/624 80/624 270/625	A GA & As	PAH 8270 MARAMATOR			*				6775176)	(Circle) BUS		TIME: No. 1 1 1 1 1 1 1 1 1 1	
Andress Street S			1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946	SITE MANAGER:	k G.co. *13	SAMPLE IDENTIFICATION	¥.	٠.	II MIN				37/17/31	MECENTED BY AGONDAN	RECEIVED BY: (Signature)	PHONE: 23P. DATE:	COURT STORY TO STORY



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1

Lubbock, Texas 79424 El Paso, Texas 79922

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Certifications

WBENC: 237019

HUB:

1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock:

T104704219-08-TX

LELAP-02003

Kansas E-10317

El Paso: T104704221-08-TX

LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

Jeff Kindley Tetra Tech

1910 N. Big Spring Street

Midland, TX, 79705

Report Date: February 3, 2011

Work Order:

11012128

Project Location: Chavez County, NM

Project Name:

Celero/Rock Queen #13 TB

Project Number:

115-6403132

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

		Date	${f Time}$	Date
Description	Matrix	Taken	Taken	Received
MW-1	water	2011-01-21	10:55	2011-01-21
MW-2	water	2011-01-21	10:37	2011-01-21
MW-3	water	2011-01-21	11:05	2011-01-21
MW-4	water	2011-01-21	10:46	2011-01-21
MW-5	water	2011-01-21	10:25	2011-01-21
MW-6	water	2011-01-21	10:10	2011-01-21
	MW-1 MW-2 MW-3 MW-4 MW-5	MW-1 water MW-2 water MW-3 water MW-4 water MW-5 water	Description Matrix Taken MW-1 water 2011-01-21 MW-2 water 2011-01-21 MW-3 water 2011-01-21 MW-4 water 2011-01-21 MW-5 water 2011-01-21	Description Matrix Taken Taken MW-1 water 2011-01-21 10:55 MW-2 water 2011-01-21 10:37 MW-3 water 2011-01-21 11:05 MW-4 water 2011-01-21 10:46 MW-5 water 2011-01-21 10:25

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 21 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

Standard Flags

 ${\bf B}\,$ - $\,$ The sample contains less than ten times the concentration found in the method blank.

Samples for project Celero/Rock Queen #13 TB were received by TraceAnalysis, Inc. on 2011-01-21 and assigned to work order 11012128. Samples for work order 11012128 were received intact without headspace and at a temperature of 12.5 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	66157	2011-01-24 at 11:00	77124	2011-01-24 at 13:17
Chloride (IC)	E 300.0	66272	2011-01-30 at 10:00	77264	2011-01-30 at 12:27
Chloride (IC)	E 300.0	66273	2011-01-30 at 10:00	77266	2011-01-30 at 17:14
SO4 (IC)	E 300.0	66272	2011-01-30 at 10:00	77264	2011-01-30 at 12:27
SO4 (IC)	E 300.0	66273	2011-01-30 at 10:00	77266	2011-01-30 at 17:14
SO4 (IC)	E 300.0	66364	2011-02-01 at 10:33	77367	2011-02-01 at 12:49
TDS	SM 2540C	66128	2011-01-24 at 11:48	77161	2011-01-26 at 15:20

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 11012128 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.

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 4 of 21 Chavez County, NM

Analytical Report

Sample: 255897 - MW-1

Laboratory: Midland

Analysis: QC Batch:

BTEX

77124 Prep Batch: 66157

Analytical Method: Date Analyzed:

S 8021B

2011-01-24

Prep Method: S 5030B Analyzed By: AG

Prepared By: AG

RL

		102			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	mg/L	1	0.00100
Ethylbenzene		< 0.00100	mg/L	1	0.00100
Xylene		< 0.00100	$\mathrm{mg/L}$	1	0.00100

Sample Preparation: 2011-01-24

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.119	mg/L	1	0.100	119	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.112	${ m mg/L}$	1	0.100	112	51.1 - 128

Sample: 255897 - MW-1

Laboratory: Lubbock

Analysis: QC Batch:

Analytical Method: Chloride (IC) Date Analyzed: 77264 Prep Batch: 66272

E 300.0 2011-01-30 Sample Preparation: 2011-01-30

Prep Method: N/A Analyzed By: PG

Prepared By: PG

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		44.5	mg/L	5	2.50

Sample: 255897 - MW-1

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 77264 Prep Batch: 66272

Analytical Method: Date Analyzed:

E 300.0 2011-01-30 Sample Preparation: 2011-01-30

Prep Method: N/A Analyzed By: PG

Prepared By: PG

RL

Parameter	Flag	Result	Units	Dilution	RL
Sulfate		48.8	mg/L	5	2.50

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 5 of 21 Chavez County, NM

Sample: 255897 - MW-1

Laboratory: Midland

Analysis: TDS QC Batch: 77161 Prep Batch: 66128 Analytical Method: Date Analyzed:

Sample Preparation:

SM 2540C 2011-01-26 2011-01-24

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

RL

Parameter Flag Result Units Dilution RLTotal Dissolved Solids 447 mg/L10.0

Sample: 255898 - MW-2

Laboratory: Midland

Analysis: **BTEX** QC Batch: 77124 Prep Batch: 66157

Analytical Method: S 8021B Date Analyzed: 2011-01-24 Sample Preparation: 2011-01-24

RL

Prep Method: S 5030B Analyzed By: \mathbf{AG} Prepared By: AG

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	mg/L	1	0.00100
Ethylbenzene		< 0.00100	mg/L	1	0.00100
Xylene		< 0.00100	$\mathrm{mg/L}$	1	0.00100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.110	mg/L	1	0.100	110	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.103	$_{ m mg/L}$	1	0.100	103	51.1 - 128

Sample: 255898 - MW-2

Laboratory: Lubbock

Analysis: Chloride (IC) QC Batch: 77264 Prep Batch: 66272

Parameter

Chloride

Analytical Method: E 300.0 Date Analyzed: 2011-01-30 Sample Preparation: 2011-01-30

Prep Method: N/A PG Analyzed By: PGPrepared By:

Flag

RLResult Units Dilution RL9070 500 2.50 mg/L

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Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 6 of 21 Chavez County, NM

Sample: 255898 - MW-2

Laboratory: Lubbock

Analysis: SO4 (IC)
QC Batch: 77367
Prep Batch: 66364

Analytical Method: E 300.0 Date Analyzed: 2011-02-01 Sample Preparation: 2011-02-01

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

RL

Sample: 255898 - MW-2

Laboratory: Midland

Analysis: TDS QC Batch: 77161 Prep Batch: 66128 Analytical Method: SM 2540C Date Analyzed: 2011-01-26 Sample Preparation: 2011-01-24

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

RL

Sample: 255899 - MW-3

Laboratory: Midland

Analysis: BTEX QC Batch: 77124 Prep Batch: 66157 Analytical Method: S 8021B
Date Analyzed: 2011-01-24
Sample Preparation: 2011-01-24

RL

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

emeter Flog Ro

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

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.111	mg/L	1	0.100	111	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.104	mg/L	1	0.100	104	51.1 - 128

115-6403132 Celero/Rock Queen #13 TB Chavez County, NM Sample: 255899 - MW-3 Laboratory: Lubbock Analysis: Analytical Method: E 300.0 Prep Method: N/A Chloride (IC) QC Batch: Date Analyzed: 2011-01-30 Analyzed By: PG 77264 Prep Batch: 66272 Sample Preparation: 2011-01-30 Prepared By: PG RLParameter Result Units Dilution RLFlag Chloride 133 mg/L5 2.50Sample: 255899 - MW-3 Laboratory: Lubbock Analytical Method: E 300.0 Prep Method: N/A Analysis: SO4 (IC) PG QC Batch: 77264 Date Analyzed: 2011-01-30 Analyzed By: Prep Batch: 66272 Sample Preparation: 2011-01-30 Prepared By: PGRLParameter Flag Result Units Dilution RL62.0 mg/L 5 2.50 Sulfate Sample: 255899 - MW-3 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: Analyzed By: 77161 Date Analyzed: 2011-01-26 AR 66128 Prep Batch: Sample Preparation: 2011-01-24 Prepared By: AR RLResult Units Dilution RLParameter Flag Total Dissolved Solids 535 mg/L 10.0 Sample: 255900 - MW-4 Laboratory: Midland Prep Method: S 5030B Analysis: **BTEX** Analytical Method: S 8021B Analyzed By: \mathbf{AG} QC Batch: 77124 Date Analyzed: 2011-01-24 Sample Preparation: 2011-01-24 Prepared By: AGPrep Batch: 66157 RLParameter Result Units Dilution RLFlag 0.00100 Benzene < 0.00100 mg/L 1 1

< 0.00100

mg/L

continued ...

Work Order: 11012128

Page Number: 7 of 21

0.00100

Report Date: February 3, 2011

Toluene

Report Date: February 3, 2011 115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 8 of 21 Chavez County, NM

sample	255900	continued			
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			RI					
Parameter	Flag		Result	t	Units	Dil	ution	RL
Ethylbenzene		< 0.00100			mg/L		0.00100	
Xylene			< 0.00100)	mg/L		1	0.00100
						Spike	Percent	Recovery
Surrogate		\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.113	mg/L	1	0.100	113	67.8 - 126
4-Bromofluorobenzene (4-B)	FB)		0.104	mg/L	1	0.100	104	51.1 - 128

Sample: 255900 - MW-4

Laboratory: Lubbock

Analysis: Chloride (IC)
QC Batch: 77266
Prep Batch: 66273

Analytical Method: E 300.0
Date Analyzed: 2011-01-30
Sample Preparation: 2011-01-30

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

Sample: 255900 - MW-4

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 77266 Prep Batch: 66273 Analytical Method: E 300.0
Date Analyzed: 2011-01-30
Sample Preparation: 2011-01-30

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

Sample: 255900 - MW-4

Laboratory: Midland

Analysis: TDS QC Batch: 77161 Prep Batch: 66128 Analytical Method: SM 2540C Date Analyzed: 2011-01-26 Sample Preparation: 2011-01-24

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

Report Date: February 3, 2011 Work Order: 11012128 Page Number: 9 of 21 115-6403132 Celero/Rock Queen #13 TB Chavez County, NM

Sample: 255901 - MW-5

Laboratory: Midland

Analysis: **BTEX** S 8021B Prep Method: S 5030B Analytical Method: QC Batch: Analyzed By: AG77124 Date Analyzed: 2011-01-24 Prep Batch: 66157 Sample Preparation: 2011-01-24 Prepared By: AG

		m RL			
Parameter	\mathbf{Flag}	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	mg/L	1	0.00100
Ethylbenzene		< 0.00100	mg/L	1	0.00100
Xylene		< 0.00100	mg/L	1	0.00100

					Spike	Percent	$\operatorname{Recovery}$
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.116	mg/L	1	0.100	116	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.107	mg/L	1	0.100	107	51.1 - 128

Sample: 255901 - MW-5

Laboratory: Lubbock

Analysis: E 300.0 Prep Method: Chloride (IC) Analytical Method: N/A QC Batch: 77266 Analyzed By: PGDate Analyzed: 2011-01-30 Prep Batch: 66273 Sample Preparation: 2011-01-30 Prepared By: PG

Sample: 255901 - MW-5

Laboratory: Lubbock

SO4 (IC) Analysis: Analytical Method: E 300.0 Prep Method: N/A QC Batch: 77367 Analyzed By: PGDate Analyzed: 2011-02-01 Prep Batch: 66364 Prepared By: PGSample Preparation: 2011-02-01

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 10 of 21 Chavez County, NM

Sample: 255901 - MW-5

Laboratory: Midland

Analysis: TDS QC Batch: 77161 Prep Batch: 66128 Analytical Method: Date Analyzed:

SM 2540C 2011-01-26 Sample Preparation: 2011-01-24 Prep Method: N/A Analyzed By: ARPrepared By: AR

RL

Result Dilution RLParameter Flag Units Total Dissolved Solids 7890 mg/L 10.0

Sample: 255902 - MW-6

Laboratory: Midland

Analysis:

BTEX QC Batch: 77124 Prep Batch: 66157

Analytical Method: S 8021B Date Analyzed: 2011-01-24 Sample Preparation: 2011-01-24

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

RL

Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.00100	mg/L	1	0.00100
Toluene		< 0.00100	mg/L	1	0.00100
Ethylbenzene		< 0.00100	$\mathrm{mg/L}$	1	0.00100
Xylene		< 0.00100	mg/L	1	0.00100

					\mathbf{Spike}	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.112	mg/L	1	0.100	112	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.106	mg/L	1	0.100	106	51.1 - 128

Sample: 255902 - MW-6

Laboratory: Lubbock

Analysis: Chloride (IC) QC Batch: 77266 Prep Batch: 66273

Chloride

Analytical Method: E 300.0 Date Analyzed: 2011-01-30 Sample Preparation: 2011-01-30

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

Parameter Flag

RLUnits Result 2880 mg/L

RLDilution 2.50 100

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Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 11 of 21 Chavez County, NM

Sample: 255902 - MW-6

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 77266 Prep Batch: 66273

Analytical Method: Date Analyzed:

E 300.0 2011-01-30 Sample Preparation: 2011-01-30 Prep Method: N/A Analyzed By: PGPrepared By: PG

RL

Parameter Result Flag Units Dilution RLSulfate <250 mg/L 100 2.50

Sample: 255902 - MW-6

Laboratory: Midland

Analysis: TDS QC Batch: 77161 Prep Batch: 66128

Analytical Method: SM 2540C Date Analyzed: 2011-01-26 Sample Preparation: 2011-01-24 Prep Method: N/AAnalyzed By: AR Prepared By: AR

RL

Flag Dilution Parameter Result Units RLTotal Dissolved Solids 4690 mg/L 5 10.0

Method Blank (1) QC Batch: 77124

QC Batch: 77124 Prep Batch: 66157 Date Analyzed: 2011-01-24 QC Preparation: 2011-01-24 Analyzed By: AG Prepared By: AG

MDL

Parameter	Flag	Result	Units	RL
Benzene		< 0.000600	mg/L	0.001
Toluene		< 0.000600	mg/L	0.001
Ethylbenzene		< 0.000800	$\mathrm{mg/L}$	0.001
Xylene		< 0.000767	mg/L	0.001

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.115	mg/L	1	0.100	115	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.111	mg/L	1	0.100	111	47.3 - 116

Method Blank (1) QC Batch: 77161

QC Batch: 77161 Prep Batch: 66128

Date Analyzed: 2011-01-26 QC Preparation: 2011-01-24 Analyzed By: AR Prepared By: AR

Report Date: February 3, 2011 115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 12 of 21 Chavez County, NM

Dunamatan	Fla		MDL Result	Units		RL
Parameter Total Dissolved Solids	Fla	ig	10.0			10
Total Dissolved Solids		The state of the s	10.0	mg/L		
Method Blank (1)	QC Batch: 77264					
QC Batch: 77264		Date Analyzed:	2011-01-30		Analyzed By:	PG
Prep Batch: 66272		QC Preparation:	2011-01-30		Prepared By:	PG
		Λ	MDL			
Parameter	Flag	Re	esult	Units		RL
Chloride		<0.0	0142	mg/L		2.5
Method Blank (1)	QC Batch: 77264					
QC Batch: 77264		Date Analyzed:	2011-01-30		Analyzed By:	PG
Prep Batch: 66272		QC Preparation:	2011-01-30		Prepared By:	PG
Danamatan	Tilom		IDL sult	Units		RL
Parameter Sulfate	Flag		126	mg/L		$\frac{RL}{2.5}$
Durau.			.120		7.744	
Method Blank (1)	QC Batch: 77266					
QC Batch: 77266		Date Analyzed:	2011-01-30		Analyzed By:	PG
Prep Batch: 66273		QC Preparation:	2011-01-30		Prepared By:	PG
_			•			
Danamatan	Floor		IDL esult	Units		RL
Parameter Chloride	Flag		0142	mg/L		$\frac{RL}{2.5}$
Chloride		ν	J112	mg/ D		
Method Blank (1)	QC Batch: 77266					
QC Batch: 77266		Date Analyzed:	2011-01-30		Analyzed By:	PG
Prep Batch: 66273		QC Preparation:	2011-01-30		Prepared By:	PG
		3.4	IDI			
Parameter	Flag		IDL sult	Units		RL
Sulfate	1145		126	mg/L		2.5

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 13 of 21 Chavez County, NM

Method Blank (1)

QC Batch: 77367

QC Batch: Prep Batch:

77367 66364 Date Analyzed: QC Preparation:

2011-02-01

2011-02-01

Analyzed By: PG Prepared By: PG

MDL

Parameter Sulfate

Flag

Result < 0.126

Units RLmg/L 2.5

Duplicated Sample: 255905 Duplicates (1)

QC Batch:

77161

Date Analyzed:

2011-01-26

Analyzed By: AR

Prep Batch:

66128

QC Preparation:

2011-01-24

Prepared By: AR

	Duplicate	Sample				RPD
Param	Result	Result	\mathbf{Units}	Dilution	RPD	Limit
Total Dissolved Solids	81500	81800	mg/L	100	0	10

Laboratory Control Spike (LCS-1)

QC Batch:

77124

Prep Batch: 66157

Date Analyzed:

2011-01-24 QC Preparation: 2011-01-24

Analyzed By: AG Prepared By: AG

LCS Matrix Rec. Spike

Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.0885	mg/L	1	0.100	< 0.000600	88	82.9 - 118
Toluene	0.0989	mg/L	1	0.100	< 0.000600	99	82.7 - 117
Ethylbenzene	0.102	mg/L	1	0.100	< 0.000800	102	78.8 - 116
Xylene	0.308	mg/L	1	0.300	< 0.000767	103	79.3 - 116

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.0906	mg/L	1	0.100	< 0.000600	91	82.9 - 118	2	20
Toluene	0.102	mg/L	1	0.100	< 0.000600	102	82.7 - 117	3	20
Ethylbenzene	0.106	mg/L	1	0.100	< 0.000800	106	78.8 - 116	4	20
Xylene	0.320	mg/L	1	0.300	< 0.000767	107	79.3 - 116	4	20

	LCS	LCSD			\mathbf{Spike}	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.110	0.111	mg/L	1	0.100	110	111	67.3 - 113
4-Bromofluorobenzene (4-BFB)	0.110	0.113	mg/L	1	0.100	110	113	68.2 - 134

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Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 14 of 21 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 66128

77161

Date Analyzed:

2011-01-26 QC Preparation: 2011-01-24 Analyzed By: AR

Prepared By: AR

	LCS			Spike	Matrix		Rec .
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids	993	mg/L	1	1000	< 9.75	99	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids	999	mg/L	1	1000	< 9.75	100	90 - 110	1	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:

77264 Prep Batch: 66272 Date Analyzed: QC Preparation:

2011-01-30 2011-01-30 Analyzed By: PG Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	24.1	mg/L	1	25.0	< 0.0142	96	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	23.9	mg/L	1	25.0	< 0.0142	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: 77264 Prep Batch: 66272 Date Analyzed: QC Preparation: 2011-01-30

2011-01-30

Analyzed By: PG Prepared By: PG

	LCS			\mathbf{Spike}	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.7	m mg/L	1	25.0	< 0.126	99	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	24.6	mg/L	1	25.0	< 0.126	98	90 - 110	0	20

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 15 of 21 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 66273

77266

Date Analyzed: QC Preparation:

2011-01-30 2011-01-30 Analyzed By: PG

Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	24.0	mg/L	1	25.0	< 0.0142	96	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	24.0	mg/L	1	25.0	< 0.0142	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: Prep Batch:

77266 66273 Date Analyzed: QC Preparation:

2011-01-30 2011-01-30 Analyzed By: PG

Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.6	mg/L	1	25.0	< 0.126	98	90 - 110

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	24.6	mg/L	1	25.0	< 0.126	98	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:

77367 Prep Batch: 66364 Date Analyzed:

2011-02-01 QC Preparation: 2011-02-01

Analyzed By: PG Prepared By: PG

LCS Spike Matrix Rec. Limit Param Result Units Dil. Amount Result Rec. 90 - 110 Sulfate 24.4 25.0 < 0.126 98 mg/L

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	24.0	mg/L	1	25.0	< 0.126	96	90 - 110	2	20

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 16 of 21 Chavez County, NM

Matrix Spike (MS-1) Spiked Sample: 255921

QC Batch: 77124 Prep Batch: 66157 Date Analyzed: 2011-01-24 QC Preparation: 2011-01-24 Analyzed By: AG Prepared By: AG

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	1	0.0669	mg/L	1	0.100	0.0121	55	77.9 - 114
Toluene	2	0.0633	mg/L	1	0.100	0.0066	57	78.3 - 111
Ethylbenzene	3	0.0573	mg/L	1	0.100	< 0.000800	57	75.3 - 110
Xylene	4	0.145	mg/L	1	0.300	< 0.000767	48	75.7 - 109

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

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	5	0.0811	mg/L	1	0.100	0.0121	69	77.9 - 114	19	20
Toluene	6	0.0774	mg/L	1	0.100	0.0066	71	78.3 - 111	20	20
Ethylbenzene	7	0.0693	mg/L	1	0.100	< 0.000800	69	75.3 - 110	19	20
Xylene	8	0.180	mg/L	1	0.300	< 0.000767	60	75.7 - 109	22	20

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

		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	9	0.0705	0.0437	mg/L	1	0.1	70	44	68.3 - 107
4-Bromofluorobenzene (4-BFB)	10	0.0736	0.0449	mg/L	1	0.1	74	45	60.1 - 135

Matrix Spike (MS-1) Spiked Sample: 255899

QC Batch: 77264 Prep Batch: 66272 Date Analyzed: 2011-01-30 QC Preparation: 2011-01-30 Analyzed By: PG Prepared By: PG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	273	m mg/L	5	125	133	112	90 - 110

¹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

²Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

³Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁴Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁵Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁶Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

7 Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁸Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

⁹Surrogate out due to peak interference.

¹⁰Surrogate out due to peak interference.

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 17 of 21 Chavez County, NM

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	275	mg/L	5	125	133	114	90 - 110	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 255899

QC Batch: 77264 Date Analyzed: 2011-01-30 Analyzed By: PG

Prep Batch: 66272

115-6403132

QC Preparation: 2011-01-30 Prepared By: PG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	191	mg/L	5	125	62	103	90 - 110

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	191	mg/L	5	125	62	103	90 - 110	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: 256128

QC Batch: Prep Batch: 66273

77266

Date Analyzed: QC Preparation: 2011-01-30 2011-01-30 Analyzed By: PG

Prepared By: PG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	121	mg/L	5	125	2.2	95	90 - 110

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

	MSD			\mathbf{Spike}	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	120	mg/L	5	125	2.2	94	90 - 110	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 256128

QC Batch:

77266

Date Analyzed:

2011-01-30

Analyzed By: PG

Prep Batch:

66273

QC Preparation: 2011-01-30

Prepared By: PG

continued ...

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 18 of 21 Chavez County, NM

matrix spikes continued ...

	MS			\mathbf{Spike}	Matrix		Rec .
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	123	mg/L	5	125	< 0.630	98	90 - 110

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

	MSD			\mathbf{Spike}	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	122	mg/L	5	125	< 0.630	98	90 - 110	1	20

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

Matrix Spike (MS-1) Spiked Sample: 256245

QC Batch: 77367 Date Analyzed:

2011-02-01

Analyzed By: PG Prepared By: PG

Prep Batch: 66364

QC Preparation: 2011-02-01

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	13000	mg/L	500	12500	<63.0	104	90 - 110

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	13000	mg/L	500	12500	<63.0	104	90 - 110	0	20

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

Standard (CCV-1)

QC Batch: 77124

Date Analyzed: 2011-01-24

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0910	91	80 - 120	2011-01-24
Toluene		mg/L	0.100	0.102	102	80 - 120	2011-01-24
Ethylbenzene		${ m mg/L}$	0.100	0.108	108	80 - 120	2011-01-24
Xylene		mg/L	0.300	0.325	108	80 - 120	2011-01-24

Standard (CCV-2)

QC Batch: 77124

Date Analyzed: 2011-01-24

Report Date: February 3, 2011 115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 19 of 21 Chavez County, NM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0858	86	80 - 120	2011-01-24
Toluene		mg/L	0.100	0.0989	99	80 - 120	2011-01-24
Ethylbenzene		mg/L	0.100	0.103	103	80 - 120	2011-01-24
Xylene		mg/L	0.300	0.308	103	80 - 120	2011-01-24

Standard (CCV-1)

QC Batch: 77264

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	24.4	98	90 - 110	2011-01-30

Standard (CCV-1)

QC Batch: 77264

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.8	99	90 - 110	2011-01-30

Standard (CCV-2)

QC Batch: 77264

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	24.1	96	90 - 110	2011-01-30

Standard (CCV-2)

QC Batch: 77264

Date Analyzed: 2011-01-30

			CCVs	CCVs	CCVs	$\mathbf{Percent}$	
			True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.7	99	90 - 110	2011-01-30

Report Date: February 3, 2011 115-6403132

, 2011

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 20 of 21 Chavez County, NM

Standard (CCV-1)

QC Batch: 77266

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	24.1	96	90 - 110	2011-01-30

Standard (CCV-1)

QC Batch: 77266

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.7	99	90 - 110	2011-01-30

Standard (CCV-2)

QC Batch: 77266

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	24.0	96	90 - 110	2011-01-30

Standard (CCV-2)

QC Batch: 77266

Date Analyzed: 2011-01-30

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.5	98	90 - 110	2011-01-30

Standard (CCV-1)

QC Batch: 77367

Date Analyzed: 2011-02-01

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	23.9	96	90 - 110	2011-02-01

115-6403132

Work Order: 11012128 Celero/Rock Queen #13 TB Page Number: 21 of 21 Chavez County, NM

Standard (CCV-2)

QC Batch: 77367

Date Analyzed: 2011-02-01

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.1	96	90 - 110	2011-02-01

- Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy. Circle or Specify Method No. ANALYSIS REQUEST dedulumer- (Almider, Ou **CCINS 2011! ANT 8510/852** AMPLE SHIPPED BY: (Circle) SAMPLED BY: (Print & Initial) Medials Ag As Ba Cd Vr Pd Hg Sa CO CL PS Hg (EXI. to C35) 3001XT BIEX 80218 PRESERVATIVE METHOD HONE 0/;01 Analysis Request of Chain of Custody Record CE EON × HCF FILTERED (Y/W) NUMBER OF CONTAINERS RECEIPE BY (SIGNATE) LACU 3 -Biex RECEIVED BY: (Signature) (432) 682-4559 • Fax (432) 682-3946 **Vas**[11] SAMPLE IDENTIFICATION **TETRA TECH** Kara this The 1910 N. Big Spring St. Midland, Texas 79705 Att Killing *Midland Laboratory retains Yellow copy 200 # 11012138 SITE MANAGER -¥. PROJECT NAME: Deta: Time: Dete: BARD SOMP XIHTAM STATE 16.37 MANPLE DONDATION WHEN RECEIVED: 10.0 2001 TIME 711.71 ista RELINQUISHED BY: (Signature) CONQUISHED BY: (Signature) (ELINGUISPED BY: (Signature) ADDRESS: ## The Th DATE 1102 1-1-6403136 10 CLIENT NAME PROJECT NO.: **त**्र 000 LAB I.D. NUMBER ē 29887 85 85 85 356

A/Cations, pH(TDS)

ë

RUSH Charge Authorized:

AIRBILL .

OTHER

SAMPLE LOG

Boring/Well:

TMW-1

Project Number:

N/A

Client:

COG

Site Location:

Pronghorn 1/2 Mile Leak

Location:

Lea Co., NM

Legals:

T-18S R-32E Sec 11

Total Depth
Date Installed:

130 03/16/11

Gauged:

3/23/11 - 133' Dry Well

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION			
5		Soft white caliche powder			
10		Stiff sandy clay			
15		Stiff sandy clay			
20		Tan loose silty sand			
25		Medium stiff silty clay with some sand			
30		Tan loose coarse sand with gravel 10-20mm			
35		Lighter loose sand and gravel - dry			
40		Well sorted loose sand - very fine silty - dry			
45	*	Well sorted loose sand - very fine silty - dry			
50		Loose reddish/brown well sorted sand - dry			
55		Loose coarse sand small gravel 0.5mm			
60		Silty reddish sandy clay with some gravel 1mm			
65		Silty reddish sandy clay with some gravel 1mm			
70		Silty reddish sandy clay with some gravel 1mm			
75		Soft red silty clay - dry			
80		Soft red silty clay - dry			
85		Soft red silty clay - dry			
90		Soft red silty clay - dry			
95		Soft brown silty clay - dry			
100		Soft brown silty clay - dry			
105		Soft brown silty clay - dry			
110		Soft brown silty clay - dry			
115		Soft brown silty clay - dry			
120		Loose brown sand - well sorted silty - dry			
125		Loose brown sand - well sorted silty - dry			
130		Loose silty clay - gray color - shale			

Total Depth 130' Groundwater was not encountered



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Certifications

NELAP DoD LELAP HUB NCTRCA DBE Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Jeff Kindley

Tetra Tech

1910 N. Big Spring Street Midland, TX, 79705

Report Date: May 2, 2011

Work Order: 11041528

Project Location: Chavez County, NM

Project Name: Celero/Rock Queen Tract #13 TB

Project Number: 115-6403132A

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

			Date	${f Time}$	\mathbf{Date}
Sample	Description	Matrix	Taken	Taken	Received
263898	MW-1	water	2011-04-13	11:00	2011-04-15
263899	MW-2	water	2011-04-13	12:25	2011-04-15
263900	MW-3	water	2011-04-13	11:20	2011-04-15
263901	MW-4	water	2011-04-13	11:45	2011-04-15
263902	MW-5	water	2011-04-13	12:45	2011-04-15
263903	MW-6	water	2011-04-13	12:10	2011-04-15

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 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

Report Contents

Case Narrative	
Analytical Report	
Sample 263898 (MW-1)	
Sample 263899 (MW-2)	
Sample 263900 (MW-3)	
Sample 263901 (MW-4)	
Sample 263902 (MW-5)	
Sample 263903 (MW-6)	
Method Blanks	1
QC Batch 80420 - Method Blank (1)	_
QC Batch 80664 - Method Blank (1)	
QC Batch 80664 - Method Blank (1)	
QC Batch 80665 - Method Blank (1)	
QC Batch 80665 - Method Blank (1)	
QC Batch 80826 - Method Blank (1)	
QC Batch 80826 - Duplicate (1)	
GC Batch 80820 - Duplicate (1)	1
Laboratory Control Spikes	10
QC Batch 80420 - LCS (1)	1
QC Batch 80664 - LCS (1)	1
QC Batch 80664 - LCS (1)	1
QC Batch 80665 - LCS (1)	1
QC Batch 80665 - LCS (1)	
QC Batch 80826 - LCS (1)	1
QC Batch 80664 - MS (1)	1
QC Batch 80664 - MS (1)	1
QC Batch 80665 - MS (1)	1
QC Batch 80665 - MS (1)	1
Calibration Standards	2
QC Batch 80420 - CCV (1)	_
QC Batch 80420 - CCV (2)	
QC Batch 80664 - ICV (1)	
QC Batch 80664 - ICV (1)	
QC Batch 80664 - CCV (1)	
QC Batch 80664 - CCV (1)	
QC Batch 80665 - ICV (1)	
QC Batch 80665 - ICV (1)	
QC Batch 80665 - CCV (1)	2
QC Batch 80665 - CCV (1)	
Appendix	24
Laboratory Certifications	
Standard Flags	2

Attachments	 24
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Case Narrative

Samples for project Celero/Rock Queen Tract #13 TB were received by TraceAnalysis, Inc. on 2011-04-15 and assigned to work order 11041528. Samples for work order 11041528 were received intact without headspace and at a temperature of 0.6 C.

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

		\mathbf{Prep}	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	68258	2011-04-18 at 08:51	80420	2011-04-18 at 23:21
Chloride (IC)	E 300.0	68437	2011-04-25 at 09:23	80664	2011-04-26 at 15:31
Chloride (IC)	E 300.0	68438	2011-04-25 at 11:24	80665	2011-04-26 at 15:32
SO4 (IC)	E 300.0	68437	2011-04-25 at 09:23	80664	2011-04-26 at 15:31
SO4 (IC)	E 300.0	68438	2011-04-25 at 11:24	80665	2011-04-26 at 15:32
TDS	$SM\ 2540C$	68432	2011-04-22 at 12:00	80826	2011-04-29 at 14:31

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 11041528 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 2, 2011 115-6403132A

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 6 of 24

Chavez County, NM

Analytical Report

Sample: 263898 - MW-1

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 80420 Date Analyzed: 2011-04-18 Analyzed By: ME Prep Batch: 68258 Sample Preparation: Prepared By: ME2011-04-18

RLFlag Parameter Cert Result Units Dilution RLBenzene < 0.00100 mg/L1 0.00100 Toluene < 0.00100 mg/L1 0.00100Ethylbenzene < 0.00100 mg/L1 0.00100mg/LXylene < 0.00100 1 0.00100

						\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0956	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		3	0.100	mg/L	1	0.100	100	51.1 - 128

Sample: 263898 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0Prep Method: N/A QC Batch: 80664 AR. Date Analyzed: 2011-04-26 Analyzed By: Prep Batch: 68437 ARSample Preparation: 2011-04-25 Prepared By:

Sample: 263898 - MW-1

Laboratory: Midland

Analysis: Prep Method: N/A SO4 (IC) Analytical Method: E 300.0 QC Batch: 80664 Date Analyzed: 2011-04-26 Analyzed By: Prep Batch: 68437 Sample Preparation: 2011-04-25 Prepared By: AR

115-6403132A

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 7 of 24 Chavez County, NM

Sample: 263898 - MW-1

Laboratory: Midland

Analysis: TDS QC Batch:

Analytical Method: Date Analyzed:

SM 2540C 2011-04-29 Prep Method: N/A Analyzed By: AR

Prep Batch:

80826 68432

Sample Preparation: 2011-04-25

Prepared By: AR

RL

Units RLParameter Flag Cert Result Dilution Total Dissolved Solids 481 mg/L 10.0

Sample: 263899 - MW-2

Laboratory:

Parameter

Midland

Analysis: **BTEX** QC Batch: 80420 Prep Batch: 68258

Analytical Method: Date Analyzed:

Cert

S 8021B 2011-04-18 Sample Preparation: 2011-04-18

Prep Method: Analyzed By:

Prepared By:

S 5030B ME ME

Flag

RL

Result

Units

Dilution RL

			Spike	Percent	Recovery
Xylene	1	< 0.00100	mg/L	1	0.00100
Ethylbenzene	1	< 0.00100	m mg/L	1	0.00100
Toluene	1	< 0.00100	m mg/L	1	0.00100
Benzene	1	<0.00100	mg/L	1	0.00100

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Triffuorotoluene (TFT)		1	0.0950	mg/L	1	0.100	95	67.8 - 129
4-Bromofluorobenzene (4-BFB)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	0.100	mg/L	1	0.100	100	51.1 - 128

Sample: 263899 - MW-2

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 80664 Prep Batch: 68437

Analytical Method: E 300.0 Date Analyzed: 2011-04-26 Sample Preparation: 2011-04-25

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

			m RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		1	9380	m mg/L	1000	2.50

Report Date: May 2, 2011 115-6403132A			Work Or Celero/Rock Q	der: 1104 Jueen Trac	Page Number: Chavez Coun		
Sample: 26	3899 - MW-2						
Laboratory:	Midland						
Analysis:	SO4 (IC)		Analytical Met	hod: E	300.0	Prep Method:	N/A
QC Batch:	80664		Date Analyzed:	20	11-04-26	Analyzed By:	AR
Prep Batch:	68437		Sample Prepara	ation: 20	11-04-25	Prepared By:	AR
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Sulfate			1	193	mg/L	5	2.50

Sample: 26	3899 - MW-2						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 80826 68432	Date	tical Method: Analyzed: le Preparation	2011-04-29		Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolv	ed Solids		1	16900	mg/L	100	10.0

Analysis:	BTEX	1	Analytical	Method: S	8021E	3		Prep Method:	S 5030B
QC Batch:	80420	I	Date Anal	yzed: 20	11-04	-18		Analyzed By:	ME
Prep Batch:	68258	S	Sample Pr	eparation: 20	11-04	-18		Prepared By:	ME
					RL				
Parameter		Flag	Cert	Res	sult	Units		Dilution	RL
Benzene			1	< 0.00	100	mg/L		1	0.00100
Toluene			1	< 0.00	100	mg/L		1	0.00100
Ethylbenzene	:		1	< 0.00	100	mg/L		1	0.00100
Xylene			1	< 0.00	100	mg/L		1	0.00100
Commence		Tilom	Claud	Donald II		Dilution	Spike	Percent	Recovery

Sample: 263900 - MW-3

Laboratory: Midland

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0944	mg/L	1	0.100	94	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0969	mg/L	1	0.100	97	51.1 - 128

Report Date: 115-64031324	May 2, 2011		Celero	В	Page Number: Chavez Coun			
Sample: 263	3900 - MW-3							
Laboratory:	Midland		A	l-4:l M-4b	- 1. 72 200 0		Down Market	DT / A
Analysis: QC Batch:	Chloride (IC) 80664			lytical Methe e Analyzed:	od: E 300.0 2011-04-2	06	Prep Method: Analyzed By:	N/A AR
Prep Batch:	68437			ple Preparat			Prepared By:	AR
				pro z sprano			Tropulou Dj.	1110
D .		D1			RL	** ·	D 11	
Parameter		Flag	Cer	<u>t</u>	Result	Units	Dilution	RL
Chloride		 	1		148	mg/L	5	2.50
Sample: 263	3900 - MW-3							
Laboratory:	Midland							
Analysis:	SO4 (IC)			tical Method			Prep Method:	N/A
QC Batch:	80664			Analyzed:	2011-04-26		Analyzed By:	\mathbf{AR}
Prep Batch:	68437		Sample	e Preparatio	n: 2011-04-25		Prepared By:	AR
ъ.		D)			RL	TT 1:	50	
Parameter		Flag	Cer	<u>t</u>	Result	Units	Dilution	RL
Sulfate			1		84.1	mg/L	5	2.50
Sample: 263	3900 - MW-3							
Laboratory:	Midland							
Analysis:	TDS		Analyt	ical Method:	SM 2540C		Prep Method:	N/A
-	80826			ınalyzed:	2011-04-29		Analyzed By:	AR
Prep Batch:	68432		Sample	Preparation	n: 2011-04-25		Prepared By:	$\mathbf{A}\mathbf{R}$
					RL			
Parameter			Flag	Cert	Result	Units	Dilution	RL
Total Dissolve	ed Solids			1	630	mg/L	2	10.0
Sample: 263	901 - MW-4							
	Midland							
v	BTEX			al Method:	S 8021 B		-	5030B
-	80420		Date Ana		2011-04-18		Analyzed By: M	
Prep Batch:	68258		Sample I	Preparation:	2011-04-18		Prepared By: M	E
						cont	tinued	

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 10 of 24 Chavez County, NM

sample 263901 continued ...

				RL				
Parameter	Flag	Cert		Result	Unit	s	Dilution	RL
				RL				
Parameter	Flag	Cert		Result	Unit	s	Dilution	RL
Benzene	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	<	0.00100	mg/l		1	0.00100
Toluene		1	<	0.00100	mg/1		1	0.00100
Ethylbenzene		1	<	0.00100	mg/1	_	1	0.00100
Xylene		1	<	0.00100	mg/l		1	0.00100
						Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0982	mg/L	1	0.100	98	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.101	mg/L	1	0.100	101	51.1 - 128

Sample: 263901 - MW-4

Laboratory: Midland

Analysis: Chloride (IC)
QC Batch: 80664
Prep Batch: 68437

Analytical Method: E 300.0 Date Analyzed: 2011-04-26 Sample Preparation: 2011-04-25 Prep Method: N/A Analyzed By: AR Prepared By: AR

Sample: 263901 - MW-4

Laboratory: Midland

Analysis: SO4 (IC)
QC Batch: 80664
Prep Batch: 68437

Analytical Method: E 300.0 Date Analyzed: 2011-04-26 Sample Preparation: 2011-04-25

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

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Sulfate		1	49.4	mg/L	5	2.50

115-6403132A

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 11 of 24 Chavez County, NM

Sample: 263901 - MW-4

Laboratory:

Midland

Analysis: QC Batch: TDS 80826

Analytical Method: Date Analyzed:

SM 2540C 2011-04-29 Prep Method: N/A Analyzed By: AR

Prep Batch: 68432 Sample Preparation:

2011-04-25

Prepared By: AR

RLResult

Dilution RL10.0

Parameter Flag Cert Total Dissolved Solids

Units 604 mg/L $\overline{2}$

Sample: 263902 - MW-5

Laboratory:

Prep Batch:

Midland

68258

Analysis: **BTEX** QC Batch: 80420

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-04-18 2011-04-18 Prep Method: S 5030B

Analyzed By: ME Prepared By: ME

RLParameter Flag Cert Result Units Dilution RLBenzene < 0.00100 mg/L 1 0.00100 Toluene < 0.00100 mg/L 1 0.00100 Ethylbenzene < 0.00100 mg/L1 0.00100Xylene < 0.00100 mg/L1 0.00100

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		ı	0.0956	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0975	m mg/L	1	0.100	98	51.1 - 128

Sample: 263902 - MW-5

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 80664 Prep Batch: 68437

Analytical Method: Date Analyzed:

E 300.0 2011-04-26 Sample Preparation: 2011-04-25

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

RLFlag Units Parameter Cert Result Dilution RLChloride 17700 mg/L1000 2.50

Report Date 115-6403132	e: May 2, 2011 A	Work Order Celero/Rock Que		Page Number: 12 of 24 Chavez County, NM			
Sample: 26	3902 - MW-5						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland SO4 (IC) 80664 68437		Analytical Methodo Date Analyzed: Sample Preparation	2011-04-26		Prep Method: Analyzed By: Prepared By:	N/A AR. AR
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Sulfate			1	336	nıg/L	100	2.50
Sample: 26	3902 - MW-5						
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TDS 80826 68432		Analytical Method Date Analyzed: Sample Preparatio	2011-04-29		Prep Method: Analyzed By: Prepared By:	N/A AR AR

RL

Units

mg/L

Dilution

100

RL

10.0

Result

27000

Sample:	263903 -	MW-6
---------	----------	------

La	boratory:	Midlan	

Total Dissolved Solids

Parameter

 ${\bf Cert}$

Flag

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

Surrogate Flag Cert Result Units Dilution Amount R	-	
The Cort Result Cline Dilution Minount is	Recovery	Limits
Trifluorotoluene (TFT) 1 0.0914 mg/L 1 0.100	91	67.8 - 129
4-Bromofluorobenzene (4-BFB) 1 0.0955 mg/L 1 0.100	96	51.1 - 128

Report Date: May 2, 2011 115-6403132A			Celere	Work Order: o/Rock Quee	В	Page Number: 13 of 24 Chavez County, NM		
Sample: 26	3903 - MW-6							
Laboratory: Midland Analysis: Chloride (IC) QC Batch: 80665 Prep Batch: 68438				dytical Meth e Analyzed: aple Preparat	Prep Method: Analyzed By: Prepared By:	N/A AR AR		
Parameter		Flag	Ce	m+	RL Result	Units	Dilution	RL
Chloride		riag	1		3010	mg/L	100	2.50
-	3903 - MW-6							
Laboratory: Analysis:	Midland SO4 (IC)		Analy	tical Method	: E 300.0		Prep Method:	N/A
QC Batch:	80665			Analyzed:	2011-04-26		Analyzed By:	AR
Prep Batch:	68438			e Preparation	n: 2011-04-25		Prepared By:	AR
_					RL			
Parameter		Flag	Ce		Result	Units	Dilution	RL
Sulfate		<i>51</i>	1		85.2	mg/L	5	2.50
Sample: 26	3903 - MW-6							
Laboratory:	Midland							
Analysis:	TDS			ical Method:			Prep Method:	N/A
QC Batch:	80826			analyzed:	2011-04-29		Analyzed By:	AR
Prep Batch:	68432		Sample	e Preparation	n: 2011-04-25		Prepared By:	AR
Parameter			Flag	Cert	RL Result	Units	Dilution	Dī
Total Dissolve	ed Solids		riag	tert.	4890	mg/L	Duution 5	$\frac{RL}{10.0}$
20001 20100014	on comm			1	4000	ше/п	· · · · · · · · · · · · · · · · · · ·	10.0

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 14 of 24 Chavez County, NM

Method Blanks

Method Blank (1)

QC Batch: 80420

QC Batch: 80420 Prep Batch: 68258 Date Analyzed: 2011-04-18 QC Preparation: 2011-04-18 Analyzed By: ME Prepared By: ME

			MDL		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.000400	m mg/L	0.001
Toluene		i	< 0.000300	m mg/L	0.001
Ethylbenzene		1	< 0.000300	mg/L	0.001
Xylene		1	< 0.000333	m mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	0.0862	nıg/L	1	0.100	86	70.2 - 118
4-Bromofluorobenzene (4-BFB)		1	0.0861	m mg/L	1	0.100	86	47.3 - 116

Method Blank (1)

QC Batch: 80664

QC Batch: 80664 Prep Batch: 68437 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25 Analyzed By: AR Prepared By: AR

			\mathtt{MDL}		
Parameter	Flag	Cert	Result	Units	RL
Chloride		1	0.484	mg/L	2.5

Method Blank (1)

QC Batch: 80664

QC Batch: 80664 Prep Batch: 68437 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25 Analyzed By: AR Prepared By: AR

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

Report Date: May 2, 20 115-6403132A	011	Work Order Celero/Rock Quee		Page Number: 15 of 24 Chavez County, NM			
Method Blank (1)	QC Batch: 80665						
QC Batch: 80665 Prep Batch: 68438		Date Analyzed: QC Preparation:	2011-04-26 2011-04-25			Analyzed By: Prepared By:	
Parameter	Flag	Cert		MDL Result	τ	Jnits	RL
Chloride		1		0.513	I	ng/L	2.5
Method Blank (1)	QC Batch: 80665						
QC Batch: 80665 Prep Batch: 68438		Date Analyzed: QC Preparation:	2011-04-26 2011-04-25			Analyzed By: Prepared By:	
Parameter	Flag	Cert		$rac{ ext{MDL}}{ ext{Result}}$	τ	Jnits	$_{ m RL}$
Sulfate		1	L. L. L. L. L. L. T. J. P. J.	< 0.177	17	ng/L	2.5
Method Blank (1)	QC Batch: 80826						
QC Batch: 80826 Prep Batch: 68432		Date Analyzed: QC Preparation:	2011-04-29 2011-04-22			Analyzed By: Prepared By:	
гтер Баки. 00452		QC Freparation:	2011-04-22	MDL		Frepared by.	An
Parameter		Flag	Cert	Result		Units	RL
Total Dissolved Solids			1	<9.75		mg/L	10
Duplicates (1) Dup	licated Sample: 2639	04					
QC Batch: 80826		Date Analyzed: QC Preparation:	2011-04-29 2011-04-22			Analyzed By: Prepared By:	
Prep Batch: 68432							
Prep Batch: 68432 Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 16 of 24 Chavez County, NM

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 80420

Prep Batch: 68258

Date Analyzed: 2011-04-18 QC Preparation: 2011-04-18 Analyzed By: ME Prepared By: ME

			LCS			\mathbf{Spike}	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.0962	mg/L	1	0.100	< 0.000400	96	76.8 - 110
Toluene		1	0.100	mg/L	1	0.100	< 0.000300	100	81 - 108
Ethylbenzene		1	0.0993	mg/L	1	0.100	< 0.000300	99	78.8 - 118
Xylene		1	0.297	mg/L	1	0.300	< 0.000333	99	80.3 - 119

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

			LCSD			Spike	Matrix		${ m Rec.}$		RPD
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	\mathbf{Amount}	Result	Rec.	\mathbf{Limit}	RPD	Limit
Benzene		1	0.0930	mg/L	1	0.100	< 0.000400	93	76.8 - 110	3	20
Toluene		1	0.0981	mg/L	1	0.100	< 0.000300	98	81 - 108	2	20
Ethylbenzene		1	0.0969	mg/L	1	0.100	< 0.000300	97	78.8 - 118	2	20
Xylene		1	0.292	mg/L	1	0.300	< 0.000333	97	80.3 - 119	2	20

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

		LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	${f Limit}$
Trifluorotoluene (TFT)	1	0.0921	0.0869	mg/L	1	0.100	92	87	66.6 - 114
4-Bromofluorobenzene (4-BFB)	1	0.0975	0.0930	$\mathrm{mg/L}$	1	0.100	98	93	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch: 80664 Prep Batch: 68437 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25 Analyzed By: AR Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$
Chloride		1	25.2	mg/L	1	25.0	< 0.265	101	90 - 110

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

continued ...

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 17 of 24 Chavez County, NM

control spikes continued . . .

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	25.5	mg/L	1	25.0	< 0.265	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: 80664 Prep Batch: 68437 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25 Analyzed By: AR Prepared By: AR

LCS Spike Matrix Rec. Param Dil. Result Limit Result Units Amount Rec. Sulfate 23.2 25.0< 0.177 93 90 - 110 n_{lg}/L 1

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
Sulfate		3	23.7	mg/L	1	25.0	< 0.177	95	90 - 110	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 80665 Prep Batch: 68438 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25

Analyzed By: AR Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	24.9	mg/L	1	25.0	< 0.265	100	90 - 110

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
Chloride		1	24.8	mg/L	1	25.0	< 0.265	99	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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Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 18 of 24 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch:

80665 Prep Batch: 68438 Date Analyzed:

2011-04-26 2011-04-25 Analyzed By: AR

QC Preparation:

Prepared By: AR

LCS Spike Matrix Rec. Param \mathbf{F} \mathbf{C} Result Units Dil. Amount Result Limit Rec. Sulfate 23.1 mg/L 25.0 < 0.177 92 90 - 110 1

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	23.1	mg/L	1	25.0	< 0.177	92	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:

80826 Prep Batch: 68432

Date Analyzed: QC Preparation:

2011-04-29 2011-04-22 Analyzed By: AR

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	$_{ m Limit}$
Total Dissolved Solids		1	1050	mg/L	1	1000	< 9.75	105	90 - 110

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	954	mg/L	1	1000	< 9.75	95	90 - 110	10	10

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

Matrix Spike (MS-1) Spiked Sample: 263900

QC Batch: 80664 Prep Batch: 68437

Date Analyzed: QC Preparation:

2011-04-26 2011-04-25

Analyzed By: AR Prepared By: AR

MSSpike Matrix Rec. Param \mathbf{F} C Dil. Result Units Amount Result Limit Rec. Chloride 354 mg/L10 275 139 78 90 - 110

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

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Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 19 of 24 Chavez County, NM

			MSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	352	mg/L	10	275	139	77	90 - 110	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 263900

QC Batch:

80664

Date Analyzed:

2011-04-26

Analyzed By: AR

Prep Batch: 68437

QC Preparation: 2011-04-25

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	292	mg/L	10	275	79.5	77	90 - 110

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

			MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	297	mg/L	10	275	79.5	79	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: 263903

QC Batch:

80665

Date Analyzed:

2011-04-26

Analyzed By: AR.

Prep Batch: 68438

QC Preparation: 2011-04-25

Prepared By: AR.

			MS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	5530	mg/L	100	2750	3010	92	90 - 110

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	5580	m mg/L	100	2750	3010	93	90 - 110	1	20

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

Matrix Spike (MS-1) Spiked Sample: 263903

QC Batch: 80665 Prep Batch: 68438 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25

Analyzed By: AR Prepared By: AR

Param

Sulfate

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 20 of 24 Chavez County, NM

RPD

0

Limit

20

Rec.

92

Result

136

Limit

90 - 110

Param	F	C	MS Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Matrix Result	Rec.	${ m Rec.} \ { m Limit}$
Sulfate		1	2680	mg/L	100	2750	136	92	90 - 110
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.									
		MS	D		Spike	Matrix	Rec	с.	RPD

Dil.

100

Amount

2750

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

Units

Result

2680

F \mathbf{C}

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 21 of 24

Chavez County, NM

Calibration Standards

Standard (CCV-1)

QC Batch: 80420 Date Analyzed: 2011-04-18 Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	.,	1	mg/L	0.100	0.0933	93	80 - 120	2011-04-18
Toluene		1	m mg/L	0.100	0.0975	98	80 - 120	2011-04-18
Ethylbenzene		1	mg/L	0.100	0.0974	97	80 - 120	2011-04-18
Xylene		1	mg/L	0.300	0.291	97	80 - 120	2011-04-18

Standard (CCV-2)

QC Batch: 80420 Date Analyzed: 2011-04-18 Analyzed By: ME

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.0951	95	80 - 120	2011-04-18
Toluene		1	mg/L	0.100	0.0993	99	80 - 120	2011-04-18
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.0998	100	80 - 120	2011-04-18
Xylene		i	mg/L	0.300	0.298	99	80 - 120	2011-04-18

Standard (ICV-1)

QC Batch: 80664 Date Analyzed: 2011-04-26 Analyzed By: AR

ICVs ICVs ICVs Percent Found Percent Recovery Date True Analyzed Units Conc. Conc. Recovery Limits Param Flag Cert 22.8 90 - 110 2011-04-26 25.0 91 Chloride mg/L

Standard (ICV-1)

QC Batch: 80664 Date Analyzed: 2011-04-26 Analyzed By: AR

Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 22 of 24 Chavez County, NM

Dorom	Flor	Cont	I Imit a	ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	m mg/L	25.0	22.8	91	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80664

Date Analyzed: 2011-04-26

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	\mathbf{Date}
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	23.3	93	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80664

Date Analyzed: 2011-04-26

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	23.3	93	90 - 110	2011-04-26

Standard (ICV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	$_{ m mg/L}$	25.0	23.3	93	90 - 110	2011-04-26

Standard (ICV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

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Work Order: 11041528 Celero/Rock Queen Tract #13 TB Page Number: 23 of 24 Chavez County, NM

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	23.3	93	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Cert	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	23.1	92	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	24.2	97	90 - 110	2011-04-26

Report Date: May 2, 2011 Work Order: 11041528 115-6403132A Celero/Rock Queen Tract #13 TB Page Number: 24 of 24

Chavez County, NM

Appendix

Laboratory Certifications

	Certifying	Certification	Laboratory
\mathbf{C}	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
 - U The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.

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

86 214011; # JUNX

Analysis Request of Chain of	of Custody Record	PAGE: OF: ANALYSIS REQUEST	
TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946	2-3946	Circle or Specify Method No.) Cr Pb Hg Se Vr Pd Hg Se	
ie ro		5 Ba Cd	
ROCK QUEEN Unit Tract !	CONTAIN (M/Y	iles iles Volatilles 8240/82 Volatilles 08 800 08 60.	
LABI.D. DATE TIME E S B B SAMPLE IDENTIFICATION 20 II	BLEX 8051B ICE HUGG HCF HUTEBED (PCRA Meta TCLP Meta TCLP Volati TCLP Volati TCLP Semi PCB's 8080 PcB's 80806 PcB's 80806 P	
303898 413 1100 W x mw-1	X X X X MH	X	
899 (1225 (1 mw.z			
Shz1			
903 4/13 1210 W X mw.6	Y X X X X	X X	
	1 1111111		
UM Date: 4-15-14 RECEVED	(griffure) Date: (17/11)	SAMELED BY: (Prot & Initial) OCL Date: 4-13-4	
Date:	(Signature) Date: Time:	Y: (Circle)* BUS	
e) Date: Time:	(e	TETRA TECH COMPACT PERSON: Results by:	
7.		TOLK KINATO	T
STATE: PHONE:	TIME:		No
O. 6 CINTROLL ACTION AND ACTION TESTS.	1000010		
Please fill out all copies - Laboratory retains Yellow copy - Return	Orginal copy to Tetra Tech - Project Manager retains Pink copy	ains Pink copy - Accounting receives Gold copy.	