

March 29, 2012

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 33 Tank Battery, Located in Unit Letter F, Section 23, Township 13 South, Range 31 East, Chaves County, New Mexico (NMOCD 1RP#1664).

Mr. Von Gonten:

This report details the results of the groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Tract 33 Tank Battery (Site) for June 2009 through December 2011. The Site is located approximately 22 miles north of Maljamar, New Mexico. The Site location is shown on Figures 1 and 2.

FACILITY BACKGROUND

Pit Closure

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

The Tract 33 Tank Battery pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in September 2007. Removed fluids were placed into an existing SWD system or taken for disposal, while the sludge, tank bottom materials, and liner were disposed of at Gandy-Marley, Inc.'s landfill site in Lovington, New Mexico. Upon completion of the removal of the fluids, sludge, and liner, the underlying soils were visually inspected for signs of impact. Approximately 460 cubic yards of soil were excavated and transported to Gandy-Marley, Inc. for disposal. The pit was excavated to a point where the subsoil would support a soil boring rig.

TETRA TECH

On October 12, 2009, a report entitled Assessment and Closure Report for the Pit located at the Rock Queen Unit Track 33 Tank Battery was submitted to the NMOCD. The report detailed the closure of the former pit at the facility.

Groundwater Investigation

Between June 2009 and December 2010, Celero installed four 2-inch monitor wells (MW-1 through MW-4) and one 5-inch recovery well (RW-1) to assess the groundwater quality at the Site. The lithology at the Site was relatively consistent with limestone to approximately 10 to 15 feet bgs and with calcareous sand to very fine grain sand to a depth of approximately 110 to 120 feet bgs. From approximately 110 feet bgs to the terminus (approximately 125 to 150 feet bgs) the soils were a gray to red clay. See Appendix A for Boring Logs.

During the investigation, groundwater was encountered at depths of approximately 111 to 115 feet bgs. Monitor Well MW-1 was drilled into the surrounding underlying clay to 150 feet bgs and installed with 60 feet of 0.02 inch slotted screen. The remaining monitor wells were drilled to depths of 125 feet bgs and installed with 30 feet of 0.02 inch slotted screen. Recovery well RW-1 was drilled to a depth of 120 feet and installed with 20 feet of 0.035 inch slotted screen. From the top of the screen to the surface of the boring, the wells were completed with blank schedule 40 PVC casing. See Appendix B for monitor well installation diagrams.

During the investigation and subsequent sampling, the only constituents of concern which were detected in the groundwater above New Mexico Water Quality Control Commission (NMWQCC) standards was chlorides, TDS, SO4, and in several wells (MW-1 and RW-1), benzene. No Phase Separated Hydrocarbons (PSH) has been measured in any of the onsite monitor wells. See Figure 3 detailing the monitor well locations.

Gauging and Monitor Well Sampling

On December 28, 2009, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged, purged, and sampled with no PSH measured. Utilizing the water level elevation calculations, groundwater gradient maps were generated for the January, April, July, and October, 2011 sampling events. The hydraulic gradient indicates a southwesterly direction. Groundwater gradient maps for the sampling events are included as Figures 4 and 7. Gauging data is summarized in Table 1.

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

TETRA TECH

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. Two samples, MW-1 on January 21, 2011 (0.0121 mg/L) and on July 28, 2011 (0.0114 mg/L) and RW-1 on April 14, 2011 (0.0124 mg/L) had results which exceeded the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. The remainder of the samples was below the NMWQCC standards with a majority being at or below detection limits. Chlorides for the sampling period ranged from 45.4 mg/L in up gradient monitor well MW-2 on October 28, 2011 to 88,700 mg/L in monitor well MW-1 on October 11, 2010. With the exception of MW-2, all additional monitor wells exceeded the NMWQCC standard of 250 mg/L chlorides. The general chemistry and BTEX analyses are shown in Tables 2 and 3, respectively. Chloride concentration maps for the sampling events are included as Figures 6 through 11. Copies of the laboratory analyses are enclosed in Appendix C.

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

CONCLUSIONS

- On December 28, 2009, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged, purged, and sampled. The samples were preserved, delivered to Trace Analysis, Inc. of Midland, Texas and were 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 southwesterly direction.
- 3. Two samples, MW-1 on January 21, 2011 (0.0121 mg/L) and on July 28, 2011 (0.0114 mg/L) and RW-1 on April 14, 2011 (0.0124 mg/L) had results which exceeded the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. The remainder of the samples was below the NMWQCC standards with a majority being at or below detection limits.
- 4. Chloride concentrations exceed the NMWQCC standards of 250 mg/L in all monitor/recover wells with the exception of up gradient MW-2. The chloride concentrations at the site range from 45.4 mg/L in MW-2 on October 28, 2011 to 88,700 mg/L in MW-1 on October 11, 2010, which is near the initial source area.



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.
- 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.



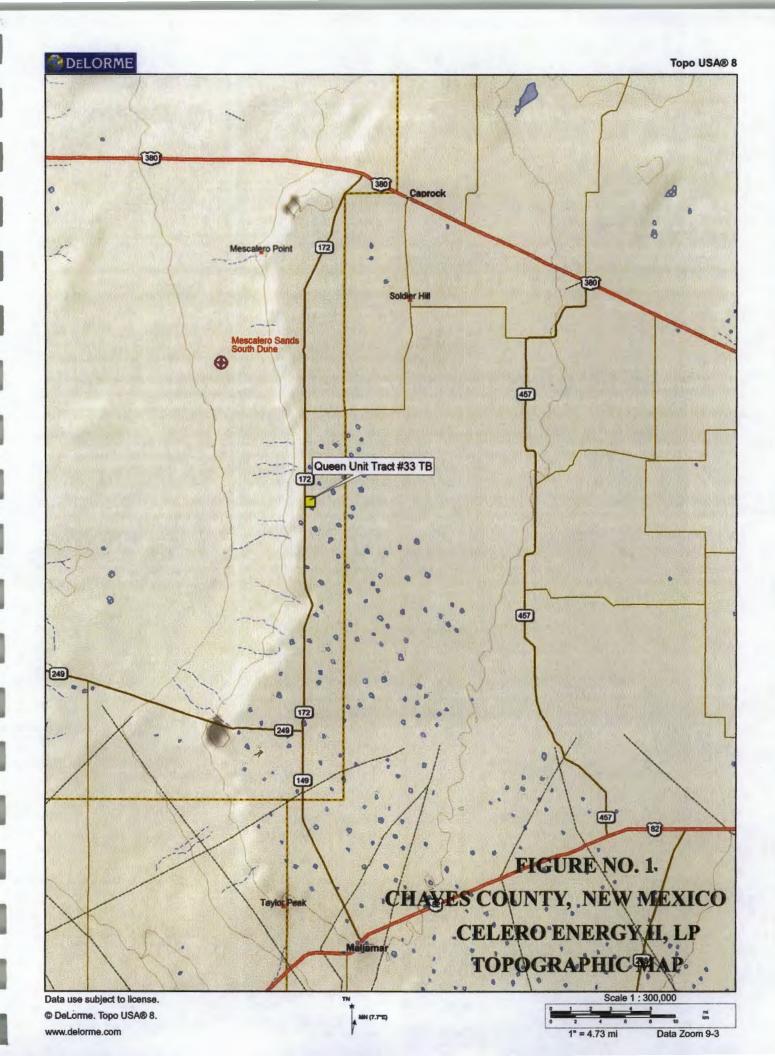
Respectfully submitted, Tetra Tech, Inc.

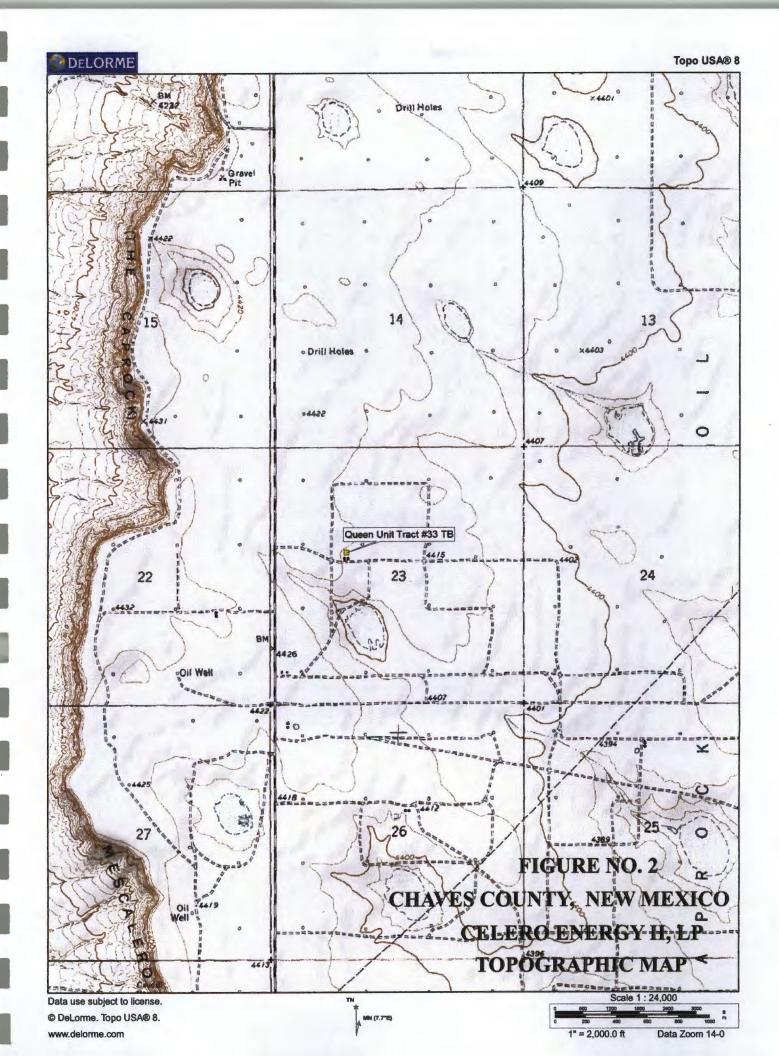
Jeffrey Kindley, P.G.

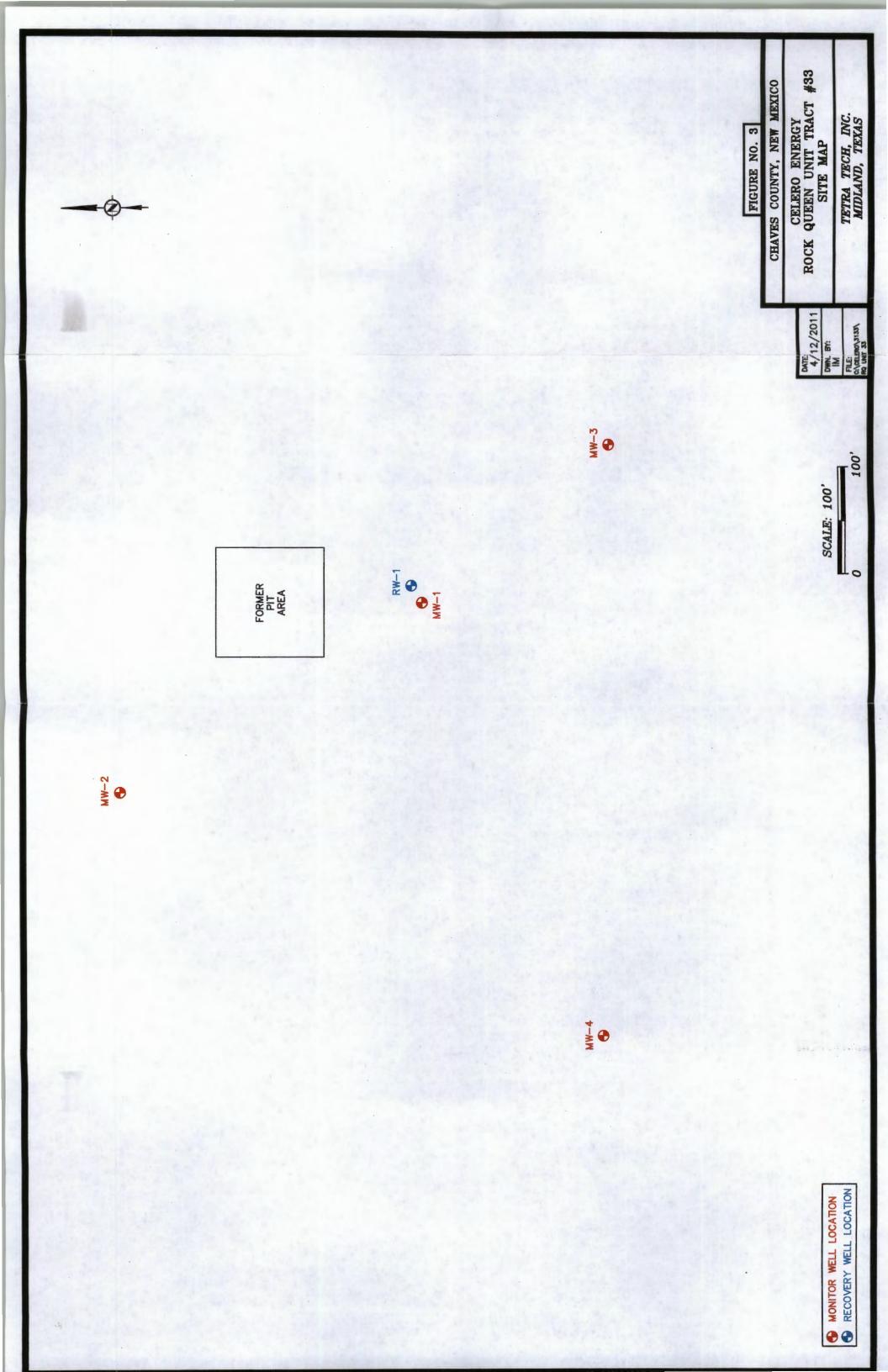
Senior Environmental Geologist

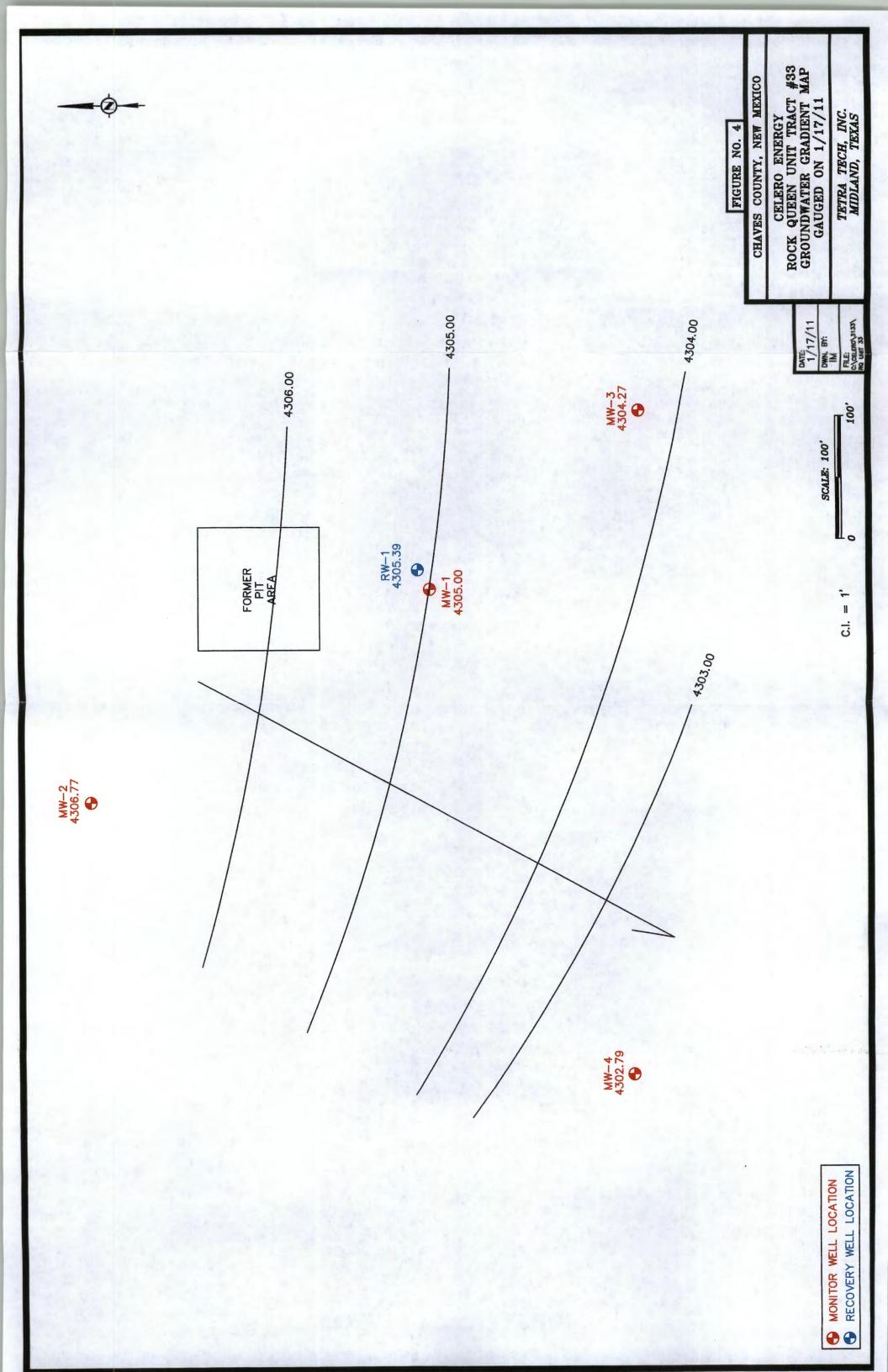
cc: Bruce Woodard - Celero Energy II, LP

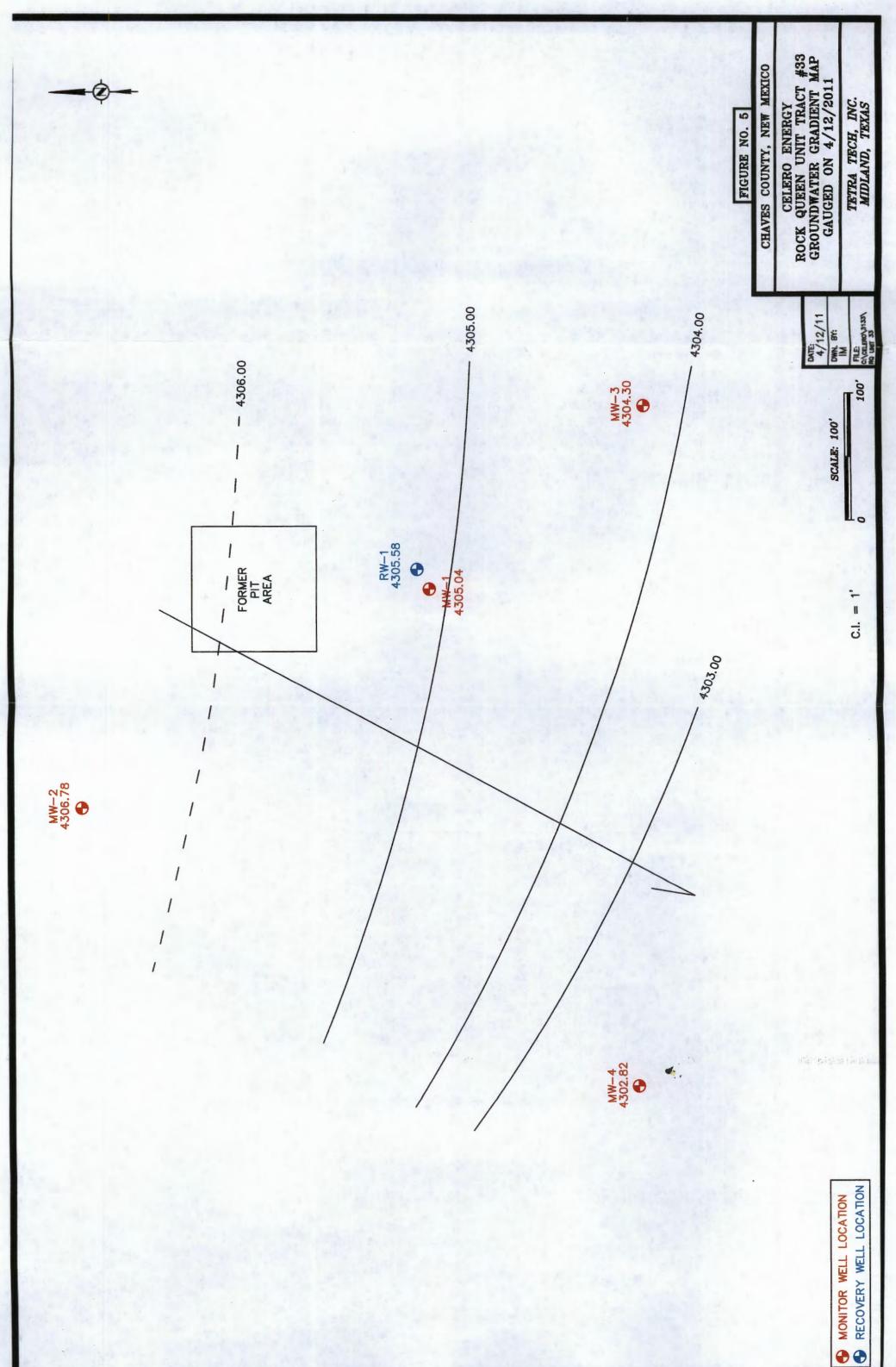
FIGURES

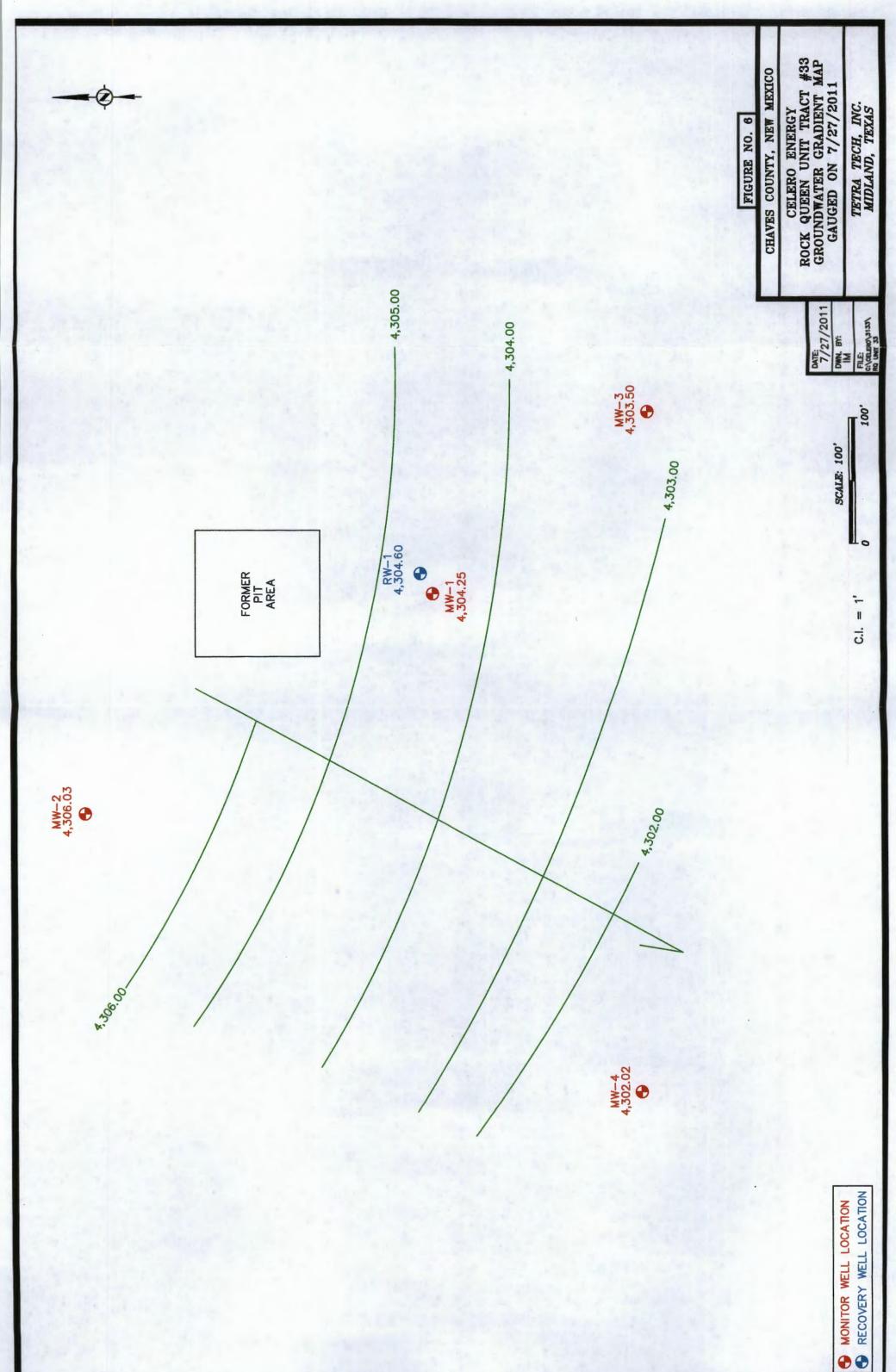


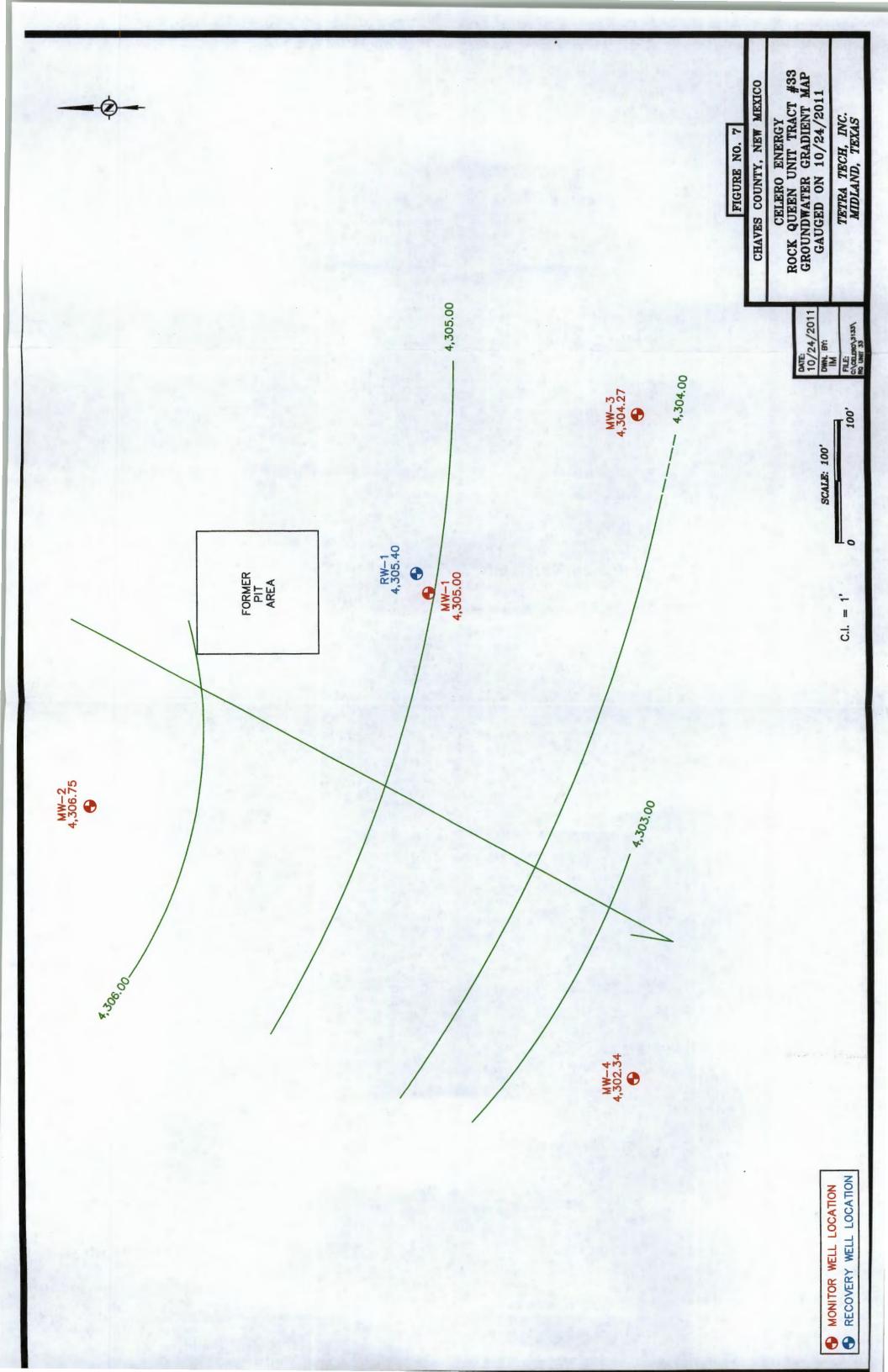












FORMER PIT AREA

MW-1 3,220

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 12/28/09 CHAVES COUNTY, NEW MEXICO FIGURE NO. 8 DATE: 12/28/2009
DMN, BY:
IM
FILE: C:\Columbia
RO UNIT: 33

TETRA TECH, INC. MIDLAND, TEXAS

RESULTS IN mg/L

SCALE: 100'

FIGURE NO. 9
S COUNTY, NEW MEXICO

₩W-1 46,800

FORMER PIT AREA CHAVES COUNTY, NEW MEXICO
CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 02/25/2010

DATE: 2/25/2010 C 2/25/2010 INN. BY: IM. FILE: C-\CGLEPO\3133\

TETRA TECH, INC. MIDLAND, TEXAS

SCALE: 100'

RESULTS IN mg/L

FORMER PIT AREA MW-1 63,500 •

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 07/13/2010 CHAVES COUNTY, NEW MEXICO TETRA TECH, INC. MIDLAND, TEXAS FIGURE NO. 10

DATE: 7/13/2010 DWN. BY: FILE: C:\CELINO\3133\ R0 UNIT 33

SCALE: 100'

RESULTS IN mg/L

FORMER PIT AREA

MW-1 88,700

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/11/2010 CHAVES COUNTY, NEW MEXICO TETRA TECH, INC. MIDLAND, TEXAS FIGURE NO. 11

DATE: 10/11/2010
DWN. BY:
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C:\CELERO\333\\
RO UNT 33

SCALE: 100'

RESULTS IN mg/L

MW-2 55.6

RW-1

FORMER PIT AREA

MW-1 81,200

SCALE: 100'

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 1/21/11

TETRA TECH, INC. MIDLAND, TEXAS

CHAVES COUNTY, NEW MEXICO

FIGURE NO. 12

5,370 €,370

DATE: 1/21/11

DWN. BY:
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RQ UNIT 35

RESULTS IN mg/L NOT SAMPLED

6,510 €,510

RECOVERY WELL LOCATION ◆ MONITOR WELL LOCATION

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 4/14/2011 CHAVES COUNTY, NEW MEXICO TETRA TECH, INC. MIDLAND, TEXAS FIGURE NO. 13 DATE: 4/14/11
DWN. BY:
IM
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RO UNT 35 5,420 €,420 SCALE: 100' RESULTS IN mg/L RW-1 83,700 MW-1 77,400 FORMER PIT AREA MW-2 48.5

◆ MONITOR WELL LOCATION

WW-4 7,410 **⊕**

◆ RECOVERY WELL LOCATION

FORMER PIT AREA

MW-2 55.1

RW-1
MW-1
83,600

6,950 €,950

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 7/28/2011 DATE: 7/28/2011
DMN. BY:
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RQ UNIT 35

SCALE: 100'

RESULTS IN mg/L

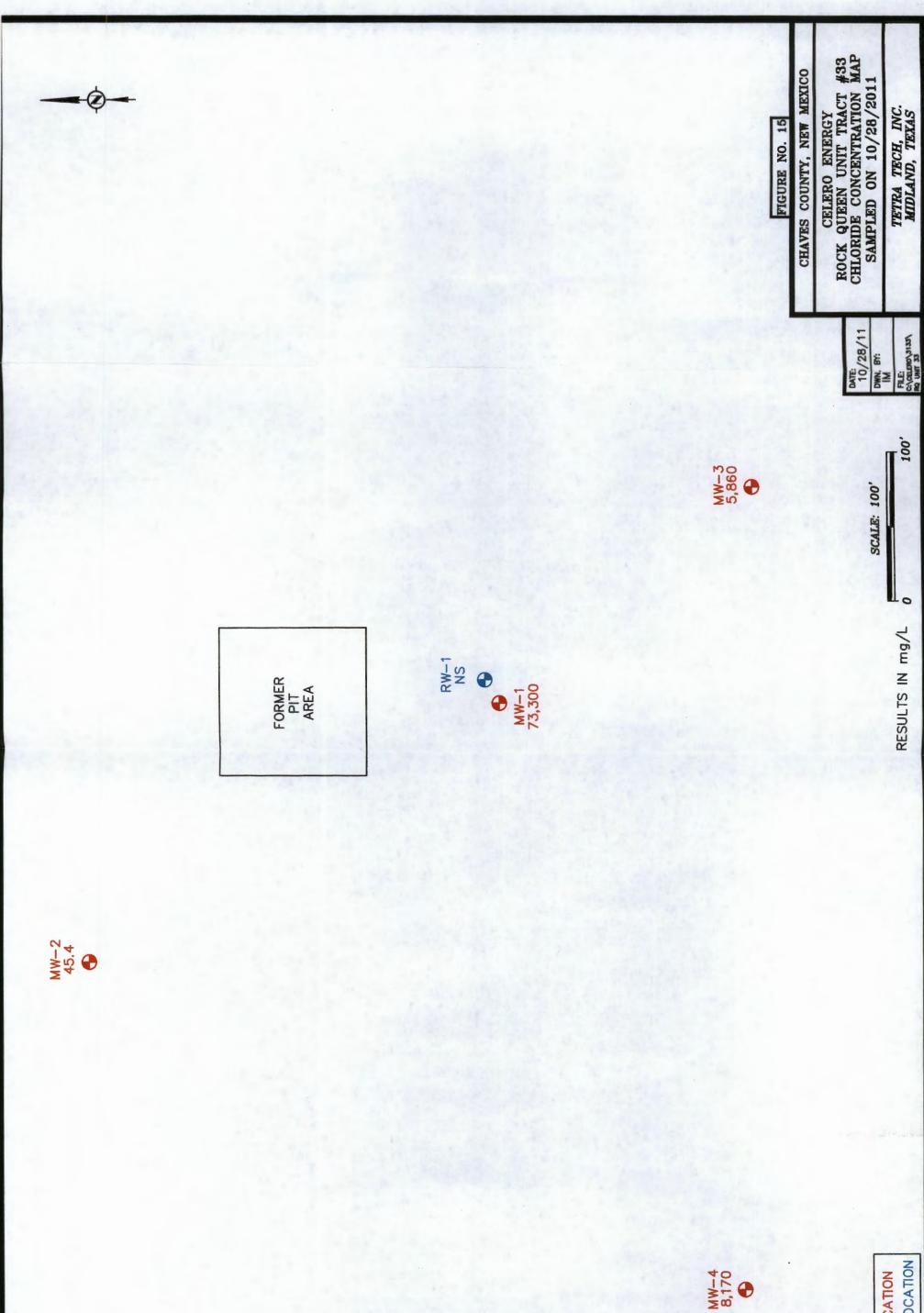
TETRA TECH, INC. MIDLAND, TEXAS

CHAVES COUNTY, NEW MEXICO

FIGURE NO. 14

♣ RECOVERY WELL LOCATION ◆ MONITOR WELL LOCATION

5,450 €,450



♣ MONITOR WELL LOCATION
♣ RECOVERY WELL LOCATION

61231

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract 33 Tank Battery
Chaves County, New Mexico

Monitor	Date	Date Well	TOC Flevation	n Denth of Well	Denth to Groundwater	Groundwater Flevation
Well	Gauged	Installation	(ft)	(bgs in ft)	(#)	(#)
MW-1	12/28/09	12/10/09	4,417.04	153.75	112.14	4,304.90
	02/25/10			153.25	112.09	4,304.95
	07/12/10			153.25	112.07	4,304.97
	10/11/10			153.25	112.11	4,304.93
	01/17/11			153.25	112.04	4,305.00
	04/12/11			153.25	112.00	4,305.04
	07/27/11			153.25	112.79	4,304.25
	10/24/11			153.25	112.04	4,305.00
MW-2	01/17/11	11/30/10	4,417.96	129.00	111.19	4,306.77
	04/12/11			129.00	111.18	4,306.78
	07/27/11			129.00	111.93	4,306.03
	10/24/11			129.00	111.21	4,306.75
MW-3	01/17/11	11/18/10	4,416.05	129.53	111.78	4,304.27
	04/12/11			129.53	111.75	4,304.30
	07/27/11			129.53	112.55	4,303.50
	10/24/11			129.53	111.78	4,304.27
MW-4	01/17/11	11/30/10	4,417.87	128.45	115.08	4,302.79
	04/12/11			128.45	115.05	4,302.82
	07/27/11			128.45	115.85	4,302.02
	10/24/11			128.45	115.13	4,302.74
RW-1	01/17/11	12/06/10	4,416.61	128.65	111.22	4,305.39
	04/12/11			128.65	111.03	4,305.58
	07/27/11			128.65	112.01	4,304.60
	10/24/11			128.65	111.21	4,305.40

Celero Energy II, LP Table 2

Groundwater Analytical Results

Rock Queen Unit Tract #33 Tank Battery Chaves County, New Mexico

(mg/L) 3,220 5,430 46,800 90,100 63,500 102,000 81,200 134,000 77,400 116,000 83,600 124,000 77,400 116,000 83,600 124,000 55.6 2,010 55.6 2,010 55.1 576 45.4 566 5,370 10,600 5,420 6,180 6,510 11,100 6,510 18,400 7,410 25,400 8,170 15,600 NS NS NS NS	Dissolved Dissolved	-	Dissolve	ļ.	Dissolved	Dissolved	Hydroxide	roxide Carbonate Bica	Bicarbonate	Total					
<1,00	Sampled Calcium Magnesium Sodium Potassium A (mg/L) (mg/L) (mg/L)	Magnesium Sodium Potassium (mg/L) (mg/L) (mg/L)	Sodium Potassium (mg/L) (mg/L)	Potassium (mg/L)		•	Jkalinity (mg/L)	Alkalinity (mg/L)	Alkalinity (mg/L)	Alkalinity (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	-	Æ
C C C C C C C C C C	12/28/09 607 156 1,080 13.3	156 1,080	1,080		13.3		<1.00	<1.00	134	134	66.3	3,220	5,430	2,160	7.33
	02/25/10 8,440 3,140 13,700 185.0	3,140 13,700	13,700		185.0		<1.00	<1.00	86	86	604	46,800	90,100	34,000	6.44
1,070 14,000 14,000 1,			,	,	,			•		,	613	63,500	102,000		
1,050 81,200 134,000 1,010 77,400 116,000 1,010 77,400 116,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 73,300 120,000 1,070 83,700 83,70							ı	,	ı	•	1,070	88,700	161,000		•
1,010 77,400 116,000 1,070 77,400 116,000 1,070 77,300 120,000 11,24 55.6 2,010 1133 48.5 540 171 55.1 576 173 45.4 566 173 45.4 566 132 5,420 6,180 132 5,420 6,180 143 5,860 11,100 <	01/21/11						,	,	,	,	1,050	81,200	134,000		•
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1,070 73,300 120,000 124 55.6 2,010 124 55.6 2,010 133 48.5 544 163 55.1 576 163 5,420 6,180 126 5,420 6,180 126 5,420 6,180 126 5,420 6,180 126 6,950 9,820 125 6,950 9,820 230 6,510 11,100 236 7,410 25,400 324 8,170 15,600 <t< td=""><th>07/28/11</th><td></td><td></td><td></td><td></td><td></td><td>•</td><td>,</td><td>,</td><td>ı</td><td>1,080</td><td>83,600</td><td>124,000</td><td>,</td><td>,</td></t<>	07/28/11						•	,	,	ı	1,080	83,600	124,000	,	,
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- - - 133 48.5 544 - - - - 171 55.1 576 - - - - 163 45.4 566 - - - - 132 5,370 10,600 - - - - 126 5,420 6,180 - - - - - 126 5,420 6,180 - - - - - - 143 5,860 11,100 - - - - - - - - 143 5,860 11,100 -				,			,	,			124	9:29	2,010	,	t
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. .	07/28/11			•							171	55.1	9/9		
- - - 132 5,370 10,600 - - - - 126 5,420 6,180 - - - - 126 5,420 6,180 - - - - 143 5,860 11,100 - - - - 230 6,510 18,400 - - - - 236 7,410 25,400 - - - - 236 5,450 12,700 - - - - 324 8,170 15,600 - - - - - 324 8,170 15,600 - - - - - 324 8,170 15,600 - - - - - 324 8,170 15,600 - - - - - - - - - - - - - - - - - - - -<	10/28/11	,		•			-		-		163	45.4	566	,	-
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324 8,470 12,700 324 8,170 15,600 1,070 NS				,				ı	,	1	236	7,410	25,400		
	07/28/11										258	5,450	12,700		
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1,070 83,700 122,000 - NS			,	,	•		-	1	ı	,	NS	SN	SN		,
NS N	04/14/11	•	•				,	ı	,	,	1,070	83,700	122,000		•
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	10/28/11 NS NS NS NS	SN	SN		SN		SN	SN	NS	NS	NS	SN	SN	SN	NS

NS - Not sampled

(-) Not analyzed

Table 3
Celero Energy II, LP
Groundwater Analytical Results

Rock Queen Unit Tract 33 Tank Battery

Chaves County, New Mexico

		Benzene	Toluene	Ethyl-	Xylene	Total
Monitor Well	Date Sampled	in	in	Benzene	in	BTEX
	:	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	12/28/09	<0.001	<0.001	<0.001	<0.001	<0.001
	02/25/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	0.002	0.0015	<0.001	<0.001	0.0035
	10/11/10	0.0048	<0.001	<0.001	<0.001	0.0048
	01/21/11	0.0121	0.0066	<0.001	<0.001	0.0187
	04/14/11	0.0076	<0.001	<0.001	<0.001	0.0076
	07/28/11	0.0114	<0.001	<0.001	<0.001	0.0114
	10/28/11	0.0020	<0.0010	<0.0010	0.0365	0.0385
MW-2	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-3	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-4	01/21/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
RW-1	01/21/11	NS	NS	NS	NS	NS
	04/14/11	0.0124	0.007	<0.001	0.0176	0.0370
	07/28/11	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS

NS - Not sampled

APPENDIX A BORING LOGS

Boring/Well

MW-1

GPS

N33.17699°

W103.79569°

Project Number

115-6403133A

Client

Celero Energy II, LP

Site Name

Rock Queen Unit Tract 33 Tank Battery

Site Location

Chaves, New Mexico

Letter F, Section 23, Township 13 South, Range 31 East

Total Depth

150

Date Installed

12/10/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6		Very Hard limestone with chert
10-11		Very Hard limestone with chert
15-16		Very Hard limestone with chert
20-21		Calcareous sand - very fine grain
25-26		Calcareous sand - very fine grain
30-31		Calcareous sand - very fine grain
35-36		Calcareous sand - very fine grain
40-41		Calcareous sand - very fine grain
45-46		Calcareous sand - very fine grain
50-51		Calcareous sand - very fine grain
55-56		Tan fine grain sand
60-61		Tan fine grain sand
65-66		Tan fine grain sand
70-71		Tan fine grain sand
75-76		Tan fine grain sand
80-81		Tan fine grain sand
85-86		Tan fine grain sand
90-91		Tan fine grain sand
95-96		Tan fine grain sand
100-101		Tan fine grain sand
105-106		Tan fine grain sand
110-111		Sandy grey clay <10% clay
115-116		Grey clay
120-121		Grey clay and Reddish clay mix
125-126		Grey hard pack clay

Boring/Well

MW-1

GPS

N33.17699°

W103.79569°

Project Number

115-6403133A

Client

Celero Energy II, LP

Site Name

Rock Queen Unit Tract 33 Tank Battery

Site Location

Chaves, New Mexico

Letter F, Section 23, Township 13 South, Range 31 East

Total Depth

150

Date installed

12/10/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
130-131		Grey hard pack clay
135-136		Grey hard pack clay (1st sign of red clay)
140-141		Grey and red hard pack clay mix
145-146		Grey and red hard pack clay mix
150-151		Red clay

Total Depth:

150'

Ground water depth not encountered while drilling.

Boring/Well

MW-2

GPS

N33.17770°

W103.79613°

Project Number

115-6403133A

Client

Celero Energy II, LP

Site Name

Rock Queen Unit Tract #33 Tank Battery

Site Location

Chaves, New Mexico

Letter F, Section 23, Township 13 South, Range 31 East

Total Depth

125'

Date Installed

11/30/10

Depth (Ft)	OVM	Sample Description
5-6'		Caliche and 25% Chert
10-11'		Caliche with Buff Fine Grained Sand
15-16'		Buff Tan Fine Grained Well Sorted Sand
20-21'		Buff Tan Fine Grained Well Sorted Sand
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'		Light Brown Fine Grain Well Sorted Sand
45-46'		Light Brown Fine Grain 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 with 30% Subangular Gravel
110-111'		Light Brown Fine Grain Well Sorted Sand with Grey Clay and Gravel
115-116'		Light Brown Fine Grain Well Sorted Sand with Grey Clay and Gravel
120-121'		Grey Brown Clay
125'		Grey Brown Clay with Red Bed

Total Depth:

125'

Ground water depth not encountered while drilling.

Boring/Well

MW-3

GPS

N33.17653°

W103.79504°

Project Number

115-6403133A

Client

Celero Energy II, LP

Site Name

Rock Queen Unit Tract #33 Tank Battery

Site Location

Chaves, New Mexico

Letter F, Section 23, Township 13 South, Range 31 East

Total Depth

125'

Date Installed

11/18/10

Depth (Ft)	OVM	Sample Description
5-6'		Caliche and 15% Chert
10-11'		Caliche
15-16'		Buff Fine Grain Sand with 25% Caliche
20-21'		Tan Fine Grain Well Sorted Sand with 20% Caliche
25-26'		Tan Fine Grain Well Sorted Sand with 15% Caliche
30-31'		Buff Fine Grain Well Sorted Sand with 50% Caliche
35-36'		Buff Fine Grain Well Sorted Sand with 40% Caliche
40-41'		Buff Fine Grain Well Sorted Sand with 40% Caliche
45-46'		Buff Fine Grain Well Sorted Sand with 40% Caliche
50-51'		Light Brown Fine Grain Well Sorted Sand with 20% Caliche
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 with Blue Grey Clay with Lm
110-111'		Light Brown Fine Grain Well Sorted Sand with Blue Grey Clay with Lm
115-116'		Light Brown Fine Grain Well Sorted Sand with Blue Grey Clay with Lm
120-121'		Blue Grey Clay with Red Bed
125'		Red Bed with Blue Grey Clay

Total Depth:

125'

Ground water depth not encountered while drilling.

Boring/Well MW-4

GPS N33.17656° W103.79679°

Project Number 115-6403133A

Client Celero Energy II, LP

Site Name Rock Queen Unit Tract #33 Tank Battery

Site Location Chaves, New Mexico

Letter E, Section 23, Township 13 South, Range 31 East

Total Depth 125'
Date Installed 11/30/10

Depth (Ft) OVM **Sample Description** 5-6' Caliche and 30% Chert 10-11' Caliche and 45% Chert Caliche and 30% Chert 15-16' 20-21' Caliche and Chert with Buff Fine Grained Well Sorted Sand Buff Fine Grain Well Sorted Sand 25-26' 30-31' Buff Fine Grain Well Sorted Sand 35-36' Buff Fine Grain Well Sorted Sand 40-41' Buff Fine Grain Well Sorted Sand Buff Fine Grain Well Sorted Sand 45-46' 50-51' Light Brown Fine Grain Well Sorted Sand Light Brown Fine Grain Well Sorted Sand 55-56' 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 Light Brown Fine Grain Well Sorted Sand 95-96' 100-101' Light Brown Fine Grain Well Sorted Sand 105-106' Light Brown Fine Grain Well Sorted Sand --Light Brown Fine Grain Well Sorted Sand with Subangular Gravel 110-111' Light Brown Fine Grain Well Sorted Sand with Subangular Gravel and Red 115-116' 120-121' Red Bed with Subangular Gravel 125' Red Bed

Total Depth: 125' Ground water depth not encountered while drilling.

Boring/Well

RW-1

GPS

N33.176878° W103.794975°

Project Number

115-6403133A

Client

Celero Energy II, LP

Site Location

Rock Queen Unit Tract #33 Tank Battery

Location

Chaves, New Mexico

Letter F, Section 23, Township 13 South, Range 31 East

Total Depth

120'

Date Installed:

12/06/10 to 12/07/10

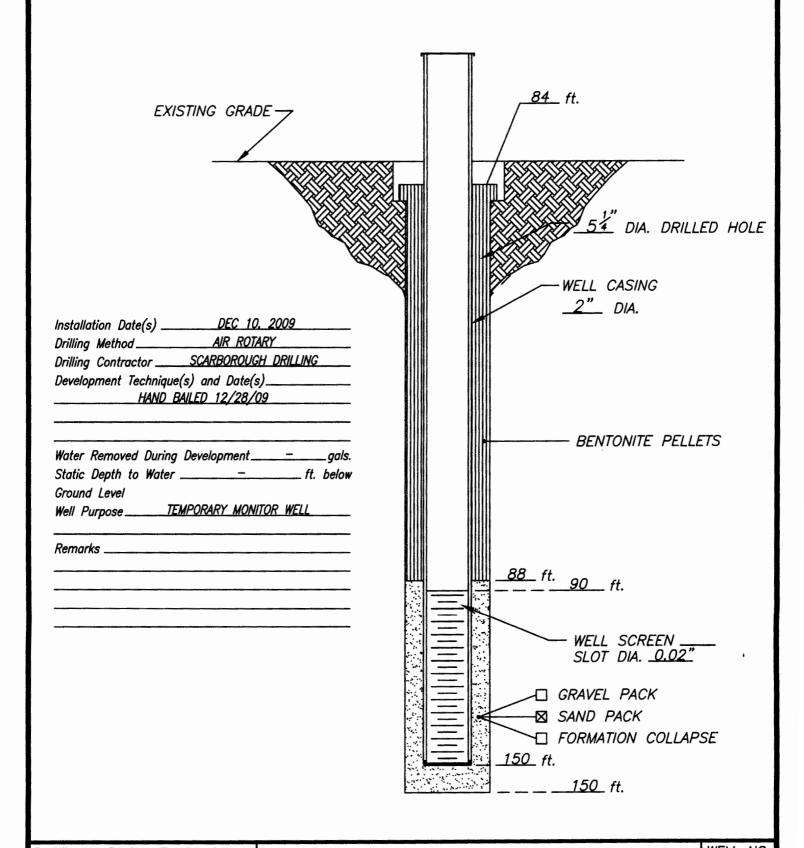
DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6		Buff hard limestone
10-11		Buff to tan sandy limestone
15-16		Buff hard limestone
20-21		Tan calcareous fine grain sand
25-26		Tan calcareous fine grain sand
30-31		Tan calcareous fine grain sand
35-36		Tan fine grain sand
40-41		Tan fine grain sand
45-46		Tan fine grain sand
50-51		Tan fine grain sand
55-56		Tan fine grain sand
60-61		Tan fine grain sand
65-66		Tan fine grain sand
70-71		Tan fine grain sand
75-76		Tan fine grain sand
80-81		Tan fine grain sand
85-86		Tan fine grain sand
90-91		Tan fine grain sand
95-96		Tan fine grain sand
100-101		Tan fine grain sand
105-106		Tan fine grain sand with gravel
110-111		Tan fine grain sand
115-116		Tan to gray clay of high plasticity
120-121		Tan to gray clay of high plasticity

Total Depth:

120'

Groundwater depth not encountered while drilling.

APPENDIX B MONITOR WELL INSTALLATION DIAGRAMS



DATE: DEC. 23, 2009

TETRA TECH, INC.

MIDLAND, TEXAS

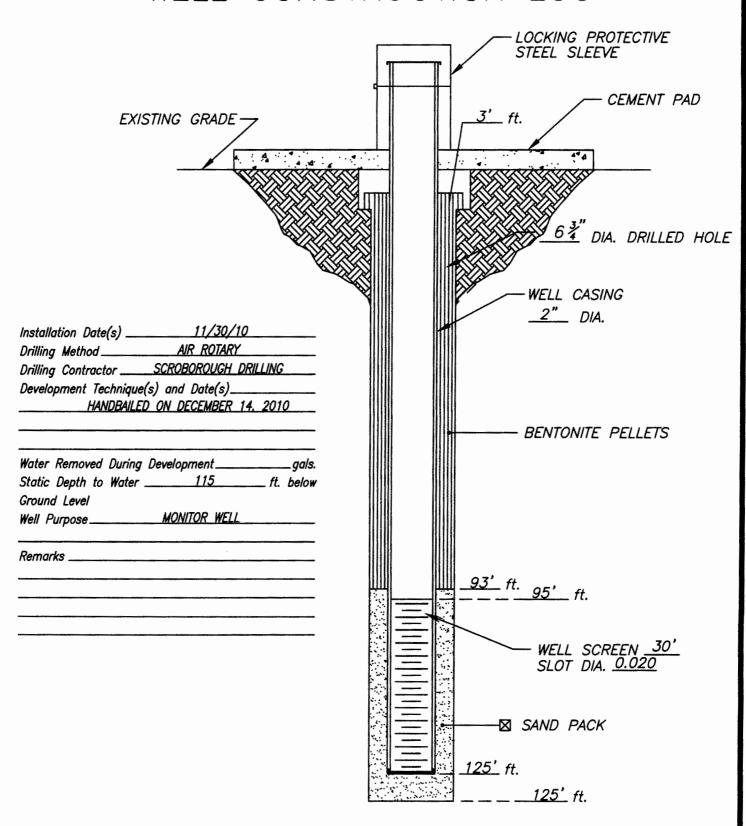
CLIENT: CELERO ENERGY II, LP

PROJECT: ROCK QUEEN UNIT TRACT #33

LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-1



DATE: 11/30/10

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

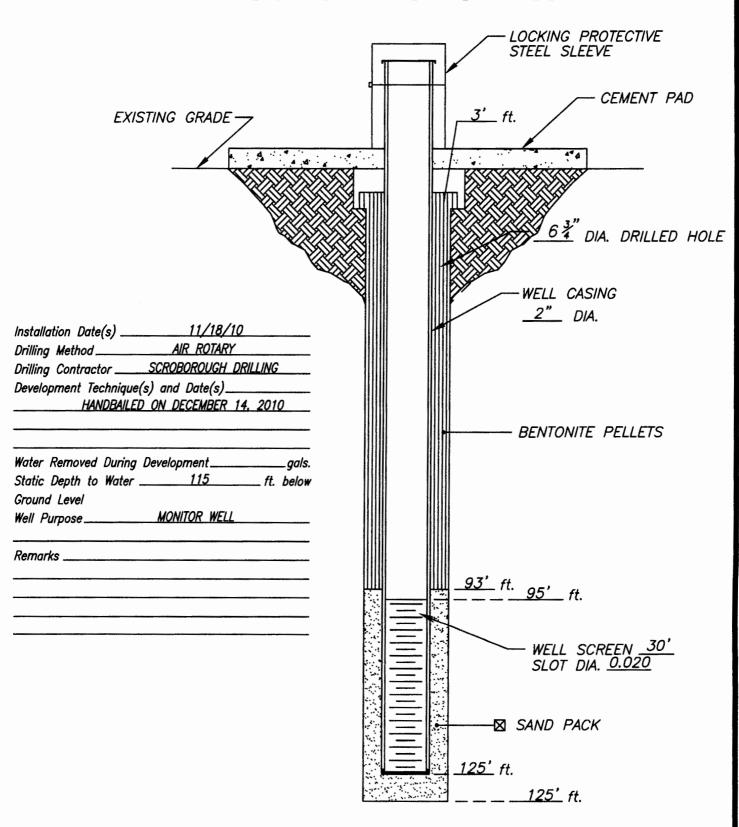
PROJECT: ROCK QUEEN UNIT TRACT #33

LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

MW-2

115-6403133



DATE: 11/18/10

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

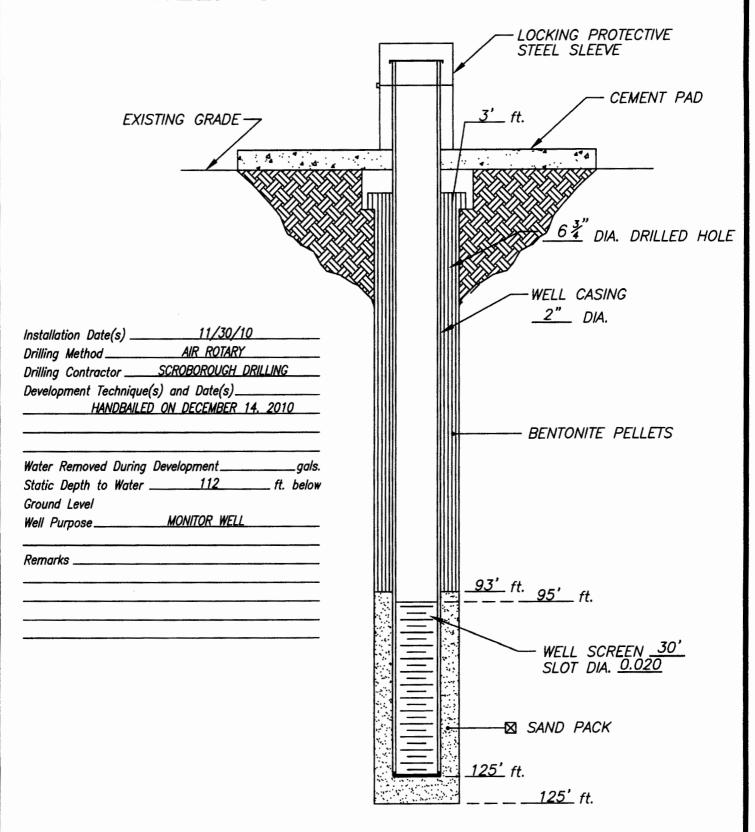
PROJECT: ROCK QUEEN UNIT TRACT #33

LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

MW-3

115-6403133



TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC

PROJECT: ROCK QUEEN UNIT TRACT #33

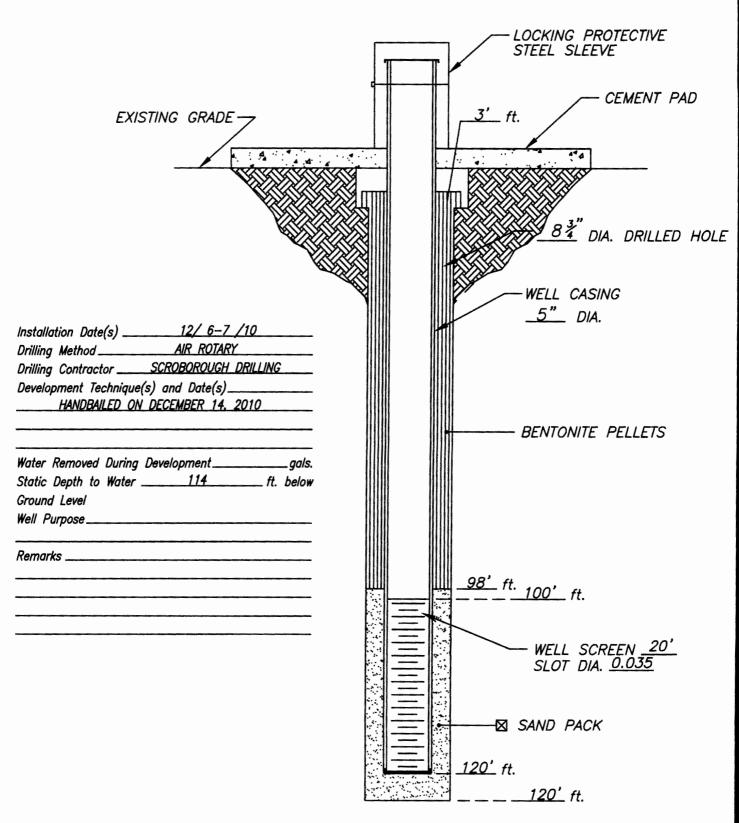
LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

MW-4

115-6403133

WELL CONSTRUCTION LOG



TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC

PROJECT: ROCK QUEEN UNIT TRACT #33

LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

RW-1

115-6403133

APPENDIX C LABORATORY ANALYSIS



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suita E

5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132

Lubbock, Texas 79424 800 • 378 • 1296 El Paso, Texas 79922 888 • 588 • 3443 Midland, Texas 79703

915 • 585 • 3443 432 • 689 • 6301 817 • 201 • 5260

FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

E-Mail: lab@traceanalysis.com

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: January 7, 2010

Work Order:

9122910

Project Name:

Project Location: Chavez County, NM Celero/Tract 33 TB

Project Number:

114-6403133

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

Date Time Date Taken Received Sample Description Matrix Taken 2009-12-28 14:00 2009-12-29 218520 TMW-1 water

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/Tract 33 TB were received by TraceAnalysis, Inc. on 2009-12-29 and assigned to work order 9122910. Samples for work order 9122910 were received intact without headspace and at a temperature of 2.1 deg. C.

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

		\mathbf{Prep}	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
Alkalinity	SM 2320B	56729	2009-12-30 at 12:20	66366	2009-12-30 at 14:20
BTEX	S 8021B	56863	2010-01-06 at 11:00	66515	2010-01-06 at 12:46
Ca, Dissolved	S 6010B	56807	2010-01-05 at 13:18	66490	2010-01-06 at 14:02
Chloride (IC)	E 300.0	56732	2009-12-30 at 11:39	66392	2009-12-30 at 17:04
Hardness	S 6010B	56807	2010-01-05 at 13:18	66490	2010-01-06 at 14:02
K, Dissolved	S 6010B	56807	2010-01-05 at 13:18	66490	2010-01-06 at 14:02
Mg, Dissolved	S 6010B	56807	2010-01-05 at 13:18	66490	2010-01-06 at 14:02
Na, Dissolved	S 6010B	56807	2010-01-05 at 13:18	66490	2010-01-06 at 14:02
pН	SM 4500-H+	56717	2009-12-29 at 15:30	66350	2009-12-29 at 15:45
SO4 (IC)	$\to 300.0$	56732	2009-12-30 at 11:39	66392	2009-12-30 at 17:04
TDS	SM 2540C	56731	2009-12-30 at 12:35	66452	2010-01-05 at 12:34

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 9122910 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.

114-6403133

Work Order: 9122910 Celero/Tract 33 TB

Page Number: 4 of 15 Chavez County, NM

Analytical Report

Sample: 218520 - TMW-1

Laboratory:

Midland

Analysis: QC Batch:

66366

Alkalinity

Analytical Method: Date Analyzed:

SM 2320B

2009-12-30

Prep Method: N/A

Analyzed By: AR

Prep Batch: 56729

Sample Preparation: 2009-12-30

Prepared By:

AR

		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		134	mg/L as CaCo3	1	4.00
Total Alkalinity		134	mg/L as CaCo3	1	4.00

Sample: 218520 - TMW-1

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch: 56863

BTEX 66515

Analytical Method: Date Analyzed:

S 8021B 2010-01-06 Prep Method: S 5030B

Analyzed By: \mathbf{AG} Prepared By: AG

RL

		1013			
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

Sample Preparation: 2009-01-06

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.109	mg/L	1	0.100	109	70.9 - 129.8
4-Bromofluorobenzene (4-BFB)		0.101	${ m mg/L}$	1	0.100	101	57.1 - 118.8

Sample: 218520 - TMW-1

Laboratory:

Lubbock

Analysis: QC Batch:

Prep Batch: 56807

Cations 66490

Analytical Method: Date Analyzed:

S 6010B 2010-01-06 Sample Preparation: 2010-01-05

S 3005A Prep Method: Analyzed By: RRPrepared By: KV

RL

Parameter	Flag	Result	Units	Dilution	RL
Dissolved Calcium		607	mg/L	10	1.00

 $continued \dots$

114-6403133			Celero/Tra	ct 33 TB	TB Chavez Cour	
sample 218520	0 continued					
			RL			
Parameter		Flag	Result	Units	Dilution	RL
Dissolved Pota			13.3	mg/L	1	1.00
Dissolved Mag			156	mg/L	1	1.00
Dissolved Sodi	ium		1080	mg/L	10	1.00
Sample: 218	520 - TMW	-1				
-	Midland			_		
	Chloride (IC)	•	Analytical Method:		Prep Method:	N/A
•	66392		Date Analyzed:	2009-12-30	Analyzed By:	AR
Prep Batch:	56732		Sample Preparation	n: 2009-12-30	Prepared By:	AR
	_	Flag	RL Result	Units	Dilution	m RL
Parameter	F	עאוי				
Chloride			3220	mg/L	100	
Chloride Sample: 2185 Laboratory: I Analysis: I QC Batch: 6	520 - TMW					
QC Batch: 6	520 - TMW Lubbock Hardness 66490		3220 Analytical Method: Date Analyzed:	mg/L S 6010B 2010-01-06	100 Prep Method: Analyzed By:	0.500 N/A RR
Chloride Sample: 2188 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5	520 - TMW Lubbock Hardness 66490 56807		3220 Analytical Method: Date Analyzed: Sample Preparation:	mg/L S 6010B 2010-01-06 2010-01-05	100 Prep Method: Analyzed By:	0.500 N/A RR
Chloride Sample: 2185 Laboratory: I Analysis: I QC Batch: 6	520 - TMW Lubbock Hardness 66490 56807	-1	3220 Analytical Method: Date Analyzed: Sample Preparation: RL	mg/L S 6010B 2010-01-06 2010-01-05	Prep Method: Analyzed By: Prepared By:	0.500 N/A RR KV
Chloride Sample: 2185 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5 Parameter Hardness (by I	520 - TMW Lubbock Hardness 66490 56807	-1 Flag	3220 Analytical Method: Date Analyzed: Sample Preparation: RL Result	mg/L S 6010B 2010-01-06 2010-01-05	100 Prep Method: Analyzed By: Prepared By: Dilution	0.500 N/A RR KV
Chloride Sample: 2185 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5 Parameter Hardness (by I Sample: 2185	520 - TMW Lubbock Hardness 66490 56807	-1 Flag	3220 Analytical Method: Date Analyzed: Sample Preparation: RL Result	mg/L S 6010B 2010-01-06 2010-01-05	100 Prep Method: Analyzed By: Prepared By: Dilution	0.500 N/A RR KV
Chloride Sample: 2188 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5 Parameter Hardness (by I Sample: 2185 Laboratory: M	520 - TMW Lubbock Hardness 66490 56807 [CP) 520 - TMW Midland	-1 Flag	Analytical Method: Date Analyzed: Sample Preparation: RL Result 2160	mg/L S 6010B 2010-01-06 2010-01-05 Units mg eq CaCO3/L	Prep Method: Analyzed By: Prepared By: Dilution	0.500 N/A RR KV RL 0.00
Chloride Sample: 2186 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5 Parameter Hardness (by I Sample: 2185 Laboratory: M Analysis: p	520 - TMW Lubbock Hardness 66490 56807 [CP) 520 - TMW Midland pH	-1 Flag	Analytical Method: Date Analyzed: Sample Preparation: RL Result 2160 Analytical Method:	mg/L S 6010B 2010-01-06 2010-01-05 Units mg eq CaCO3/L	Prep Method: Analyzed By: Prepared By: Dilution 1	0.500 N/A RR KV RL 0.00
Chloride Sample: 2186 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5 Parameter Hardness (by I Sample: 2185 Laboratory: M Analysis: I QC Batch: 6	520 - TMW Lubbock Hardness 66490 56807 [CP) 520 - TMW Midland	-1 Flag	Analytical Method: Date Analyzed: Sample Preparation: RL Result 2160 Analytical Method: Date Analyzed:	mg/L S 6010B 2010-01-06 2010-01-05 Units mg eq CaCO3/L	Prep Method: Analyzed By: Prepared By: Dilution	0.500 N/A RR KV RL 0.00
Chloride Sample: 2186 Laboratory: I Analysis: I QC Batch: 6 Prep Batch: 5 Parameter Hardness (by I Sample: 2185 Laboratory: M Analysis: I QC Batch: 6	520 - TMW Lubbock Hardness 66490 56807 CCP) 520 - TMW Midland pH 66350 56717	-1 Flag	Analytical Method: Date Analyzed: Sample Preparation: RL Result 2160 Analytical Method: Date Analyzed:	mg/L S 6010B 2010-01-06 2010-01-05 Units mg eq CaCO3/L SM 4500-H+ 2009-12-29	Prep Method: Analyzed By: Prepared By: Dilution 1 Prep Method: Analyzed By:	N/A RR KV RL 0.00

Work Order: 9122910

Page Number: 5 of 15

Report Date: January 7, 2010

Celero/Tract 33 TB Chavez County, NM 114-6403133 Sample: 218520 - TMW-1 Laboratory: Midland E 300.0 Prep Method: N/A Analysis: SO4 (IC) Analytical Method: QC Batch: 66392 Date Analyzed: 2009-12-30 Analyzed By: AR Prep Batch: 56732 Sample Preparation: 2009-12-30 Prepared By: ARRLResult Units Dilution RLParameter Flag 0.500 99.3 mg/L Sulfate 5 Sample: 218520 - TMW-1 Laboratory: Midland Analytical Method: SM 2540C Prep Method: N/A Analysis: TDS Analyzed By: AR QC Batch: 66452 Date Analyzed: 2010-01-05 Prep Batch: 56731 Sample Preparation: 2009-12-30 Prepared By: ARRLParameter Flag Result Units Dilution RLTotal Dissolved Solids 5430 mg/L 5 10.0 QC Batch: 66366 Method Blank (1) QC Batch: 66366 Date Analyzed: 2009-12-30 Analyzed By: ARPrep Batch: 56729 QC Preparation: 2009-12-30 Prepared By: ARMDL Parameter Flag Result Units RLHydroxide Alkalinity <1.00 mg/L as CaCo3 1 Carbonate Alkalinity < 1.00 mg/L as CaCo3 1 < 4.00 mg/L as CaCo3 4 Bicarbonate Alkalinity mg/L as CaCo3 4 Total Alkalinity < 4.00Method Blank (1) QC Batch: 66392 2009-12-30 Analyzed By: QC Batch: 66392 Date Analyzed: ARQC Preparation: 2009-12-30 Prepared By: AR Prep Batch: 56732

MDL

1.37

Result

Units

mg/L

RL

0.5

Flag

Parameter Chloride

Work Order: 9122910

Page Number: 6 of 15

Report Date: January 7, 2010

Report Date: January 114-6403133	7, 2010		der: 9122910 Fract 33 TB		Page Number: 7 of 15 Chavez County, NM		
Method Blank (1)	QC Batch: 66392						
QC Batch: 66392 Prep Batch: 56732		Date Analyzed: QC Preparation:	2009-12-30 2009-12-30		Analyzed By: Prepared By:	AR AR	
			fDL .				
Parameter Sulfate	Parameter Flag Sulfate		sult .217	Units mg/L		RL 0.5	
Method Blank (1)	QC Batch: 66452						
*		Date Analyzed: QC Preparation:	2010-01-05 2009-12-30		Analyzed By: Prepared By:	AR AR	
	77		MDL	**		DI	
Parameter I Total Dissolved Solids		ag	Result <9.75	Units mg/L		$\frac{\text{RL}}{10}$	
Method Blank (1) QC Batch: 66490 Prep Batch: 56807	QC Batch: 66490	Date Analyzed: QC Preparation:	2010-01-06 2010-01-05		Analyzed By: Prepared By:	RR KV	
Parameter	Fla	g	$rac{ ext{MDL}}{ ext{Result}}$	Units		RL	
Dissolved Calcium Dissolved Potassium			<0.117 <0.172	mg/L mg/L	M. J.	1 1	
Dissolved Magnesium Dissolved Sodium			<0.160 <0.0500	mg/L mg/L		1	
Method Blank (1)	QC Batch: 66515						
QC Batch: 66515 Prep Batch: 56863		Date Analyzed: QC Preparation:	2010-01-06 2010-01-06		Analyzed By: Prepared By:	AG AG	
Parameter	Flag	1	MDL Result	Units		RL	
Benzene	1 145	<0.0	00300	mg/L		0.001	
Toluene Ethylhannana			00200	mg/L		0.001	
Ethylbenzene		<0.0	00200	mg/L	continu	$\frac{0.001}{ed}$	

114-6403133

Work Order: 9122910 Celero/Tract 33 TB

Page Number: 8 of 15 Chavez County, NM

method	blank	continued	
HACGIGOU	CHELLIAN	CUILLUIGECU	

		MDL		
Parameter	Flag	Result	Units	RL
Xylene		< 0.000900	mg/L	0.001

					\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.110	mg/L	1	0.100	110	73.6 - 126.6
4-Bromofluorobenzene (4-BFB)		0.100	mg/L	1	0.100	100	70.6 - 117.5

Duplicates (1) Duplicated Sample: 218524

QC Batch:

66350

Date Analyzed:

2009-12-29

Analyzed By: AR

Prep Batch: 56717 QC Preparation: 2009-12-29

Prepared By: AR

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
pH	7.50	7.51	s.u.	1	0	1.5

Duplicates (1) Duplicated Sample: 218524

QC Batch: Prep Batch: 56729

66366

Date Analyzed: QC Preparation: 2009-12-30 2009-12-30

Analyzed By: AR Prepared By: AR

Duplicate Sample RPD Result Dilution RPD Param Result Units Limit Hydroxide Alkalinity <1.00 <1.00 mg/L as CaCo3 1 0 20 mg/L as CaCo3 Carbonate Alkalinity < 1.00 < 1.00 1 0 20 mg/L as CaCo3 1 8 Bicarbonate Alkalinity 99.020 107 Total Alkalinity 107 99.0mg/L as CaCo3 1 8 20

Duplicates (1) Duplicated Sample: 218524

QC Batch: Prep Batch: 56731

66452

Date Analyzed: QC Preparation: 2010-01-05 2009-12-30 Analyzed By: AR Prepared By: AR

Duplicate RPD Sample Result Result Dilution RPD Limit Param Units Total Dissolved Solids 9580 9900 mg/L 20 3 10

114-6403133

Work Order: 9122910 Celero/Tract 33 TB

Page Number: 9 of 15 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 56732

66392

Date Analyzed: QC Preparation: 2009-12-30

2009-12-30

Analyzed By: AR

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit
Chloride	24.6	mg/L	1	25.0	< 0.475	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
Chloride	24.7	mg/L	1	25.0	< 0.475	99	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:

66392 Prep Batch: 56732 Date Analyzed:

2009-12-30 QC Preparation: 2009-12-30

Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit
Sulfate	23.9	mg/L	1	25.0	< 0.217	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
Sulfate	23.7	mg/L	1	25.0	< 0.217	95	90 - 110	1	

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: 56731

Date Analyzed:

2010-01-05 QC Preparation: 2009-12-30

Analyzed By: AR

Prepared By: AR

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

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids	973	mg/L	1	1000	< 9.75	97	90 - 110	3	10

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

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Work Order: 9122910 Celero/Tract 33 TB

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Laboratory Control Spike (LCS-1)

QC Batch:

66490

Date Analyzed:

2010-01-06

Analyzed By: RR

Prep Batch: 56807

QC Preparation: 2010-01-05

Prepared By: KV

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Calcium	49.1	mg/L	1	50.0	< 0.117	98	85 - 115
Dissolved Potassium	46.1	mg/L	1	50.0	< 0.172	92	85 - 115
Dissolved Magnesium	47.9	mg/L	1	50.0	< 0.160	96	85 - 115
Dissolved Sodium	46.9	mg/L	1	50.0	< 0.0500	94	85 - 115

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	\mathbf{Limit}
Dissolved Calcium	49.1	mg/L	1	50.0	< 0.117	98	85 - 115	0	20
Dissolved Potassium	46.5	mg/L	1	50.0	< 0.172	93	85 - 115	1	20
Dissolved Magnesium	47.9	mg/L	1	50.0	< 0.160	96	85 - 115	0	20
Dissolved Sodium	48.1	mg/L	1	50.0	< 0.0500	96	85 - 115	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: Prep Batch: 56863

66515

Date Analyzed:

2010-01-06 QC Preparation: 2010-01-06

Analyzed By: AG

Prepared By: AG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.102	mg/L	1	0.100	< 0.000300	102	79.4 - 111.8
Toluene	0.103	${ m mg/L}$	1	0.100	< 0.000200	103	79.3 - 110
Ethylbenzene	0.101	mg/L	1	0.100	< 0.000200	101	73.8 - 113.1
Xylene	0.307	mg/L	11	0.300	< 0.000900	102	73.9 - 113.6

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0978	mg/L	1	0.100	< 0.000300	98	79.4 - 111.8	4	20
Toluene	0.0980	mg/L	1	0.100	< 0.000200	98	79.3 - 110	5	20
Ethylbenzene	0.0965	mg/L	1	0.100	< 0.000200	96	73.8 - 113.1	5	20
Xylene	0.292	mg/L	1	0.300	< 0.000900	97	73.9 - 113.6	5	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)	0.0867	0.103	mg/L	1	0.100	87	103	76.2 - 129.6

continued ...

Report Date: January 7, 2010	Work Order: 9122910
114-6403133	Celero/Tract 33 TB
control spikes continued	

Page Number:	11 of 15
Chavez Cou	nty, NM

control spikes continuea	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
4-Bromofluorobenzene (4-BFB)	0.0872	0.104	mg/L	1	0.100	87	104	77.9 - 119.8

Matrix Spike (MS-1) Spiked Sample: 218522

QC Batch: 66392 Prep Batch: 56732 Date Analyzed: 2009-12-30 QC Preparation: 2009-12-30 Analyzed By: AR Prepared By: AR

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	1	8340	mg/L	50	1380	5910	177	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	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	2	8350	mg/L	50	1380	5910	177	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: 218522

QC Batch: 66392 Prep Batch: 56732 Date Analyzed: 2009-12-30 QC Preparation: 2009-12-30 Analyzed By: AR Prepared By: AR

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	1350	mg/L	50	1380	<10.8	98	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	\mathbf{Units}	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	1330	mg/L	50	1380	<10.8	96	90 - 110	2	

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

Matrix Spike (MS-1) Spiked Sample: 218384

QC Batch: 66490 Prep Batch: 56807 Date Analyzed: 2010-01-06 QC Preparation: 2010-01-05

Analyzed By: RR Prepared By: KV

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

²MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

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Work Order: 9122910 Celero/Tract 33 TB

Page Number: 12 of 15 Chavez County, NM

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium	167	mg/L	1	50.0	121	92	75 - 125
Dissolved Potassium	50.6	mg/L	1	50.0	3.36	94	75 - 125
Dissolved Magnesium	59.9	mg/L	1	50.0	12.7	94	75 - 125
Dissolved Sodium	92.8	mg/L	1	50.0	45.5	95	75 - 125

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	171	mg/L	1	50.0	121	100	75 - 125	2	20
Dissolved Potassium	51.4	mg/L	1	50.0	3.36	96	75 - 125	2	20
Dissolved Magnesium	60.9	mg/L	1	50.0	12.7	96	75 - 125	2	20
Dissolved Sodium	94.7	mg/L	1	50.0	45.5	98	75 - 125	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 218565

QC Batch:

66515

Date Analyzed:

2010-01-06

Analyzed By: AG

Prep Batch: 56863

QC Preparation: 2010-01-06

Prepared By: AG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.102	mg/L	1	0.100	< 0.000300	102	77.3 - 117.4
Toluene	0.101	mg/L	1	0.100	< 0.000200	101	75 - 111.8
Ethylbenzene	0.101	mg/L	1	0.100	< 0.000200	101	78.8 - 106.6
Xylene	0.303	mg/L	1	0.300	< 0.000900	101	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	0.104	mg/L	1	0.100	< 0.000300	104	77.3 - 117.4	2	20
Toluene	0.104	mg/L	1	0.100	< 0.000200	104	75 - 111.8	3	20
Ethylbenzene	0.103	mg/L	1	0.100	< 0.000200	103	78.8 - 106.6	2	20
Xylene	0.310	mg/L	1	0.300	< 0.000900	103	68.9 - 114	2	20

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

Surrogate	$rac{ ext{MS}}{ ext{Result}}$	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.0869	mg/L	1	0.1	102	87	76.3 - 129.8
4-Bromofluorobenzene (4-BFB)	0.105	0.0899	mg/L	1	0.1	105	90	75.2 - 112.8

Standard (ICV-1)

QC Batch: 66350

Date Analyzed: 2009-12-29

Analyzed By: AR

Report Date: January 7, 2010 114-6403133

Work Order: 9122910 Celero/Tract 33 TB Page Number: 13 of 15 Chavez County, NM

			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	7.02	100	98 - 102	2009-12-29

Standard (CCV-1)

QC Batch: 66350

Date Analyzed: 2009-12-29

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	6.87	98	98 - 102	2009-12-29

Standard (ICV-1)

QC Batch: 66366

Date Analyzed: 2009-12-30

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	2009-12-30
Carbonate Alkalinity		mg/L as CaCo3	0.00	238		0 - 200	2009-12-30
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	19.0		0 - 200	2009-12-30
Total Alkalinity		mg/L as CaCo3	250	257	103	90 - 110	2009-12-30

Standard (CCV-1)

QC Batch: 66366

Date Analyzed: 2009-12-30

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	2009-12-30
Carbonate Alkalinity		mg/L as CaCo3	0.00	180		0 - 200	2009-12-30
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	73.0		0 - 200	2009-12-30
Total Alkalinity		mg/L as CaCo3	250	253	101	90 - 110	2009-12-30

Standard (ICV-1)

QC Batch: 66392

Date Analyzed: 2009-12-30

Analyzed By: AR

114-6403133

Work Order: 9122910 Celero/Tract 33 TB Page Number: 14 of 15 Chavez County, NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		${ m mg/L}$	25.0	23.6	94	90 - 110	2009-12-30

Standard (ICV-1)

QC Batch: 66392

Date Analyzed: 2009-12-30

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.1	96	90 - 110	2009-12-30

Standard (CCV-1)

QC Batch: 66392

Date Analyzed: 2009-12-30

Analyzed By: AR

			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	2009-12-30

Standard (CCV-1)

QC Batch: 66392

Date Analyzed: 2009-12-30

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	24.4	98	90 - 110	2009-12-30

Standard (ICV-1)

QC Batch: 66490

Date Analyzed: 2010-01-06

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	$\operatorname{Recovery}$	${f Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	50.0	53.0	106	90 - 110	2010-01-06
Dissolved Potassium		mg/L	50.0	49.6	99	90 - 110	2010-01-06
Dissolved Magnesium		mg/L	50.0	52.9	106	90 - 110	2010-01-06
Dissolved Sodium		mg/L	50.0	50.2	100	90 - 110	2010-01-06

114-6403133

Work Order: 9122910 Celero/Tract 33 TB Page Number: 15 of 15 Chavez County, NM

Standard (CCV-1)

QC Batch: 66490

Date Analyzed: 2010-01-06

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			${f True}$	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	50.0	52.3	105	90 - 110	2010-01-06
Dissolved Potassium		mg/L	50.0	49.4	99	90 - 110	2010-01-06
Dissolved Magnesium		mg/L	50.0	52.3	105	90 - 110	2010-01-06
Dissolved Sodium		mg/L	50.0	51.2	102	90 - 110	2010-01-06

Standard (CCV-1)

QC Batch: 66515

Date Analyzed: 2010-01-06

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	D
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		m mg/L	0.100	0.0995	100	80 - 120	2010-01-06
Toluene		mg/L	0.100	0.0993	99	80 - 120	2010-01-06
Ethylbenzene		mg/L	0.100	0.0967	97	80 - 120	2010-01-06
Xylene		mg/L	0.300	0.293	98	80 - 120	2010-01-06

Standard (CCV-2)

QC Batch: 66515

Date Analyzed: 2010-01-06

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	0.100	100	80 - 120	2010-01-06
Toluene		mg/L	0.100	0.100	100	80 - 120	2010-01-06
Ethylbenzene		mg/L	0.100	0.0975	98	80 - 120	2010-01-06
Xylene		mg/L	0.300	0.295	98	80 - 120	2010-01-06

Order #- 9122910

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Cation-Anion Balance Sheet

				Percentage	Error	5.522616252			
	EC	mMHOs/cm		Anions	in meq/L	95.58		0.55-0.77	
	TDS	mdd	5430	Cations	in meq/L	90.45		3.57 needs to be 0.55-0.77	
	Bromide	mdd		Bromide	in meq/L	0	TDS/Anion	0.57	A
	Fluoride	mdd		Nitrate Fluoride	in meq/L in meq/L in meq/L	0	TDS/Cat	09:0	
	Nitrate	шdd		Nitrate	in meq/L	0	TDS/EC	#DIV/0i	
	Chloride	mdd	3220	Chloride	in meq/L	90.84			
	Sulfate	шdd	99.3	Sulfate	in meq/L	2.07		0	
	Alkalinity	mdd	134	Alkalinity	in meq/L	2.68		ğ	
	Potassium	mdd	13.3	Potassium	in meq/L	0.34		0	
	Sodium	bpm	1080	Sodium	in meq/L	46.98		range	
	Magnesium	ppm	156	Calcium Magnesium	in meq/L	12.84	EC/Anion	9558.3626	
1/7/2010	Calcium	mdd	607	Calcium	in meq/L	30.29	EC/Cation	9044.6754	
DATE:	Sample #		218520	Sample #		218520		218520	



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E-Mail: lab@traceanalysis.com

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: March 9, 2010

Work Order: 10022630

Project Location: Chavez County, NM

Project Name:

Celero/Rock Queen #33

Project Number:

115-6403133A

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
223828	MW-1	water	2010-02-25	17:30	2010-02-26

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

This report consists of a total of 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

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

Case Narrative

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2010-02-26 and assigned to work order 10022630. Samples for work order 10022630 were received intact without headspace and at a temperature of 2.6 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	58086	2010-03-01 at 08:24	67894	2010-03-01 at 15:26
BTEX	S 8021B	58101	2010-03-01 at 15:45	67911	2010-03-01 at 17:11
Ca, Dissolved	S 6010B	58109	2010-03-02 at 12:55	67940	2010-03-02 at 16:17
Chloride (IC)	E 300.0	58087	2010-03-01 at 12:28	67932	2010-03-02 at 11:58
Hardness	S 6010B	58109	2010-03-02 at 12:55	67940	2010-03-02 at 16:17
K, Dissolved	S 6010B	58109	2010-03-02 at 12:55	67940	2010-03-02 at 16:17
Mg, Dissolved	S 6010B	58109	2010-03-02 at 12:55	67940	2010-03-02 at 16:17
Na, Dissolved	S 6010B	58109	2010-03-02 at 12:55	67940	2010-03-02 at 16:17
pН	SM 4500-H+	58060	2010-02-26 at 16:00	67873	2010-02-26 at 17:15
SO4 (IC)	E 300.0	58087	2010-03-01 at 12:28	67932	2010-03-02 at 11:58
TDS	SM 2540C	58103	2010-03-02 at 09:11	68098	2010-03-09 at 15:05

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 10022630 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: March 9, 2010 115-6403133A

Work Order: 10022630 Celero/Rock Queen #33 Page Number: 4 of 15 Chavez County, NM

Analytical Report

Sample: 223828 - MW-1

Laboratory: Midland Analysis:

QC Batch:

Alkalinity

67894 Prep Batch: 58086 Analytical Method: Date Analyzed:

SM 2320B 2010-03-01 Sample Preparation: 2010-03-01 Prep Method: N/A Analyzed By: AR

Prepared By: AR

RT.

		T (LL)			
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		98.0	mg/L as CaCo3	1	4.00
Total Alkalinity		98.0	mg/L as CaCo3	1	4.00

Sample: 223828 - MW-1

Laboratory: Midland

Analysis: BTEX QC Batch: 67911 Prep Batch: 58101

Analytical Method: Date Analyzed:

S 8021B 2010-03-01 Sample Preparation: 2010-03-01 Prep Method: S 5030B AGAnalyzed By: Prepared By: AG

RI

		ICL			
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

					\mathbf{Spike}	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0683	mg/L	1	0.100	68	65.9 - 129.8
4-Bromofluorobenzene (4-BFB)		0.0645	mg/L	1	0.100	64	51.1 - 118.8

Sample: 223828 - MW-1

Laboratory: Lubbock

Analysis: Cations QC Batch: 67940 Prep Batch: 58109

Analytical Method: Date Analyzed:

S 6010B 2010-03-02 Sample Preparation: 2010-03-02

S 3005A Prep Method: Analyzed By: RR

Prepared By: KV

RL

Parameter	Flag	Result	Units	Dilution	RL
Dissolved Calcium		8440	mg/L	1000	0.100

continued ...

Report Date: March 9, 2010 Work Order: 10022630 Page Number: 5 of 15 115-6403133A Celero/Rock Queen #33 Chavez County, NM sample 223828 continued ... RLParameter Dilution RLFlag Result Units Dissolved Potassium 0.100 185 mg/L 10 Dissolved Magnesium 3140 mg/L 1000 0.100 Dissolved Sodium 13700 1000 0.100mg/L Sample: 223828 - MW-1 Laboratory: Midland Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 67932 Date Analyzed: 2010-03-02 Analyzed By: ARPrep Batch: 58087 Sample Preparation: 2010-03-01 Prepared By: ARRLParameter Flag Result Units Dilution RLChloride 46800 mg/L 5000 0.500 Sample: 223828 - MW-1 Laboratory: Lubbock Prep Method: N/A Analysis: Hardness Analytical Method: S 6010B QC Batch: 67940 Date Analyzed: 2010-03-02 Analyzed By: RRPrep Batch: 58109 Sample Preparation: 2010-03-02 Prepared By: KVRLParameter Result Dilution RLFlag Units Hardness (by ICP) 34000 mg eq CaCO3/L 0.00

Analysis:	pН	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	67873	Date Analyzed:	2010-02-26	Analyzed By:	\overline{AG}
Prep Batch:	58060	Sample Preparation:	2010-02-26	Prepared By:	\mathbf{AG}
				•	
		RL			
Parameter	Flag	\mathbf{Result}	Units	Dilution	RL
pH		6.44	s.u.	1	0.00

Sample: 223828 - MW-1

Laboratory: Midland

Report Date: March 9, 2010 115-6403133A		Work Order: Celero/Rock (Page Number: 6 of 1 Chavez County, NM		
Sample: 223828 - N	MW-1					
Laboratory: Midland Analysis: SO4 (IC QC Batch: 67932 Prep Batch: 58087		Analytical Method: Date Analyzed: Sample Preparation:	E 300.0 2010-03-02 2010-03-01	Prep Method: Analyzed By: Prepared By:	N/A AR AR	
		RL				
Parameter Sulfate	Flag	Result 604	Units mg/L	Dilution 50	RL 0.500	
Sample: 223828 - N	MW-1					
Laboratory: Midland						
Analysis: TDS		Analytical Method:	SM 2540C	Prep Method:		
QC Batch: 68098		Date Analyzed:	2010-03-09	Analyzed By:	AR	
Prep Batch: 58103		Sample Preparation:	2010-03-02	Prepared By:	AR	
		RL				
Parameter	Flag	Result	Units	Dilution	RL	
Total Dissolved Solids	3	90100	m mg/L	100	10.0	
Method Blank (1) QC Batch: 67894 Prep Batch: 58086	QC Batch: 67894	ū	010-03-01 010-03-01	Analyzed By: Prepared By:		
.	71	MD				
Parameter	Flag			Units	RL	
Hydroxide Alkalinity Carbonate Alkalinity		<1.0 <1.0		mg/L as CaCo3 mg/L as CaCo3	1 1	
Bicarbonate Alkalinity	v	<4.0		mg/L as CaCo3	4	
Total Alkalinity	,	<4.0		mg/L as CaCo3	4	
Method Blank (1)	QC Batch: 67911					
QC Batch: 67911 Prep Batch: 58101		v	010-03-01 010-03-01	Analyzed By: Prepared By:	AG AG	
D		MI				
Parameter Benzene	Flag	<0.0003		Units mg/L	$\frac{\mathrm{RL}}{0.001}$	
senzene		/0.0003			434411	

Report Date: March 9, 2010 115-6403133A

Work Order: 10022630 Celero/Rock Queen #33 Page Number: 7 of 15 Chavez County, NM

method	blank	continued				
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		MDL		
Parameter	Flag	Result	Units	RL
Toluene		< 0.000200	mg/L	0.001
Ethylbenzene		< 0.000200	mg/L	0.001
Xylene		< 0.000900	mg/L	0.001

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0991	mg/L	1	0.100	99	73.6 - 126.6
4-Bromofluorobenzene (4-BFB)		0.102	mg/L	1	0.100	102	62.6 - 117.5

Method Blank (1)

QC Batch: 67932

QC Batch: 67932 Prep Batch: 58087 Date Analyzed: 2010-03-02 QC Preparation: 2010-03-01 Analyzed By: AR Prepared By: AR

MDL Flag

Result Units RLParameter Chloride < 0.475 mg/L 0.5

Method Blank (1)

QC Batch: 67932

QC Batch: 67932 Prep Batch: 58087 Date Analyzed: QC Preparation: 2010-03-01

2010-03-02

Analyzed By: AR Prepared By: AR

MDL

Parameter Flag Result Units RL0.5 < 0.217 mg/L Sulfate

Method Blank (1)

QC Batch: 67940

QC Batch: 67940 Prep Batch: 58109

Date Analyzed: 2010-03-02 QC Preparation: 2010-03-02

Analyzed By: RR Prepared By: KV

MDL

Parameter	Flag	Result	Units	RL
Dissolved Calcium		< 0.00216	mg/L	0.1
Dissolved Potassium		< 0.00645	mg/L	0.1
Dissolved Magnesium		< 0.00594	mg/L	0.1
Dissolved Sodium		< 0.00548	mg/L	0.1
			- In the second	

Report Dat	e: March	9,	2010
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Work Order: 10022630 Celero/Rock Queen #33 Page Number: 8 of 15 Chavez County, NM

Method Blank (1)

QC Batch: 68098

QC Batch: 68098 Prep Batch: 58103 Date Analyzed: 2010-03-09 QC Preparation: 2010-03-02 Analyzed By: AR Prepared By: AR

RL

10

MDL

Flag Parameter Units Result Total Dissolved Solids < 9.75 mg/L

Duplicates (1) Duplicated Sample: 223824

QC Batch: 67873 Prep Batch: 58060 Date Analyzed: 2010-02-26 QC Preparation: 2010-02-26

Analyzed By: AG Prepared By: AG

RPD Duplicate Sample **RPD** Param Result Result Units Dilution Limit 6.22 6.24 $\overline{0}$ pН 1 1.5 s.u.

Duplicates (1) Duplicated Sample: 223818

QC Batch: Prep Batch:

67894 58086 Date Analyzed: QC Preparation:

2010-03-01 2010-03-01

Analyzed By: AR Prepared By:

Duplicate RPD Sample RPD Param Result Result Units Dilution Limit mg/L as CaCo3 Hydroxide Alkalinity <1.00 <1.00 $\overline{0}$ 20 Carbonate Alkalinity mg/L as CaCo3 0 < 1.00 1 20 < 1.00 Bicarbonate Alkalinity 192 194 mg/L as CaCo3 1 1 20 Total Alkalinity 192 194 mg/L as CaCo3 1 1 20

Duplicates (1) Duplicated Sample: 223828

QC Batch: 68098 Prep Batch: 58103 Date Analyzed: 2010-03-09 QC Preparation: 2010-03-02 Analyzed By: AR Prepared By: AR

Duplicate Sample RPD Param Result Result Units Dilution RPD Limit Total Dissolved Solids 90600 90100 100 10 mg/L

Laboratory Control Spike (LCS-1)

QC Batch: 67911 Prep Batch: 58101 Date Analyzed: 2010-03-01 QC Preparation: 2010-03-01

Analyzed By: AG Prepared By: AG

115-6403133A

Work Order: 10022630 Celero/Rock Queen #33 Page Number: 9 of 15 Chavez County, NM

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0949	mg/L	1	0.100	< 0.000300	95	79.4 - 112.4
Toluene	0.0942	mg/L	1	0.100	< 0.000200	94	79.3 - 110
Ethylbenzene	0.0935	mg/L	1	0.100	< 0.000200	94	73.8 - 113.1
Xylene	0.282	mg/L	1	0.300	< 0.000900	94	73.9 - 113.6

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
Benzene	0.0957	mg/L	1	0.100	< 0.000300	96	79.4 - 112.4	1	20
Toluene	0.0954	mg/L	1	0.100	< 0.000200	95	79.3 - 110	1	20
Ethylbenzene	0.0952	mg/L	1	0.100	< 0.000200	95	73.8 - 113.1	2	20
Xylene	0.287	mg/L	1	0.300	< 0.000900	96	73.9 - 113.6	2	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)	0.0954	0.0943	mg/L	1	0.100	95	94	76.2 - 129.6
4-Bromofluorobenzene (4-BFB)	0.112	0.111	${ m mg/L}$	1	0.100	112	111	77.9 - 119.8

Laboratory Control Spike (LCS-1)

QC Batch:

67932 Prep Batch: 58087

Date Analyzed:

2010-03-02 QC Preparation: 2010-03-01

Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	23.7	mg/L	1	25.0	< 0.475	95	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	23.7	mg/L	1	25.0	< 0.475	95	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:

67932

Date Analyzed:

2010-03-02

Analyzed By: AR

Prep Batch: 58087

QC Preparation: 2010-03-01

Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	23.2	mg/L	1	25.0	< 0.217	93	90 - 110

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Work Order: 10022630 Celero/Rock Queen #33 Page Number: 10 of 15 Chavez County, NM

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	23.1	mg/L	1	25.0	< 0.217	92	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:

67940 Prep Batch: 58109 Date Analyzed:

2010-03-02 QC Preparation: 2010-03-02

Analyzed By: RR Prepared By: KV

Param	$egin{array}{c} ext{LCS} \ ext{Result} \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium	52.9	mg/L	1	50.0	< 0.00216	106	85 - 115
Dissolved Potassium	51.6	mg/L	1	50.0	< 0.00645	103	85 - 115
Dissolved Magnesium	53.9	mg/L	1	50.0	< 0.00594	108	85 - 115
Dissolved Sodium	50.6	mg/L	1	50.0	< 0.00548	101	85 - 115

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	< 0.00216	102	85 - 115	4	20
Dissolved Potassium	49.7	mg/L	1	50.0	< 0.00645	99	85 - 115	4	20
Dissolved Magnesium	51.5	mg/L	1	50.0	< 0.00594	103	85 - 115	5	20
Dissolved Sodium	49.0	mg/L	1	50.0	< 0.00548	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: Prep Batch: 58103

68098

Date Analyzed:

2010-03-09 QC Preparation: 2010-03-02 Analyzed By: AR

Prepared By: AR

	LCS			\mathbf{Spike}	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids	1020	mg/L	1	1000	< 9.75	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
Total Dissolved Solids	1020	mg/L	1	1000	< 9.75	102	90 - 110	0	10

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

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Work Order: 10022630 Celero/Rock Queen #33 Page Number: 11 of 15 Chavez County, NM

Matrix Spike (MS-1) Spiked Sample: 223853

QC Batch: Prep Batch: 58101

67911

Date Analyzed:

2010-03-01

QC Preparation: 2010-03-01 Analyzed By: AG

Prepared By: AG

	MS			Spike	Matrix	_	Rec.
Param	Result	${f Units}$	Dil.	${f Amount}$	Result	Rec .	Limit
Benzene	10.9	mg/L	50	5.00	5.9567	99	77.3 - 117.4
Toluene	6.30	mg/L	50	5.00	1.5038	96	75 - 111.8
Ethylbenzene	5.23	mg/L	50	5.00	0.5072	94	78.8 - 106.6
Xylene	14.6	mg/L	50	15.0	0.6358	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	10.6	mg/L	50	5.00	5.9567	93	77.3 - 117.4	3	20
Toluene	5.98	m mg/L	50	5.00	1.5038	90	75 - 111.8	5	20
Ethylbenzene	4.79	mg/L	50	5.00	0.5072	86	78.8 - 106.6	9	20
Xylene	13.5	mg/L	50	15.0	0.6358	86	68.9 - 114	8	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)	4.41	4.27	mg/L	50	5	88	85	76.3 - 129.8
4-Bromofluorobenzene (4-BFB)	5.17	4.98	${ m mg/L}$	50	5	103	100	75.2 - 112.8

Matrix Spike (MS-1) Spiked Sample: 223829

QC Batch:

67932 Prep Batch: 58087 Date Analyzed:

2010-03-02 QC Preparation: 2010-03-01

Analyzed By: AR Prepared By: AR

		MS			\mathbf{Spike}	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	1	27200	mg/L	50	1380	24013	232	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	2	27300	mg/L	50	1380	24013	239	90 - 110	0	

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 peak interference. Use LCS/LCSD to demonstrate analysis is under control.

²MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occurred properly.

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Work Order: 10022630 Celero/Rock Queen #33 Page Number: 12 of 15 Chavez County, NM

Matrix Spike (MS-1)

Spiked Sample: 223829

QC Batch:

67932

Date Analyzed:

2010-03-02

Analyzed By: AR

Prep Batch: 58087

QC Preparation: 2010-03-01

Prepared By: AR

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
Sulfate	3	1500	mg/L	50	1380	463	75	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	4	1590	mg/L	50	1380	463	82	90 - 110	6	

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

Matrix Spike (MS-1)

Spiked Sample: 223817

QC Batch: 67940 Prep Batch: 58109 Date Analyzed: QC Preparation:

2010-03-02 2010-03-02

Analyzed By: RR Prepared By: KV

_	MS			Spike	Matrix		Rec.
Param	Result	\mathbf{Units}	Dil.	Amount	\mathbf{Result}	Rec .	Limit
Dissolved Calcium	366	mg/L	1	50.0	306	120	75 - 125
Dissolved Potassium	72.6	mg/L	1	50.0	20.6	104	75 - 125
Dissolved Magnesium	117	mg/L	1	50.0	71	92	75 - 125
Dissolved Sodium	485	$_{ m mg/L}$	1	50.0	439	92	75 - 125

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

Param	${f MSD}$ Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium	356	mg/L	1	50.0	306	100	75 - 125	3	20
Dissolved Potassium	75.6	mg/L	1	50.0	20.6	110	75 - 125	4	20
Dissolved Magnesium	120	mg/L	1	50.0	71	98	75 - 125	2	20
Dissolved Sodium	486	mg/L	1	50.0	439	94	75 - 125	0	20

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

Standard (ICV-1)

QC Batch: 67873

Date Analyzed: 2010-02-26

Analyzed By: AG

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

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

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Work Order: 10022630 Celero/Rock Queen #33 Page Number: 13 of 15 Chavez County, NM

			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	6.99	100	98 - 102	2010-02-26

Standard (CCV-1)

QC Batch: 67873

Date Analyzed: 2010-02-26

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	6.93	99	98 - 102	2010-02-26

Standard (ICV-1)

QC Batch: 67894

Date Analyzed: 2010-03-01

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	17.0		0 - 200	2010-03-01
Carbonate Alkalinity		mg/L as CaCo3	0.00	244		0 - 200	2010-03-01
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	< 4.00		0 - 200	2010-03-01
Total Alkalinity		mg/L as CaCo3	250	261	104	90 - 110	2010-03-01

Standard (CCV-1)

QC Batch: 67894

Date Analyzed: 2010-03-01

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	29.0		0 - 200	2010-03-01
Carbonate Alkalinity		mg/L as CaCo3	0.00	224		0 - 200	2010-03-01
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	< 4.00		0 - 200	2010-03-01
Total Alkalinity		mg/L as CaCo3	250	253	101	90 - 110	2010-03-01

Standard (CCV-2)

QC Batch: 67911

Date Analyzed: 2010-03-01

Analyzed By: AG

Report Date: March 9, 2010 115-6403133A

Work Order: 10022630 Celero/Rock Queen #33 Page Number: 14 of 15 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	0.0945	94	80 - 120	2010-03-01
Toluene		mg/L	0.100	0.0943	94	80 - 120	2010-03-01
Ethylbenzene		mg/L	0.100	0.0941	94	80 - 120	2010-03-01
Xylene		mg/L	0.300	0.283	94	80 - 120	2010-03-01

Standard (CCV-3)

QC Batch: 67911

Date Analyzed: 2010-03-01

Analyzed By: AG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0957	96	80 - 120	2010-03-01
Toluene		$\mathrm{mg/L}$	0.100	0.0944	94	80 - 120	2010-03-01
Ethylbenzene		mg/L	0.100	0.0932	93	80 - 120	2010-03-01
Xylene		mg/L	0.300	0.281	94	80 - 120	2010-03-01

Standard (ICV-1)

QC Batch: 67932

Date Analyzed: 2010-03-02

Analyzed By: AR

			$rac{ ext{ICVs}}{ ext{True}}$	ICVs Found	${f ICVs} \ {f Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	23.4	94	90 - 110	2010-03-02

Standard (ICV-1)

QC Batch: 67932

Date Analyzed: 2010-03-02

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	25.3	101	90 - 110	2010-03-02

Standard (CCV-1)

QC Batch: 67932

Date Analyzed: 2010-03-02

Analyzed By: AR

115-6403133A

Work Order: 10022630 Celero/Rock Queen #33 Page Number: 15 of 15 Chavez County, NM

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	23.0	92	90 - 110	2010-03-02

Standard (CCV-1)

QC Batch: 67932

Date Analyzed: 2010-03-02

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		m mg/L	25.0	24.9	100	90 - 110	2010-03-02

Standard (ICV-1)

QC Batch: 67940

Date Analyzed: 2010-03-02

Analyzed By: RR

			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	50.0	51.3	103	90 - 110	2010-03-02
Dissolved Potassium		mg/L	50.0	50.3	101	90 - 110	2010-03-02
Dissolved Magnesium		mg/L	50.0	51.6	103	90 - 110	2010-03-02
Dissolved Sodium		mg/L	50.0	49.8	100	90 - 110	2010-03-02

Standard (CCV-1)

QC Batch: 67940

Date Analyzed: 2010-03-02

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Calcium		mg/L	51.0	50.5	99	90 - 110	2010-03-02
Dissolved Potassium		m mg/L	55.0	55.3	100	90 - 110	2010-03-02
Dissolved Magnesium		mg/L	51.0	50.6	99	90 - 110	2010-03-02
Dissolved Sodium		$_{ m mg/L}$	51.0	51.2	100	90 - 110	2010-03-02

TETRA TECH 1910 N	TETRA TECH 1910 N. Big Spring St. Midland, Texas 79705 432) 682-4559 • Fax (432) 682-3946 Midland, Texas 79705 Midland, Texas 7		PLM (Asbeatos)
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STEP MANAGER: J. A. M. C. C. C. C. MARIE J. A. M. C. C. C. C. MARIE J. C. C. MARIE J. C. C. C. MARIE SAMPLE DEPARTMENT SAMPLE DEPARTMENT COMPS Time: J. T. H. M. C.	STE MANAGER: Jeff Kriefly PROJECT NAME: Compton of the fold of	7 Semi Volatiles 15 Vol. 8240/8260/624 15 Semi. Vol. 8270/625 8080/608 108	(viA) as BertelA (sofedaA) MJq
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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: July 27, 2010

Work Order: 10071418

Project Location: Chavez County, NM Celero/Rock Queen #33

Project Name: Project Number:

115-6403133A

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
237468	MW-1	water	2010-07-13	13:00	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 10 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael abel

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

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 #33 were received by TraceAnalysis, Inc. on 2010-07-14 and assigned to work order 10071418. Samples for work order 10071418 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	\mathbf{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	61518	2010-07-16 at 08:56	71932	2010-07-16 at 18:32
SO4 (IC)	E 300.0	61518	2010-07-16 at 08:56	71932	2010-07-16 at 18:32
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 10071418 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: July 27, 2010 115-6403133A

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 4 of 10 Chavez County, NM

Analytical Report

Sample: 237468 - MW-1

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: AG Prepared By: AG

RL

		1(1)			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		0.00200	mg/L	1	0.00100
Toluene		0.00150	mg/L	1	0.00100
Ethylbenzene		< 0.00100	${ m mg/L}$	1	0.00100
Xylene		< 0.00100	mg/L	1	0.00100

					Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.0741	mg/L	1	0.100	74	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0643	mg/L	1	0.100	64	51.1 - 128

Sample: 237468 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) QC Batch: 71932 Prep Batch: 61518 Analytical Method: Date Analyzed: Sample Preparation:

E 300.0 2010-07-16 2010-07-16

Units

mg/L

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

RL Parameter Flag Result

RL

Dilution RL

2.50

500

Sample: 237468 - MW-1

Laboratory: Midland

Chloride

Analysis: SO4 (IC)
QC Batch: 71932
Prep Batch: 61518

Analytical Method: E 300.0 Date Analyzed: 2010-07-16 Sample Preparation: 2010-07-16 Prep Method: N/A Analyzed By: AR Prepared By: AR

RL

63500

Parameter	Flag	Result	Units	Dilution	RL
Sulfate		613	mg/L	50	2.50

115-6403133A

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 5 of 10 Chavez County, NM

Sample: 237468 - MW-1

Laboratory:

Midland

Analysis: QC Batch: TDS 72039

Analytical Method:

SM 2540C

Prep Method: N/AAnalyzed By: AR

Prep Batch: 61516

Date Analyzed:

2010-07-26

AR

Sample Preparation: 2010-07-16

Prepared By:

RL

Parameter Total Dissolved Solids

Result 102000

Units mg/L Dilution 100

RL10.0

Method Blank (1)

QC Batch: 71724

Flag

QC Batch:

71724

Date Analyzed:

2010-07-14

Analyzed By: AG

Prep Batch: 61451

QC Preparation:

2010-07-14

Prepared By: AG

RL

RL

 $\overline{2.5}$

		MDL	
Parameter	Flag	\mathbf{Result}	
Renzene		<0.000600	

Toluene Ethylbenzene Xylene

< 0.000600 < 0.000800 < 0.000767

mg/L mg/L mg/L

Units

mg/L

Units

mg/L

0.001 0.001 0.001 0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0973	mg/L	1	0.100	97	70.2 - 118
4-Bromofluorobenzene (4-BFB)		0.0848	mg/L	1	0.100	85	47.3 - 116

Method Blank (1)

QC Batch: 71932

QC Batch:

71932

MDL

Result

< 0.265

2010-07-16

Analyzed By: AR

Prep Batch: 61518

Date Analyzed:

Prepared By: AR

Parameter Chloride

QC Preparation: 2010-07-16

Method Blank (1)

Prep Batch: 61518

QC Batch: 71932

Flag

QC Batch: 71932

Date Analyzed: QC Preparation:

2010-07-16 2010-07-16

Analyzed By: AR Prepared By: AR Report Date: July 27, 2010 115-6403133A

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 6 of 10 Chavez County, NM

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

Method Blank (1)

QC Batch: 72039

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

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	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	109000	5910	$_{ m mg/L}$	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

Param	$egin{array}{c} LCS \\ Result \end{array}$	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.100	mg/L	1	0.100	< 0.000600	100	82.9 - 108
Toluene	0.0992	mg/L	1	0.100	< 0.000600	99	82.7 - 107
Ethylbenzene	0.0949	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

115-6403133A

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 7 of 10 Chavez County, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD 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: Prep Batch: 61518

71932

Date Analyzed: QC Preparation:

2010-07-16 2010-07-16 Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	27.2	mg/L	1	25.0	< 0.265	109	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	27.0	mg/L	1	25.0	< 0.265	108	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:

Sulfate

71932 Prep Batch: 61518 Date Analyzed: QC Preparation:

2010-07-16 2010-07-16

25.0

Analyzed By: AR Prepared By: AR

90 - 110

103

< 0.177

LCS Rec. Spike Matrix Param Result Units Dil. Amount Result Rec. Limit

mg/L

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

25.7

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	26.2	mg/L	1	25.0	< 0.177	105	90 - 110	2	20

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

Laboratory Control Spike (LCS-2)

QC Batch:

72039

Prep Batch: 61516

Date Analyzed: QC Preparation:

2010-07-26 2010-07-15 Analyzed By: AR Prepared By: AR

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Dissolved Solids 1030 1000 103 90 - 110 mg/L < 9.75 1

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 8 of 10 Chavez County, NM

115-6403133A

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	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: 71724 Prep Batch: 61451

Date Analyzed: 2010-07-14 QC Preparation: 2010-07-14 Analyzed By: AG Prepared By: AG

		MS			\mathbf{Spike}	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	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.	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			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: 237531

QC Batch: 71932 Prep Batch: 61518 Date Analyzed: 2010-07-16 QC Preparation: 2010-07-16 Analyzed By: AR Prepared By: AR

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 occurred 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.

115-6403133A

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 9 of 10 Chavez County, NM

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	10	4330	mg/L	100	2750	2320	73	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	4320	mg/L	100	2750	2320	73	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: 237531

QC Batch:

71932

Date Analyzed:

2010-07-16

Analyzed By: AR Prepared By: AR

Prep Batch: 61518

QC Preparation: 2010-07-16

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	12	3600	mg/L	100	2750	1750	67	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	3600	mg/L	100	2750	1750	67	90 - 110	0	20

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

Standard (CCV-2)

QC Batch: 71724

Date Analyzed: 2010-07-14

Analyzed By: AG

			CCVs True	CCVs Found	$rac{ ext{CCVs}}{ ext{Percent}}$	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 (CCV-3)

QC Batch: 71724

Date Analyzed: 2010-07-14

Analyzed By: AG

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 occurred properly.

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 occured properly.

Report Date: July 27, 2010 115-6403133A

Work Order: 10071418 Celero/Rock Queen #33 Page Number: 10 of 10 Chavez County, NM

			CCVs True	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.		Limits	Analyzed
	riag				Recovery		
Benzene		${ m mg/L}$	0.100	0.0992	99	80 - 120	2010-07-14
Toluene		mg/L	0.100	0.0982	98	80 - 120	2010-07-14
Ethylbenzene		mg/L	0.100	0.0938	94	80 - 120	2010-07-14
Xylene		mg/L	0.300	0.283	94	80 - 120	2010-07-14

QC Batch: 71932

Date Analyzed: 2010-07-16

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	\mathbf{Units}	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	25.9	104	90 - 110	2010-07-16

Standard (ICV-1)

QC Batch: 71932

Date Analyzed: 2010-07-16

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	_
			${f True}$	\mathbf{Found}	Percent	$\operatorname{Recovery}$	${f Date}$
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	26.1	104	90 - 110	2010-07-16

Standard (CCV-1)

QC Batch: 71932

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
Chloride		mg/L	25.0	24.9	100	90 - 110	2010-07-16

Standard (CCV-1)

QC Batch: 71932

Date Analyzed: 2010-07-16

Analyzed By: AR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	${f Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	26.3	105	90 - 110	2010-07-16

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

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E-Mail: lab@traceanalysis.com

Certifications

800 • 378 • 1296

WBENC: 237019

HUB:

1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX

LELAP-02003

Kansas E-10317

T104704221-08-TX El Paso:

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: November 10, 2010

Work Order:

10101413

Project Location:

Chavez County, NM Celero/Rock Queen #33

Project Name: Project Number:

115-6403133A

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

Date Time Date Sample Description Taken Taken Received Matrix 247532 MW-1 2010-10-13 09:00 2010-10-13 water

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 10 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 #33 were received by TraceAnalysis, Inc. on 2010-10-13 and assigned to work order 10101413. Samples for work order 10101413 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	64403	2010-11-03 at 10:35	75072	2010-11-03 at 20:21
SO4 (IC)	E 300.0	64531	2010-11-09 at 10:50	75231	2010-11-09 at 22:48
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 10101413 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.

115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 4 of 10 Chavez County, NM

Analytical Report

Sample: 247532 - MW-1

Laboratory: Midland

Analysis: BTEX QC Batch:

74557 Prep Batch: 63840 Analytical Method: Date Analyzed:

S 8021B

2010-10-14 Sample Preparation: 2010-10-14

Prep Method: S 5030B

Analyzed By: AG Prepared By: AG

		101			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		0.00480	mg/L	1	0.00100
Toluene		< 0.00100	mg/L	1	0.00100
Ethylbenzene		< 0.00100	m 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)	1	0.323	mg/L	1	0.100	323	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0494	$_{ m mg/L}$	1	0.100	49	39 - 138

Sample: 247532 - MW-1

Laboratory: Lubbock

Analysis: Chloride (IC) QC Batch: 75072 Prep Batch: 64403

Analytical Method: E 300.0 Date Analyzed:

2010-11-03 Sample Preparation: 2010-11-03 Prep Method: N/A Analyzed By: PG

Prepared By: PG

RL

Parameter	\mathbf{Flag}	Result	Units	Dilution	RL
Chloride		88700	mg/L	10000	2.50

Sample: 247532 - MW-1

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 75231 Prep Batch: 64531

Analytical Method: $\to 300.0$ Date Analyzed: 2010-11-09 Sample Preparation: 2010-11-09

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

RL

Parameter	Flag	Result	Units	Dilution	RL
Sulfate		1070	mg/L	50	2.50

¹ High surrogate recovery due to peak interference.

Report Date: November 10, 2010

115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 5 of 10 Chavez County, NM

Sample: 247532 - MW-1

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch:

TDS 74622 63873 Analytical Method: Date Analyzed:

Sample Preparation:

SM 2540C

2010-10-21 2010-10-15 Prep Method: N/A Analyzed By: AR

Prepared By: AR

RL

Parameter Total Dissolved Solids

Result 161000

Units mg/L Dilution

100

RL10.0

Method Blank (1)

QC Batch: 74557

Flag

QC Batch: 74557 Date Analyzed:

2010-10-14

Analyzed By: AG

Prep Batch: 63840

QC Preparation:

2010-10-14

Prepared By: AG

MDL

Parameter Flag Result Units RLBenzene < 0.000400 mg/L 0.001 Toluene < 0.000800 mg/L 0.001 Ethylbenzene < 0.000400 mg/L 0.001 Xylene < 0.000400 mg/L 0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0893	mg/L	1	0.100	89	61.8 - 106
4-Bromofluorobenzene (4-BFB)		0.0784	$_{ m mg/L}$	1	0.100	78	48.5 - 129

Method Blank (1)

QC Batch: 74622

QC Batch:

74622

Date Analyzed:

2010-10-21

Analyzed By: AR

Prep Batch: 63873

QC Preparation:

2010-10-15

MDL

Prepared By: AR

Parameter Flag Total Dissolved Solids

Units RLResult 11.0 mg/L10

Method Blank (1)

QC Batch: 75072

QC Batch: 75072 Date Analyzed:

2010-11-03

Analyzed By: PG Prepared By: PG

Prep Batch: 64403

QC Preparation: 2010-11-03

Report Date: November 10, 2010 115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 6 of 10 Chavez County, NM

		MDL		
Parameter	Flag	Result	Units	RL
Chloride		< 0.0350	mg/L	2.5

Method Blank (1)

QC Batch: 75231

QC Batch: 75231 Prep Batch: 64531

Date Analyzed: 2010-11-09 QC Preparation: 2010-11-09 Analyzed By: PG Prepared By: PG

MDL Parameter Flag Result Units RLSulfate < 0.596 2.5 mg/L

Duplicates (2) Duplicated Sample: 247533

QC Batch: 74622 Prep Batch: 63873 Date Analyzed: 2010-10-21 QC Preparation: 2010-10-15 Analyzed By: AR Prepared By: AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	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: Prep Batch: 63840

74557

Date Analyzed: 2010-10-14 QC Preparation: 2010-10-14

Analyzed By: AG Prepared By: AG

	LCS			\mathbf{Spike}	Matrix		Rec.
Param	Result	${f Units}$	Dil.	Amount	Result	Rec.	Limit
Benzene	0.0939	mg/L	1	0.100	< 0.000400	94	80.7 - 117
Toluene	0.0947	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

Report Date: November 10, 2010

115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 7 of 10 Chavez County, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD 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	mg/L	1	0.100	80	85	48.3 - 135

Laboratory Control Spike (LCS-2)

QC Batch:

74622 Prep Batch: 63873

Date Analyzed:

2010-10-21 QC Preparation: 2010-10-15

Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids	1020	mg/L	1	1000	< 9.75	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
Total Dissolved Solids	1010	mg/L	1	1000	< 9.75	101	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:

75072 Prep Batch: 64403 Date Analyzed:

2010-11-03 QC Preparation: 2010-11-03

Analyzed By: PG

Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	24.4	mg/L	1	25.0	< 0.0350	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
Chloride	23.8	mg/L	1	25.0	< 0.0350	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:

75231 Prep Batch: 64531 Date Analyzed:

2010-11-09 QC Preparation: 2010-11-09 Analyzed By: PG

Prepared By: PG

	$_{ m LCS}$			Spike	Matrix		${ m Rec.}$
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.0	mg/L	1	25.0	< 0.596	96	90 - 110

Report Date: November 10, 2010 115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 8 of 10 Chavez County, NM

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	23.9	mg/L	1	25.0	< 0.596	96	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: 247532

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

Prep Batch: 63840

QC Preparation: 2010-10-14

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene	0.107	mg/L	1	0.100	0.0048	102	60.9 - 132
Toluene	0.0929	mg/L	1	0.100	< 0.000800	93	65.7 - 129
Ethylbenzene	0.0881	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	2	0.0817	mg/L	1	0.100	0.0048	77	60.9 - 132	27	20
Toluene	3	0.0712	mg/L	1	0.100	< 0.000800	71	65.7 - 129	26	20
Ethylbenzene	4	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

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) 5	6	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

Matrix Spike (MS-1)

Spiked Sample: 248210

QC Batch:

75072

Date Analyzed:

2010-11-03

Analyzed By: PG

Prep Batch: 64403

QC Preparation: 2010-11-03

Prepared By: PG

continued ...

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.

⁴MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁵High surrogate recovery due to peak interference.

⁶High surrogate recovery due to peak interference.

Report Date: November 10, 2010

115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 9 of 10 Chavez County, NM

matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	1300	mg/L	50	1250	<1.75	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
Chloride	1300	mg/L	50	1250	<1.75	104	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: 249831

QC Batch: Prep Batch: 64531

75231

Date Analyzed:

2010-11-09 QC Preparation: 2010-11-09

Analyzed By: PG

Prepared By: PG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	1290	mg/L	50	1250	<29.8	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.	\mathbf{Limit}	RPD	Limit
Sulfate	1290	mg/L	50	1250	<29.8	103	90 - 110	0	20

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

Standard (CCV-2)

QC Batch: 74557

Date Analyzed: 2010-10-14

Analyzed By: AG

			$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	${ m CCVs} \ { m Percent}$	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		${ m mg/L}$	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-3)

QC Batch: 74557

Date Analyzed: 2010-10-14

Analyzed By: AG

Report Date: November 10, 2010 115-6403133A

Work Order: 10101413 Celero/Rock Queen #33 Page Number: 10 of 10 Chavez County, NM

_			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/L	0.100	0.0998	100	80 - 120	2010-10-14
Toluene		mg/L	0.100	0.100	100	80 - 120	2010-10-14
Ethylbenzene		$_{ m mg/L}$	0.100	0.0964	96	80 - 120	2010-10-14
Xylene		mg/L	0.300	0.288	96	80 - 120	2010-10-14

Standard (CCV-1)

QC Batch: 75072

Date Analyzed: 2010-11-03

Analyzed By: PG

			CCVs True	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	25.0	25.0	100	90 - 110	2010-11-03

Standard (CCV-2)

QC Batch: 75072

Date Analyzed: 2010-11-03

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	24.7	99	90 - 110	2010-11-03

Standard (CCV-1)

QC Batch: 75231

Date Analyzed: 2010-11-09

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	23.7	95	90 - 110	2010-11-09

Standard (CCV-2)

QC Batch: 75231

Date Analyzed: 2010-11-09

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		$_{ m mg/L}$	25.0	24.3	97	90 - 110	2010-11-09

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			L		ſ										:		<u>Circ</u>	fe or	Speci	(Circle or Specify Method No.)	ethod	No.)				
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CLIENT NAME:						SITE MANAGER:		SHENS		PRES	PRESERVATIVE MÉTHOD	ATIVE TO		7X1005		PB Cq /		₽Z9/09	929/042				OT SHO, SH	GT-, -/		
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6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Lubbock Texas 79424 El Paso, Texas 79922 Midland, Texas 79703

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FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

Ft. Worth, Texas 76132

E-Mail: lab@traceanalysis.com

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 7, 2011

Work Order: 11012134

Project Location: Chavez County, NM Celero/Rock Queen #33

Project Name: Project Number:

115-6403133A

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
255921	MW-1	water	2011-01-21	11:30	2011-01-21
255922	MW-2	water	2011-01-21	11:55	2011-01-21
255923	MW-3	water	2011-01-21	12:15	2011-01-21
255924	MW-4	water	2011-01-21	12:05	2011-01-21

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 20 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

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

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2011-01-21 and assigned to work order 11012134. Samples for work order 11012134 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
BTEX	S 8021 B	66196	2011-01-25 at 10:00	77170	2011-01-25 at 14:57
Chloride (IC)	E 300.0	66370	2011-02-02 at 13:00	77371	2011-02-02 at 17:19
Chloride (IC)	E 300.0	66371	2011-02-02 at 13:00	77372	2011-02-02 at 22:06
SO4 (IC)	E 300.0	66371	2011-02-02 at 13:00	77372	2011-02-02 at 22:06
SO4 (IC)	E 300.0	66413	2011-02-06 at 10:00	77426	2011-02-06 at 12:17
TDS	SM 2540C	66142	2011-01-24 at 11:30	77255	2011-01-31 at 10:09
TDS	SM 2540C	66164	2011-01-25 at 12:00	77317	2011-02-01 at 15:04

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 11012134 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: February 7, 2011 115-6403133A

Work Order: 11012134 Celero/Rock Queen #33 Page Number: 4 of 20 Chavez County, NM

Analytical Report

Sample: 255921 - MW-1

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: AGPrepared By: AG

RL

Parameter	Flag	Result	Units	Dilution	RL
Benzene		0.0121	mg/L	1	0.00100
Toluene		0.00660	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)		0.0742	mg/L	1	0.100	74	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0737	mg/L	1	0.100	74	51.1 - 128

Sample: 255921 - MW-1

Laboratory: Lubbock

Analysis: Chloride (IC) QC Batch: 77371 Prep Batch: 66370

Analytical Method: $\to 300.0$ Date Analyzed: 2011-02-02 Sample Preparation: 2011-02-02

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

RI

Parameter	Flag	Result	Units	Dilution	RL
Chloride		81200	mg/L	10000	2.50

Sample: 255921 - MW-1

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 77426 Prep Batch: 66413

Analytical Method: E 300.0 Date Analyzed: 2011-02-06 Sample Preparation: 2011-02-06

Prep Method: N/AAnalyzed By: PGPrepared By: PG

RLParameter Flag Result Units Dilution RLSulfate 1050 mg/L 50 2.50 Report Date: February 7, 2011 115-6403133A

Work Order: 11012134 Celero/Rock Queen #33 Page Number: 5 of 20 Chavez County, NM

Sample: 255921 - MW-1

Laboratory:	Midland
Analysis:	TDS

QC Batch: 77255 Prep Batch: 66142 Analytical Method: SM 2540C Date Analyzed: 2011-01-31 Sample Preparation: 2011-01-25

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

	RL
	_

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		134000	mg/L	100	10.0

Sample: 255922 - MW-2

Laboratory: Midland

Analysis: BTEX QC Batch: 77170 Prep Batch: 66196

Analytical Method: S 8021B Date Analyzed: 2011-01-25 Sample Preparation: 2011-01-25

Prep Method: S 5030B Analyzed By: AGPrepared 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	mg/L	1	0.00100
Xylene		< 0.00100	mg/L	1	0.00100

					Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.112	mg/L	1	0.100	112	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0961	mg/L	1	0.100	96	78.6 - 122.8

Sample: 255922 - MW-2

Laboratory: Lubbock

Chloride (IC) Analysis: QC Batch: 77372 Prep Batch: 66371

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

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

Dilution Parameter Flag Result Units RLChloride 55.6 mg/L 2.50

RL

Report Date: 115-6403133A	February 7, 2	2011		r: 11012134 k Queen #33	Page Number: Chavez Cour	
Sample: 2559	922 - MW-2	2				
Laboratory: I	Lubbock					
Analysis: S	SO4 (IC)		Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch: 7	77372		Date Analyzed:	2011-02-02	Analyzed By:	PG
Prep Batch: 6	66371		Sample Preparation	: 2011-02-02	Prepared By:	PG
			RL			
Parameter]	Flag	Result	Units	Dilution	RL
Sulfate			124	mg/L	5	2.50
Analysis: 7 QC Batch: 7	Midland FDS 77317 66164		Analytical Method: Date Analyzed: Sample Preparation: RL	SM 2540C 2011-02-01 2011-01-26	Prep Method: Analyzed By: Prepared By:	
Parameter		Flag		Units	Dilution	RL
Total Dissolved	l Solids		2010	mg/L	2	10.0
Analysis: E QC Batch: 7	23 - MW-3 Midland BTEX 17170 16196	;	Date Analyzed:	S 8021B 2011-01-25 2011-01-25	Analyzed By: A	5030B .G .G
Parameter		Flag	RL Result	Units	Dilution	RL

Parameter	Flag	Result		Units	Dilution		RL
Benzene		< 0.0010	00	mg/L		1	0.00100
Toluene		< 0.0010	00	mg/L		1	0.00100
Ethylbenzene		< 0.0010	00	mg/L		1	0.00100
Xylene		< 0.00100		mg/L		1	
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.112	mg/L	1	0.100	112	75.4 - 119.4
4-Bromofluorobenzene (4-BF	B)	0.100	mg/L	1	0.100	100	78.6 - 122.8

Report Date: 115-6403133A	February 7, 2011			er: 11012134 k Queen #33	Page Number Chavez Cou		
Sample: 2559	923 - MW-3						
Laboratory:	Lubbock						
Analysis:	Chloride (IC)		Analytical Metho	d: E 300.0	Prep Method	l: N/A	
QC Batch:	77372		Date Analyzed:	2011-02-02	Analyzed By	: PG	
Prep Batch: 6	66371		Sample Preparati	on: 2011-02-02	Prepared By	: PG	
			RL				
Parameter	Flag		Result	Units	Dilution	RL	
Chloride			5370	mg/L	500	2.50	
Sample: 2559	923 - MW-3						
•	Lubbock						
•	SO4 (IC)		Analytical Method:	E 300.0	Prep Method		
•	77426		Date Analyzed:	2011-02-06	Analyzed By		
Prep Batch: 6	66413		Sample Preparation	: 2011-02-06	Prepared By	: PG	
			RL		7 .1		
Parameter Sulfate	Flag		Result 132	Units mg/L	Dilution 5	$\frac{\text{RL}}{2.50}$	
Analysis: 7 QC Batch: 7	Midland FDS 7317		Analytical Method: Date Analyzed:	SM 2540C 2011-02-01	Prep Method Analyzed By	: AR	
Prep Batch: 6	6164		Sample Preparation:	2011-01-26	Prepared By	AR	
			RL	**	5.11	~-	
Parameter Total Dissolved	0.111	Flag	Result	Units	Dilution 20	$\frac{RL}{10.0}$	
Sample: 2559			10600	m mg/L	20	10.0	
•	Midland						
·	STEX		Analytical Method:	S 8021B		5 5030B	
•	7170		Date Analyzed:	2011-01-25		AG	
Prep Batch: 6	6196		Sample Preparation:	2011-01-25	Prepared By:	AG	
ъ .	F1		RL	TT *:	D:1 ()	DI	
Parameter	Flag	5	Result	Units	Dilution	$\frac{RL}{0.00100}$	
Benzene			ZO 00100	m m / l	1	11 11111111	
Toluene			<0.00100 <0.00100	$ m mg/L \ mg/L$		0.00100	

continued ...

Report Date: February 7, 2011 115-6403133A

Work Order: 11012134 Celero/Rock Queen #33 Page Number: 8 of 20 Chavez County, NM

sample 255	924 continued	
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			R	L				
Parameter	Flag		Resul		Units	D	ilution	RL
Ethylbenzene			< 0.0010	0	mg/L		1	0.00100
Xylene			< 0.0010	0	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	75.4 - 119.4
4-Bromofluorobenzene (4-BI	FB)		0.101	mg/L	1	0.100	101	78.6 - 122.8

Sample: 255924 - MW-4

Laboratory:

Lubbock

Analysis: Chloride (IC) QC Batch: 77372 Prep Batch: 66371

Analytical Method: Date Analyzed:

E 300.0 2011-02-02 Sample Preparation: 2011-02-02 Prep Method: N/A PG Analyzed By: Prepared By: PG

RL

2.50

RLParameter Flag Result Chloride 6510

Units Dilution mg/L 500

Sample: 255924 - MW-4

Laboratory: Lubbock

Analysis: SO4 (IC) QC Batch: 77426 Prep Batch: 66413

Analytical Method: Date Analyzed:

RL

E 300.0 2011-02-06 Sample Preparation: 2011-02-06 Prep Method: N/A PG Analyzed By: Prepared By: PG

Parameter	Flag	Result	Units	Dilution	RL
Sulfate		230	mg/L	5	2.50

Sample: 255924 - MW-4

Laboratory: Midland

Analysis: TDS QC Batch: 77317 Prep Batch: 66164 Analytical Method: Date Analyzed: Sample Preparation:

SM 2540C 2011-02-01 2011-01-26 Prep Method: N/A Analyzed By: ARPrepared By: AR

RL

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		18400	mg/L	100	10.0

Report Date: February 115-6403133A			r: 11012134 c Queen #33		•	umber: 9 of 20 ez County, NM	
Method Blank (1)	QC Batch: 77124						
QC Batch: 77124 Prep Batch: 66157		Date Ana QC Prepa	*	2011-01-24 2011-01-24			zed By: AG red By: AG
			N	4DL			
Parameter	Flag		Result			its	RL
Benzene			< 0.000		mg	* .	0.001
Toluene			< 0.000		mg	•	0.001
Ethylbenzene			< 0.000		mg	•	0.001
Xylene			< 0.000767		mg	/L	0.001
a .	T71	.	7 7 •.	TO 11 at	Spike	Percent	Recovery
Surrogate (TEXT)	Flag	Result	Units	Dilution	Amount	Recovery	Limits 70.2 - 118
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4	(DED)	$0.115 \\ 0.111$	$_{ m mg/L}$	1 1	$0.100 \\ 0.100$	115 111	47.3 - 116
Prep Batch: 66196	_	QC Prepa	M	2011-01-25 IDL		_	red By: AG
Parameter	Flag			sult	Un	RL	
Benzene Toluene			<0.000 <0.000		mg		$0.001 \\ 0.001$
Ethylbenzene			< 0.000		mg mg		0.001
Xylene			< 0.000		mg		0.001
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.111	mg/L	1	0.100	111	70.8 - 117.4
4-Bromofluorobenzene (4	1-BFB)	0.0994	mg/L	1	0.100	99	79 - 113.4
Method Blank (1)	QC Batch: 77255						
QC Batch: 77255		Date Ana	lyzed: 2	2011-01-31		Analy	zed By: AR
•							aca by. Att
Prep Batch: 66142		QC Prepa	aration: 2	2011-01-24		Гтера	red By: AR
-			aration: 2	MDL		_	red By: AR
Prep Batch: 66142 Parameter Total Dissolved Solids	Fla		aration: 2			Units ng/L	

Report Date: February	7, 2011		ler: 11012134 ck Queen #33	F	Page Number: 10 of 20 Chavez County, NM			
Method Blank (1)	QC Batch: 77317							
QC Batch: 77317 Prep Batch: 66164		Date Analyzed: QC Preparation:	2011-02-01 2011-01-25		Analyzed By: Prepared By:	AR AR		
			MDL					
Parameter	Fla	ag	Result	Units		RL		
Total Dissolved Solids			10.0	mg/L		10		
Method Blank (1)	QC Batch: 77371							
QC Batch: 77371		Date Analyzed:	2011-02-02		Analyzed By:	PG		
Prep Batch: 66370		QC Preparation:	2011-02-02		Prepared By:	PG		
Parameter	Flag	λ	ADL esult	Units		RL		
Chloride		<0.0	0142	mg/L	43.44	2.5		
Method Blank (1) QC Batch: 77372 Prep Batch: 66371	QC Batch: 77372	Date Analyzed: QC Preparation:	2011-02-02 2011-02-02		Analyzed By: Prepared By:	PG PG		
Parameter	Floor		MDL esult	Units		RL		
Chloride	Flag		0142	mg/L		$\frac{\text{nL}}{2.5}$		
Method Blank (1) QC Batch: 77372 Prep Batch: 66371	QC Batch: 77372	Date Analyzed: QC Preparation:	2011-02-02	- Gr	Analyzed By: Prepared By:			
Parameter	Flor		DL sult	Units		RL		
Sulfate	Flag		126	mg/L		2.5		
Method Blank (1) QC Batch: 77426 Prep Batch: 66413	QC Batch: 77426	Date Analyzed: QC Preparation:	2011-02-06 2011-02-06		Analyzed By: Prepared By:	PG PG		

Report Date: February 7, 2011 115-6403133A

Work Order: 11012134 Celero/Rock Queen #33 Page Number: 11 of 20 Chavez County, NM

		MDL		
Parameter	Flag	\mathbf{Result}	Units	RL
Sulfate		< 0.126	mg/L	2.5

Duplicates (1) Duplicated Sample: 255921

QC Batch: Prep Batch: 66142 Date Analyzed: 2011-01-31 QC Preparation: 2011-01-24 Analyzed By: AR Prepared By: AR

RPD Duplicate Sample RPD Param Result Result Units Dilution Limit **Total Dissolved Solids** 147000 134000 100 9 10 mg/L

Duplicated Sample: 255931 Duplicates (1)

QC Batch: 77317

Date Analyzed:

2011-02-01

Analyzed By: AR Prepared By: AR

Prep Batch: 66164 QC Preparation: 2011-01-25

	Duplicate	Sample				RPD
Param	\mathbf{Result}	Result	\mathbf{Units}	Dilution	RPD	Limit
Total Dissolved Solids	70500	75700	mg/L	100	7	10

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 66157

77124

Date Analyzed: QC Preparation:

2011-01-24 2011-01-24

Analyzed By: AG Prepared By: AG

LCS Rec. Spike Matrix Param Result Units Dil. Amount Result Rec. Limit Benzene 0.0885 mg/L 0.100 < 0.000600 88 82.9 - 118 1 Toluene 99 82.7 - 117 0.0989mg/L1 0.100 < 0.000600 Ethylbenzene 0.102 1 0.100 < 0.000800 102 78.8 - 116 mg/L0.308 1 0.300 79.3 - 116 Xylene mg/L < 0.000767 103

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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

Report Date: February 7, 2011

115-6403133A

Work Order: 11012134 Celero/Rock Queen #33 Page Number: 12 of 20 Chavez County, NM

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	${ m Rec.} \ { m Limit}$
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

Laboratory Control Spike (LCS-1)

QC Batch:

77170 Prep Batch: 66196 Date Analyzed: QC Preparation: 2011-01-25

2011-01-25

Analyzed By: AG Prepared By: AG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec .	${f Limit}$
Benzene	0.0891	mg/L	1	0.100	< 0.000400	89	76.8 - 110.3
Toluene	0.103	mg/L	1	0.100	< 0.000300	103	81 - 108.2
Ethylbenzene	0.108	mg/L	1	0.100	< 0.000300	108	78.8 - 111
Xylene	0.328	mg/L	1	0.300	< 0.000333	109	80.3 - 111.4

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	\mathbf{Result}	Rec.	Limit	RPD	Limit
Benzene	0.0843	mg/L	1	0.100	< 0.000400	84	76.8 - 110.3	6	20
Toluene	0.0988	mg/L	1	0.100	< 0.000300	99	81 - 108.2	4	20
Ethylbenzene	0.103	mg/L	1	0.100	< 0.000300	103	78.8 - 111	5	20
Xylene	0.312	mg/L	1	0.300	< 0.000333	104	80.3 - 111.4	5	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)	0.112	0.111	mg/L	1	0.100	112	111	66.6 - 114.5
4-Bromofluorobenzene (4-BFB)	0.108	0.106	mg/L	1	0.100	108	106	77.1 - 114.4

Laboratory Control Spike (LCS-1)

QC Batch:

77255 Prep Batch: 66142 Date Analyzed:

2011-01-31

Spike

Matrix

Analyzed By: AR Prepared By: AR

QC Preparation: 2011-01-24

Rec. Limit

raram	Result	Units	Dil.	Amount	Result	Rec.	Limit			
Total Dissolved Solids	1020	mg/L	1	1000	< 9.75	102	90 - 110			
Demonstrate or the second on t										

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

LCS

	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	0	10

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Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

77317 66164 Date Analyzed: QC Preparation:

2011-02-01 2011-01-25 Analyzed By: AR

Prepared By: AR

LCS Spike Matrix Rec. Param Result Dil. Amount Units Result Limit Rec. Total Dissolved Solids 1080 1000 < 9.75108 90 - 110 mg/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	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids	1050	mg/L	1	1000	< 9.75	105	90 - 110	3	10

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

Laboratory Control Spike (LCS-1)

QC Batch:

77371 Prep Batch: 66370 Date Analyzed:

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

Analyzed By: PG Prepared By: PG

LCS Spike Matrix Rec. Result Param Units Dil. Amount Result Rec. Limit Chloride 24.1 mg/L 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	24.1	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:

77372 Prep Batch: 66371 Date Analyzed: QC Preparation:

2011-02-02 2011-02-02 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	$_{ m Limit}$
Chloride	24.0	mg/L	1	25.0	< 0.0142	96	90 - 110	0	20

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Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

77372 66371

Date Analyzed:

2011-02-02

QC Preparation: 2011-02-02 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	< 0.126	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	24.5	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: Prep Batch: 66413

77426

Date Analyzed:

2011-02-06 QC Preparation: 2011-02-06 Analyzed By: PG

Prepared By: PG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	24.7	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	24.7	mg/L	1	25.0	< 0.126	99	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: 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	$_{ m mg/L}$	1	0.100	0.0066	57	78.3 - 111
Ethylbenzene	3	0.0573	mg/L	1	0.100	< 0.000800	57	75.3 - 110

continued ...

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.

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matrix spikes continued ...

		MS			Spike	Matrix		Rec .
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Xylene	4	0.145	$_{ m mg/L}$	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			\mathbf{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: 256101

QC Batch: 77170 Date Analyzed: 2011-01-25 Analyzed By: AG Prep Batch: 66196 QC Preparation: 2011-01-25 Prepared By: AG

		MS			Spike	Matrix		Rec.
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		0.0827	mg/L	1	0.100	< 0.000400	83	68.2 - 119.3
Toluene		0.0851	mg/L	1	0.100	< 0.000300	85	74.6 - 110.8
Ethylbenzene		0.0786	mg/L	1	0.100	< 0.000300	79	71.6 - 111.9
Xylene	11	0.204	mg/L	1	0.300	< 0.000333	68	71.3 - 113.4

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
Benzene		0.0777	mg/L	1	0.100	< 0.000400	78	68.2 - 119.3	6	20
Toluene		0.0814	mg/L	1	0.100	< 0.000300	81	74.6 - 110.8	4	20
Ethylbenzene	12	0.0750	mg/L	1	0.100	< 0.000300	75	71.6 - 111.9	5	20

continued ...

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.

⁷Matrix 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.

¹¹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

¹²MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occurred properly.

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matrix	snikes	continued	

		MSD			\mathbf{Spike}	Matrix		$\mathrm{Rec.}$		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Xylene	13	0.193	mg/L	1	0.300	< 0.000333	64	71.3 - 113.4	6	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)	0.0829	0.0831	mg/L	1	0.1	83	83	68.2 - 110.1
4-Bromofluorobenzene (4-BFB)	0.0830	0.0816	mg/L	1	0.1	83	82	78.7 - 116.2

Matrix Spike (MS-1) Spiked Sample: 255921

QC Batch: 77371

Prep Batch: 66370

Date Analyzed: 2011-02-02 QC Preparation: 2011-02-02

Analyzed By: PG Prepared By: PG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	341000	mg/L	10000	250000	81200	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.	\mathbf{Limit}	RPD	Limit
Chloride	341000	mg/L	10000	250000	81200	104	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: 256247

QC Batch: 77372 Prep Batch: 66371

Date Analyzed: QC Preparation:

2011-02-02 2011-02-02 Analyzed By: PG Prepared By: PG

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Chloride 852 mg/L 10 250 795 23 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	15	881	mg/L	10	2500	795	35	90 - 110	3	20

¹³Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

¹⁴Matrix spike ran with batch but spiked sample was reported in another batch •

¹⁵Matrix spike ran with batch but spiked sample was reported in another batch •

Report Date: February 7, 2011

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Work Order: 11012134 Celero/Rock Queen #33 Page Number: 17 of 20 Chavez County, NM

Matrix Spike (MS-1)

Spiked Sample: 256247

QC Batch:

77372

Date Analyzed:

2011-02-02

Analyzed By: PG

Rec. Limit 90 - 110

Prep Batch: 66371

QC Preparation: 2011-02-02

Prepared By: PG

		MS			\mathbf{Spike}	Matrix	
Param		Result	Units	Dil.	Amount	Result	Rec.
Sulfate	16	3380	mg/L	10	250	2750	252

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	17	3400	mg/L	10	2500	2750	136	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: 255931

QC Batch:

77426

Date Analyzed:

2011-02-06

Analyzed By: PG

Prep Batch: 66413

QC Preparation: 2011-02-06

Prepared By: PG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	1780	mg/L	50	1250	478	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	1790	mg/L	50	1250	478	105	90 - 110	1	20

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

Standard (CCV-2)

QC Batch: 77124

Date Analyzed: 2011-01-24

Analyzed By: AG

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

 $^{^{16}\}mathrm{Matrix}$ spike ran with batch but spiked sample was reported in another batch \bullet

 $^{^{17}}$ Matrix spike ran with batch but spiked sample was reported in another batch ullet

Report Date: February 7, 2011

115-6403133A

Work Order: 11012134 Celero/Rock Queen #33 Page Number: 18 of 20 Chavez County, NM

Standard (CCV-3)

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	0.0820	82	80 - 120	2011-01-24
Toluene		mg/L	0.100	0.0952	95	80 - 120	2011-01-24
Ethylbenzene		mg/L	0.100	0.0976	98	80 - 120	2011-01-24
Xylene		mg/L	0.300	0.294	98	80 - 120	2011-01-24

Standard (CCV-1)

QC Batch: 77170

Date Analyzed: 2011-01-25

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	0.0857	86	80 - 120	2011-01-25
Toluene		mg/L	0.100	0.100	100	80 - 120	2011-01-25
Ethylbenzene		mg/L	0.100	0.104	104	80 - 120	2011-01-25
Xylene		mg/L	0.300	0.314	105	80 - 120	2011-01-25

Standard (CCV-2)

QC Batch: 77170

Date Analyzed: 2011-01-25

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	0.0873	87	80 - 120	2011-01-25
Toluene		mg/L	0.100	0.101	101	80 - 120	2011-01-25
Ethylbenzene		mg/L	0.100	0.105	105	80 - 120	2011-01-25
Xylene		mg/L	0.300	0.315	105	80 - 120	2011-01-25

Standard (CCV-1)

QC Batch: 77371

Date Analyzed: 2011-02-02

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	24.5	98	90 - 110	2011-02-02

Standard (CCV-2) QC Batch: 77371 Param Flag Unit	CCVs	nalyzed: 2011-(ng				
Param Flag Uni	CCVs	nalyzed: 2011-0	12 02				
			Date Analyzed: 2011-02-02				
		CCVs	CCVs	Percent			
	True	Found	Percent	Recovery	Date		
(II) 1 1	s Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride mg/	$ m L \qquad 25.0$	24.0	96	90 - 110	2011-02-02		
Standard (CCV-1)							
QC Batch: 77372	Date Ar	nalyzed: 2011-0	02-02	Analyzed By: PG			
	CCVs	CCVs	CCVs	Percent			
	True	Found	Percent	Recovery	Date		
Param Flag Unit	s Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride mg/	L 25.0	24.0	96	90 - 110	2011-02-02		
Standard (CCV-1) QC Batch: 77372	Date Ar	nalyzed: 2011-0	2-02	Ana	lyzed By: PG		
	CCVs	CCVs	CCVs	Percent			
	True	Found	Percent	Recovery	Date		
Param Flag Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Sulfate mg/L	25.0	24.5	98	90 - 110	2011-02-02		
Standard (CCV-2)							
QC Batch: 77372	Date An	alyzed: 2011-0	2-02	Anal	lyzed By: PG		
	CCVs	CCVs	CCVs	Percent			
	True	Found	Percent	Recovery	Date		
Param Flag Unit		Conc.	Recovery	Limits	Analyzed		
Chloride mg/	L=25.0	24.1	96	90 - 110	2011-02-02		

Date Analyzed: 2011-02-02

CCVs

Found

Conc.

24.6

 CCVs

Percent

Recovery

98

 CCVs

True

Conc.

25.0

Analyzed By: PG

Date

Analyzed

2011-02-02

Percent

Recovery

Limits

90 - 110

QC Batch: 77372

Param

Sulfate

Flag

Units

mg/L

Report Date: February 7, 2011

Work Order: 11012134 115-6403133A Celero/Rock Queen #33 Page Number: 20 of 20 Chavez County, NM

Standard (CCV-1)

QC Batch: 77426

Date Analyzed: 2011-02-06

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		m mg/L	25.0	25.2	101	90 - 110	2011-02-06

Standard (CCV-2)

QC Batch: 77426

Date Analyzed: 2011-02-06

Analyzed By: PG

			CCVs	CCVs	CCVs	Percent	
			\mathbf{True}	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	25.0	24.7	99	90 - 110	2011-02-06

2004: 11012134

December 1 OF: /		(Circle or Specify Method No.)	96 gH bq 1	PHESEPHATIVE SOVEZS SEPRATIVE SECOLOG	MARER OF COUTAIN CLEY BOOMS CLASS Sent Volatiles CLAS Volatiles CLAS Sent Volatiles CLAS	H						CALL SAMPLED BY: (Phint & Inthight	SAMPLE SHIPPED BY (CITICAL)	Dane: HAND DELIVERED > UPS OTHER:	ZK951497	Kal
l u	Analysis nequest of Chain of Custody necord	- 1	1910 N. Big Spring St. Midland, Texas 79705 (432) 662-4559 • Fax (432) 682-3946	CLIENT NAME.	PROJECT NAME: ()	\	1 1 155	933 1215 Mars 3	HON 5 5021 7 1			144	7	Dette:	MAC 216 NECESSARY PROPERTY TA	ext receives



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Certifications

HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Jeff Kindley Tetra Tech

1910 N. Big Spring Street Midland, TX, 79705

Report Date: May 4, 2011

Work Order:

11041529

Project Name:

Celero/Rock Queen Unit Tract #33

Project Number: 115-6403133

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

			Date	Tune	Date
Sample	Description	Matrix	Taken	Taken	Received
263904	MW-1	water	2011-04-14	18:15	2011-04-15
263905	MW-2	water	2011-04-14	18:45	2011-04-15
263906	MW-3	water	2011-04-14	18:45	2011-04-15
263907	MW-4	water	2011-04-14	18:30	2011-04-15
263908	RW-1	water	2011-04-14	18:30	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 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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Analytical Report	
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QC Batch 80470 - Method Blank (1)	
QC Batch 80665 - Method Blank (1)	
QC Batch 80665 - Method Blank (1)	
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QC Batch 80666 - Method Blank (1)	
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Case Narrative

Samples for project Celero/Rock Queen Unit Tract #33 were received by TraceAnalysis, Inc. on 2011-04-15 and assigned to work order 11041529. Samples for work order 11041529 were received intact without headspace and at a temperature of 0.6 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	68258	2011-04-18 at 08:51	80420	2011-04-18 at 23:21
BTEX	S 8021B	68300	2011-04-19 at 09:52	80470	2011-04-20 at 01:20
Chloride (IC)	E 300.0	68438	2011-04-25 at 11:24	80665	2011-04-26 at 15:32
Chloride (IC)	E 300.0	68439	2011-04-25 at 14:24	80666	2011-04-26 at 15:33
SO4 (IC)	E 300.0	68438	2011-04-25 at 11:24	80665	2011-04-26 at 15:32
SO4 (IC)	E 300.0	68439	2011-04-25 at 14:24	80666	2011-04-26 at 15:33
TDS	SM 2540C	68432	2011-04-22 at 12:00	80826	2011-04-29 at 14:31
TDS	SM 2540C	68433	2011-04-25 at 12:18	80869	2011-05-02 at 09:35

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 11041529 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.

115-6403133

Work Order: 11041529 Celero/Rock Queen Unit Tract #33 Page Number: 5 of 25

Analytical Report

Sample: 263904 - MW-1

Laboratory: Midland

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

RLParameter Flag Cert Result Units Dilution RLBenzene 0.00760 mg/L 0.00100 1 Toluene < 0.00100 mg/L1 0.00100 Ethylbenzene 1 0.00100 < 0.00100 mg/L1 Xylene < 0.00100 mg/L 1 0.00100

						\mathbf{Spike}	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0763	mg/L	1	0.100	76	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0949	mg/L	1	0.100	95	51.1 - 128

Sample: 263904 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 80665 Date Analyzed: 2011-04-26 Analyzed By: AR Prep Batch: 68438 Sample Preparation: 2011-04-25 Prepared By: AR

Sample: 263904 - MW-1

Laboratory: Midland

Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 80665 Analyzed By: ARDate Analyzed: 2011-04-26 68438 Prep Batch: Prepared By: ARSample Preparation: 2011-04-25

Report Date: May 4, 2011 115-6403133

Work Order: 11041529

Celero/Rock Queen Unit Tract #33

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Sample: 263904 - MW-1

Laboratory: Midland

Analysis: TDS Analytical Method: SM 2540C QC Batch: 80826 Date Analyzed: 2011-04-29 Prep Batch: 68432 Sample Preparation: 2011-04-25

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

Sample: 263905 - MW-2

Laboratory: Midland

Analysis:BTEXAnalytical Method:S 8021BQC Batch:80420Date Analyzed:2011-04-18Prep Batch:68258Sample Preparation:2011-04-18

Prep Method: S 5030B Analyzed By: ME

ME

Prepared By:

RLParameter Flag Cert Units Dilution Result RLBenzene 0.00100 < 0.00100 mg/L1 Toluene < 0.00100 mg/L 0.001001 Ethylbenzene < 0.00100 mg/L1 0.00100 Xylene 1 < 0.00100 mg/L0.00100

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0964	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0993	m mg/L	1	0.100	99	51.1 - 128

Sample: 263905 - MW-2

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 80665 Date Analyzed: 2011-04-26 Analyzed By: ARPrep Batch: 68438 Sample Preparation: 2011-04-25 Prepared By: AR

			\mathtt{RL}			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		1	48.5	mg/L	5	2.50

Report Date: May 4, 2011 115-6403133 Sample: 263905 - MW-2 Midland Laboratory:

Work Order: 11041529 Celero/Rock Queen Unit Tract #33 Page Number: 7 of 25

Analysis: SO4 (IC) 80665 QC Batch: Prep Batch: 68438

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

RLFlag Cert Result Units Dilution RLParameter 133 nig/L 2.50 Sulfate 5 1

Sample: 263905 - MW-2

Laboratory: Midland

Analysis: TDS QC Batch: 80869 Prep Batch: 68433 Analytical Method: Date Analyzed: Sample Preparation:

SM 2540C 2011-05-02 2011-04-26 Prep Method: N/A Analyzed By: ARPrepared By: AR

RLFlag Cert Result Units Dilution RLParameter 10.0 Total Dissolved Solids 544 mg/L 2

Sample: 263906 - MW-3

Laboratory: Midland

BTEX Analysis: QC Batch: 80420 68258 Prep Batch:

Analytical Method: Date Analyzed: Sample Preparation:

S 8021B 2011-04-18 2011-04-18

Prep Method: S 5030B Analyzed By: MEPrepared By: ME

RLCert Units Dilution RLParameter Flag Result Benzene < 0.00100 mg/L 1 0.00100 Toluene < 0.00100 mg/L1 0.00100 Ethylbenzene < 0.00100 mg/L1 0.00100 mg/L 1 0.00100Xylene < 0.00100

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0962	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.105	mg/L	1	0.100	105	51.1 - 128

115-6403133	y 4, 2011	Celero	Work Order: /Rock Queen	33	Page Number: 8 of		
Sample: 263906	- MW-3						
·		Date	llytical Methode e Analyzed: iple Preparatio	2011-04-2		Prep Method: Analyzed By: Prepared By:	N/A AR AR
_				RL			
Parameter	Flag	Cei		tesult	Units	Dilution	RL
Chloride		1		5420	mg/L	1000	2.50
Sample: 263906	- MW-3						
v		Date A	tical Method: Analyzed: e Preparation:	E 300.0 2011-04-26 : 2011-04-25		Prep Method: Analyzed By: Prepared By:	N/A AR AR
Parameter	Flag	Cer	rt R	RL tesult	Units	Dilution	RL
Sulfate	1145	1		126	mg/L	5	2.50
Sample: 263906 Laboratory: Mid Analysis: TDS QC Batch: 8086 Prep Batch: 6845	land 3 9	Date A	ical Method: analyzed: Preparation:	SM 2540C 2011-05-02 2011-04-26		Prep Method: Analyzed By: Prepared By:	N/A AR AR
		Flag	Cert	RL Result	Units	Dilution	RL
Parameter							

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Work Order: 11041529

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sample 263907 continued ...

Parameter	Flag	Cert		RL Result	Uni	ts	Dilution	RL
				RL				
Parameter	Flag	Cert		Result	Uni	ts	Dilution	RL
Benzene		1	<	0.00100	mg/	L	1	0.00100
Toluene		1	<	0.00100	mg/	\mathbf{L}	1	0.00100
Ethylbenzene		1	<	0.00100	mg/	L	1	0.00100
Xylene		1	<	0.00100	mg/	L	1	0.00100
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount		Limits
Trifluorotoluene (TFT)		1	0.0885	mg/L	1	0.100	88	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0952	mg/L	1	0.100	95	51.1 - 128

Sample: 263907 - MW-4

Laboratory: Midland

Prep Batch:

Chloride (IC) Analysis: QC Batch: 80666

68439

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

RLParameter Flag Cert Result Units Dilution RL7410 1000 2.50 Chloride mg/L 1

Sample: 263907 - MW-4

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 80666 68439 Prep Batch:

Analytical Method: $\to 300.0$ 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
Sulfate		1	236	m mg/L	5	2.50

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Work Order: 11041529

Celero/Rock Queen Unit Tract #33

Page Number: 10 of 25

Sample: 263907 - MW-4

Laboratory:

Midland

Analysis: TDS QC Batch: 80869

Analytical Method: Date Analyzed:

SM 2540C 2011-05-02 Prep Method: N/A Analyzed By: AR

Prep Batch: 68433 Sample Preparation:

2011-04-26

Prepared By: AR

RL

Parameter Dilution Flag Cert Result Units RLTotal Dissolved Solids 25400 mg/L 100 10.0

Sample: 263908 - RW-1

Laboratory:

Midland

Analysis: **BTEX** QC Batch: 80470 Prep Batch: 68300

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-04-20 2011-04-19

0.0176

Prep Method: S 5030B

Analyzed By: MEME Prepared By:

RLParameter Flag Cert Result Units Dilution RLBenzene 0.0124 mg/L 1 0.00100 Toluene 0.00700 0.00100mg/L 1 Ethylbenzene mg/L 1 0.00100 < 0.00100 **Xylene** 1 0.00100

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0794	mg/L	1	0.100	79	67.8 - 129
4-Bromofluorobeuzene (4-BFB)		1	0.0910	mg/L	1	0.100	91	51.1 - 128

Sample: 263908 - RW-1

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 80666 Prep Batch: 68439

Analytical Method: Date Analyzed:

Sample Preparation:

E 300.02011-04-26 2011-04-25

mg/L

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

RL

2.50

RLParameter Flag Cert Dilution Result Units Chloride 5000 83700 mg/Lı

115-6403133 Celero/Rock Queen Unit Tract #33 Sample: 263908 - RW-1 Laboratory: Midland Analysis: Analytical Method: E 300.0 SO4 (IC) Prep Method: N/A QC Batch: 80666 AR Date Analyzed: 2011-04-26 Analyzed By: Prep Batch: 68439 2011-04-25 Sample Preparation: Prepared By: AR RLParameter Cert Result Units Dilution Flag RLSulfate 1070 mg/L 50 2.50 1 Sample: 263908 - RW-1 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 80869 Date Analyzed: 2011-05-02 Analyzed By: ARPrep Batch: 68433 Sample Preparation: 2011-04-26 Prepared By: ARRLFlag

Cert

Units

mg/L

Result

122000

Dilution

100

RL

10.0

Work Order: 11041529

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Report Date: May 4, 2011

Parameter

Total Dissolved Solids

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Work Order: 11041529 Celero/Rock Queen Unit Tract #33

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

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			MDL		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.000400	mg/L	0.001
Toluene		1	< 0.000300	$\mathrm{mg/L}$	0.001
Ethylbenzene		1	< 0.000300	m mg/L	0.001
Xylene		1	< 0.000333	mg/L	0.001

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	$_{ m Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0862	mg/L	1	0.100	86	70.2 - 118
4-Bromofluorobenzene (4-BFB)		1	0.0861	mg/L	1	0.100	86	47.3 - 116

Method Blank (1)

QC Batch: 80470

QC Batch: 80470 Prep Batch: 68300 Date Analyzed: 2011-04-20 QC Preparation: 2011-04-19

Analyzed By: ME Prepared By: ME

			MDL		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.000400	m mg/L	0.001
Toluene		1	< 0.000300	mg/L	0.001
Ethylbenzene		1	< 0.000300	mg/L	0.001
Xylene		1	< 0.000333	mg/L	0.001

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1	0.0880	nıg/L	1	0.100	88	70.2 - 118
4-Bromofluorobenzene (4-BFB)		1	0.0959	mg/L	1	0.100	96	47.3 - 116

Report Date: May 4, 2 115-6403133	2011	Work Order Celero/Rock Quee		#33	Page Number: 13	3 of 25
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:	AR AR
.		~		MDL	** **	DI
Parameter Chloride	Flag	Cert 1		Result 0.513	$rac{ m Units}{ m mg/L}$	RL 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:	AR AR
_				MDL	**	
Parameter Sulfate	Flag	Cert		Result <0.177	Units mg/L	$\frac{\text{RL}}{2.5}$
Method Blank (1)	QC Batch: 80666					
QC Batch: 80666		Date Analyzed:	2011-04-26		Analyzed By:	AR
Prep Batch: 68439		QC Preparation:	2011-04-25		Prepared By:	AR
				MDL		
Parameter	Flag	Cert		Result	\mathbf{Units}	RL
Chloride		1		0.724	nig/L	2.5
Method Blank (1)	QC Batch: 80666					
QC Batch: 80666		Date Analyzed:	2011-04-26		Analyzed By:	AR
Prep Batch: 68439		QC Preparation:	2011-04-25		Prepared By:	AR.
				MDL		
Parameter	Flag	Cert		Result	Units	RL
Sulfate		1		< 0.177	m mg/L	2.5

Report Date: May 4, 2011 115-6403133	Work Order Celero/Rock Quee			Page Number: 14 of 25			
Method Blank (1) QC Bat	tch: 80826						
QC Batch: 80826 Prep Batch: 68432	Date Analyzed: QC Preparation:	2011-04-29 2011-04-22			Analyzed By: Prepared By:	AR AR	
			MDL				
Parameter	Flag	Cert	Result		Units	RL	
Total Dissolved Solids		1	<9.75		mg/L	10	
Method Blank (1) QC Bar	tch: 80869						
QC Batch: 80869	Date Analyzed:	2011-05-02			Analyzed By:	AR	
Prep Batch: 68433	QC Preparation:	2011-04-25			Prepared By:	AR	
			MDL				
Parameter	Flag	Cert	Result		Units	RL	
Total Dissolved Solids	1 105	1	<9.75		nig/L	10	
Duplicates (1) Duplicated Sa	-	2011 01 02				A.D.	
QC Batch: 80826 Prep Batch: 68432	Date Analyzed: QC Preparation:	2011-04-29 2011-04-22			Analyzed By: Prepared By:	AR AR	
	Duplicate	Sample				RPD	
Param	Result	Result	Units	Dilution	RPD	Limit	
Total Dissolved Solids	1 121000	116000	mg/L	100	4	10	
-	ample: 263914						
QC Batch: 80869	Date Analyzed:	2011-05-02			Analyzed By:		
QC Batch: 80869	-	2011-05-02 2011-04-25			Analyzed By: Prepared By:	AR.	
QC Batch: 80869	Date Analyzed: QC Preparation:	2011-04-25				AR.	
QC Batch: 80869	Date Analyzed:		Units	Dilution			

Report Date: May 4, 2011 115-6403133

Work Order: 11041529 Celero/Rock Queen Unit Tract #33

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

80420

Date Analyzed:

2011-04-18 QC Preparation: 2011-04-18 Analyzed By: ME Prepared By: ME

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Prep Batch: 68258

			LCS			$_{ m Spike}$	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	${f Amount}$	Result	Rec.	${f Limit}$
Benzene		1	0.0962	mg/L	1	0.100	< 0.000400	96	76.8 - 110
Toluene		1	0.100	$\mathrm{mg/L}$	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			\mathbf{Spike}	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	${f Limit}$	RPD	Limit
Benzene		1	0.0930	ıng/L	1	0.100	< 0.000400	93	76.8 - 110	3	20
Toluene		3	0.0981	$\mathrm{mg/L}$	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.	$_{ m Limit}$
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	mg/L	1	0.100	98	93	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

80470 68300 Date Analyzed:

2011-04-20 QC Preparation: 2011-04-19

Analyzed By: ME Prepared By: ME

Param	F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	${ m Rec.} \ { m Limit}$
Benzene		1	0.0942	mg/L	1	0.100	< 0.000400	94	76.8 - 110
Toluene		1	0.101	mg/L	1	0.100	< 0.000300	101	81 - 108
Ethylbenzene		1	0.101	mg/L	1	0.100	< 0.000300	101	78.8 - 118
Xylene		1	0.304	mg/L	1	0.300	< 0.000333	101	80.3 - 119

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Work Order: 11041529 Celero/Rock Queen Unit Tract #33

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	\mathbf{Limit}
Benzene		1	0.0870	mg/L	1	0.100	< 0.000400	87	76.8 - 110	8	20
Toluene		1	0.0940	mg/L	1	0.100	< 0.000300	94	81 - 108	7	20
Etliylbenzene		1	0.0934	mg/L	1	0.100	< 0.000300	93	78.8 - 118	8	20
Xylene		1	0.284	mg/L	1	0.300	< 0.000333	95	80.3 - 119	7	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	0.0920	0.0856	mg/L	1	0.100	92	86	66.6 - 114
4-Bromofluorobenzene (4-BFB)	1	0.108	0.0993	mg/L	1	0.100	108	99	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch:

80665 Prep Batch: 68438 Date Analyzed:

2011-04-26 QC Preparation: 2011-04-25 Analyzed By: AR

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Prepared By: AR.

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
Chloride		,	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.	Limit	RPD	\mathbf{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.

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 68438

Date Analyzed:

2011-04-26

Analyzed By: AR.

QC Preparation: 2011-04-25

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}
Sulfate		1	23.1	mg/L	1	25.0	< 0.177	92	90 - 110

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{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

Report Date: May 4, 2011 115-6403133

Work Order: 11041529

Celero/Rock Queen Unit Tract #33

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:

80666

Date Analyzed:

2011-04-26

Analyzed By: AR

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Prepared By: AR

Prep Batch: 68439

2011-04-25 QC Preparation:

			LCS			\mathbf{Spike}	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	27.3	$_{ m ing/L}$	1	25.0	< 0.265	109	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	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	27.4	mg/L	1	25.0	< 0.265	110	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:

80666

Date Analyzed:

2011-04-26

Analyzed By: AR

Prepared By: AR

Prep Batch: 68439

QC Preparation: 2011-04-25

LCS Matrix Rec. Spike Param Rec. Limit Result Units Dil. Amount Result Sulfate 25.8 mg/L 25.0 < 0.177103 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.	Limit	RPD	Limit
Sulfate		1	25.6	mg/L	1	25.0	< 0.177	102	90 - 110	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch:

80826

Date Analyzed:

2011-04-29

Analyzed By: AR

Prep Batch: 68432 QC Preparation: 2011-04-22

Prepared By: AR

115-6403133

Work Order: 11041529 Celero/Rock Queen Unit Tract #33 Page Number: 18 of 25

			LCS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids		1	1050	m 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}	\mathbf{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.

Laboratory Control Spike (LCS-1)

QC Batch:

80869

Date Analyzed:

2011-05-02

Analyzed By: AR

Prep Batch: 68433

QC Preparation: 2011-04-25

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids		1	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			\mathbf{Spike}	Matrix		Rec.		RPD
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	990	mg/L	1	1000	< 9.75	99	90 - 110	4	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: 263903

QC Batch: 80665 Date Analyzed:

2011-04-26 2011-04-25 Analyzed By: AR

Prep Batch: 68438 QC Preparation:

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{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			\mathbf{Spike}	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	\mathbf{Limit}
Chloride		1	5580	mg/L	100	2750	3010	93	90 - 110	1	20

115-6403133 Celero/Rock Queen Unit Tract #33 Page Number: 19 of 25

Matrix Spike (MS-1)

Spiked Sample: 263903

QC Batch:

Date Analyzed:

2011-04-26

Analyzed By: AR

Prep Batch:

68438

QC Preparation:

2011-04-25

Prepared By: AR.

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	$^{\rm C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	2680	ıng/L	100	2750	136	92	90 - 110

Work Order: 11041529

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		3	2680	mg/L	100	2750	136	92	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: 263910

QC Batch: 80666 Prep Batch: 68439

2011-04-26

Dil.

100

 ${\bf Spike}$

Amount

2750

Analyzed By: AR Prepared By: AR

1 LOP	DW(11.	00100

Param

Chloride

Date Analyzed: QC Preparation: 2011-04-25

Units

mg/L

Matrix Rec. Limit Result Rec. 8280 77 90 - 110

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

 \mathbf{C}

MS

Result

10400

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	10400	mg/L	100	2750	8280	77	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: 263910

QC Batch: 80666 Prep Batch: 68439 Date Analyzed: 2011-04-26 QC Preparation: 2011-04-25

Analyzed By: AR Prepared By: AR.

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	2470	mg/L	100	2750	167	84	90 - 110

115-6403133

Work Order: 11041529 Celero/Rock Queen Unit Tract #33 Page Number: 20 of 25

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	2490	mg/L	100	2750	167	84	90 - 110	1	20

Report Date: May 4, 2011 115-6403133

Work Order: 11041529 Celero/Rock Queen Unit Tract #33

Calibration Standards

Standard (CCV-1)

QC Batch: 80420

Date Analyzed: 2011-04-18

Analyzed By: ME

Page Number: 21 of 25

_				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Cert	${ m Units}$	Conc.	Conc.	Recovery	Limits	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

				$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	CCVs Percent	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	$_{ m mg/L}$	0.100	0.0993	99	80 - 120	2011-04-18
Ethylbenzene		1	mg/L	0.100	0.0998	100	80 - 120	2011-04-18
Xylene		1	mg/L	0.300	0.298	99	80 - 120	2011-04-18

Standard (CCV-1)

QC Batch: 80470

Date Analyzed: 2011-04-20

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	0.0916	92	80 - 120	2011-04-20
Toluene		1	mg/L	0.100	0.0996	100	80 - 120	2011-04-20
Ethylbenzene		1	mg/L	0.100	0.0983	98	80 - 120	2011-04-20
Xylene		1	mg/L	0.300	0.298	99	80 - 120	2011-04-20

Report Date: May 4, 2011 115-6403133

Work Order: 11041529

Celero/Rock Queen Unit Tract #33

Page Number: 22 of 25

Standard (CCV-2)

QC Batch: 80470

 $Date\ Analyzed:\ \ 2011\text{-}04\text{-}20$

Analyzed By: ME

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{Flag}	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	$_{ m mg/L}$	0.100	0.0907	91	80 - 120	2011-04-20
Toluene		1	$_{ m mg/L}$	0.100	0.0978	98	80 - 120	2011-04-20
Ethylbenzene		1	m mg/L	0.100	0.0964	96	80 - 120	2011-04-20
Xylene		1	mg/L	0.300	0.290	97	80 - 120	2011-04-20

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	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	\mathbf{Date}
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	$_{ m mg/L}$	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	$_{ m Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	23.1	92	90 - 110	2011-04-26

115-6403133

Work Order: 11041529

Celero/Rock Queen Unit Tract #33

Page Number: 23 of 25

Standard (CCV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	24.2	97	90 - 110	2011-04-26

Standard (ICV-1)

QC Batch: 80666

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	mg/L	25.0	23.1	92	90 - 110	2011-04-26

Standard (ICV-1)

QC Batch: 80666

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
Sulfate		1	mg/L	25.0	24.2	97	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80666

Date Analyzed: 2011-04-26

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	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: 80666

Date Analyzed: 2011-04-26

Analyzed By: AR

Report Date: May 4, 2011 115-6403133

Work Order: 11041529 Celero/Rock Queen Unit Tract #33 Page Number: 24 of 25

_	-	a	**	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	\mathbf{Flag}	Cert	\mathbf{Units}	Conc.	Conc .	Recovery	Limits	Analyzed
Sulfate		1	$\mathrm{mg/L}$	25.0	24.0	96	90 - 110	2011-04-26

Report Date: May 4, 2011 Work Order: 11041529 Page Number: 25 of 25

115-6403133 Celero/Rock Queen Unit Tract #33

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.

Xw0 #: 1641529

SAMPLE CONDITION WHEN RECEIVED: REMARKS: C/6 C/N/40 C/F Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Mana	CONTACT: DATE PHONE: ZIP: DATE: TIME.	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature) Date: RECEIVED BY: (Signature) Time: Time:	Time:	RELINQUISHED BY: (Signature) Date: PECHTED BY: (Signature) Date:	Time: 4-13-11 PRETENT (Signature)	7			908 4/14 1830 M X RW-1 4MX XX	x x x 14/14 1830 m x mw4 x x x x		RESPON 4/14 1815 M X MW-1	NUMBER DATE TIME TIME SAMPLE IDENTIFICATION NUMBER OF FILTERED HCL HN03 ICE NONE	Rock Queen Unit Tract #3	elero site Manager: Kindley			Analysis Request of Chain of Custody Record
ger retain										×	×		×	BTEX 8021	B 5 MOD		05 (Ext. to C35)		\top
nager retains Pink copy - Accounting receives Gold copy.		しくこうなが		FEDEX BUS OTHER:	<u> </u>	SAMPLED BY: (Print's Initial) Date:				<i>x</i>	*		×	PAH 8270 RCRA Method TCLP Method TCLP Seminor RCI GC.MS Vol GC.MS Sei PCB's 808/6 Chloride Gamma Sp Alpha Beta PLM (Asbe	als Ag / als Ag / tiles i Volatile . 8240/8 mi. Vol. 8 0/608 sec. (Air) stos)	As Ba C As Ba C	ed Cr Pb Hg Se	ANALYSIS REQUEST (Circle or Specify Method No.)	PAGE: OF:
	Authorized:	H Charges	Results by:		'	4-14-4				×	X		** **	Major Anio		ons, pH,	(DS)		Į.



209 Last Sunset Road. Gaste E 5007 Basin Street, Suite AT 60th Harris Parkway Suite 110 - Et Worth, Texas 76132

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E-Mark taheaturcear alvan com-

Certifications

NELAP DoD LELAP WBE 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: August 25, 2011

Work Order:

11080108

Project Location: Chavez County, NM Project Name: Celero/Rock Queen #33

Project Number: 115-6403133A

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
273221	MW-1	water	2011-07-28	16:30	2011-07-29
273222	MW-2	water	2011-07-28	16:20	2011-07-29
273223	MW-3	water	2011-07-28	16:40	2011-07-29
273224	MW-4	water	2011-07-28	16:10	2011-07-29

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 20 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

Report Contents

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Analytical Report	4
Sample 273221 (MW-1)	4
Sample 273222 (MW-2)	5
Sample 273223 (MW-3)	6
Sample 273224 (MW-4)	7
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QC Batch 83538 - Method Blank (1)	10
QC Batch 83582 - Method Blank (1)	10
QC Batch 83582 - Method Blank (1)	10
QC Batch 83880 - Method Blank (1)	10
QC Batch 84218 - Method Blank (1)	11
QC Batch 84218 - Method Blank (1)	11
QC Batch 83880 - Duplicate (1)	11
Laboratory Control Spikes	12
QC Batch 83538 - LCS (1)	12
QC Batch 83582 - LCS (1)	12
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QC Batch 83582 - LCS (1)	13
QC Batch 84218 - LCS (1)	13
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QC Batch 84218 - LCS (1)	14
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QC Batch 83582 - CCV (1)	18
QC Batch 83582 - CCV (1)	18
QC Batch 84218 - ICV (1)	18
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Case Narrative

Samples for project Celero/Rock Queen #33 were received by TraceAnalysis, Inc. on 2011-07-29 and assigned to work order 11080108. Samples for work order 11080108 were received intact without headspace and at a temperature of 10.8 C.

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

		Prep Prep		\mathbf{QC}	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	70958	2011-08-03 at 09:47	83538	2011-08-03 at 09:47
Chloride (IC)	E 300.0	70900	2011-08-02 at 10:10	83582	2011-08-03 at 15:07
Chloride (IC)	E 300.0	71505	2011-08-22 at 09:26	84218	2011-08-22 at 14:27
SO4 (IC)	E 300.0	70900	2011-08-02 at 10:10	83582	2011-08-03 at 15:07
SO4 (IC)	E 300.0	71505	2011-08-22 at 09:26	84218	2011-08-22 at 14:27
TDS	SM 2540C	71017	2011-08-05 at 12:42	83880	2011-08-15 at 15:06

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 11080108 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: August 25, 2011 Work Order: 11080108 115-6403133A Celero/Rock Queen #33

Analytical Report

Sample: 273221 - MW-1

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 83538 Date Analyzed: 2011-08-03 Analyzed By: MEPrep Batch: 70958 Sample Preparation: 2011-08-03 Prepared By: ME

Page Number: 4 of 20

Chavez County, NM

RLFlag Parameter Dilution Cert Result Units RLBenzene 0.00100 0.0114 mg/L 1 1 Toluene 0.00100 U < 0.00100 mg/L 1 1 Ethylbenzene < 0.00100 mg/L1 0.00100 U 1 Xylene < 0.00100 mg/L 1 0.00100U

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0904	mg/L	1	0.100	90	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0926	mg/L	1	0.100	93	67.5 - 140.8

Sample: 273221 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 83582 Date Analyzed: 2011-08-03 Analyzed By: ARPrep Batch: 70900 Sample Preparation: 2011-08-02 Prepared By: AR

Sample: 273221 - MW-1

Laboratory: Midland

Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/AQC Batch: 83582 Date Analyzed: 2011-08-03 Analyzed By: ARPrep Batch: 70900 Sample Preparation: 2011-08-02 Prepared By: AR

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 5 of 20 Chavez County, NM

Sample: 273221 - MW-1

Laboratory:

Midland

Analysis: QC Batch: TDS Analytical Method: 83880

SM 2540C

Prep Method: N/A Analyzed By:

Prep Batch: 71017

Date Analyzed: 2011-08-15 Sample Preparation: 2011-08-08

AR Prepared By: AR

RL

Parameter Flag Cert Result Total Dissolved Solids н 1

RLUnits Dilution 124000 mg/L 100 10.0

Sample: 273222 - MW-2

Laboratory: Midland

Analysis: QC Batch:

Prep Batch: 70958

BTEX 83538

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-08-03 2011-08-03 Prep Method: S 5030B

Analyzed By: ME Prepared By: ME

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.00100	mg/L	1	0.00100
Toluene	U	1	< 0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	< 0.00100	m mg/L	1	0.00100
Xvlene	11	,	<0.00100	mg/I.	1	0.00100

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.109	mg/L	1	0.100	109	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.103	mg/L	1	0.100	103	67.5 - 140.8

Sample: 273222 - MW-2

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 83582 Prep Batch: 70900

Analytical Method: Date Analyzed:

Sample Preparation:

E 300.0 2011-08-03 2011-08-02

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

RL

Parameter Flag Cert Result Units Dilution RLChloride 55.1 mg/L 2.50 1 5

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 6 of 20 Chavez County, NM

Sample: 273222 - MW-2

Laboratory: Midland

Analysis: QC Batch: SO4 (IC) 83582

Analytical Method: Date Analyzed:

E 300.0 2011-08-03 Prep Method: N/A Analyzed By:

AR AR

Prep Batch: 70900 Sample Preparation:

2011-08-02

Prepared By:

RL

Flag Parameter Cert Result Sulfate 1 171

Units Dilution mg/L 5

RL

2.50

RL

10.0

Sample: 273222 - MW-2

Laboratory:

Prep Batch:

Midland

71017

Analysis: TDS QC Batch: 83880 Analytical Method: Date Analyzed:

Sample Preparation:

SM 2540C 2011-08-15 2011-08-08 Prep Method: N/A Analyzed By:

ARPrepared By: AR

ME

υ

RL ${\bf Cert}$ Parameter Result Units Dilution Flag Total Dissolved Solids 576 mg/L н 1

Sample: 273223 - MW-3

Laboratory: Midland

Analysis: BTEX QC Batch:

83538 Prep Batch: 70958 Analytical Method: Date Analyzed:

S 8021B 2011-08-03 Prep Method: S 5030B Analyzed By: ME

Sample Preparation: 2011-08-03 Prepared By:

RLParameter Units Dilution RLFlag Cert Result Benzene < 0.00100 mg/L 1 0.00100 U Toluene 0.00100 mg/L 1 U < 0.00100 Ethylbenzene mg/L 0.00100 < 0.00100 1 U 1 Xylene 0.00100 < 0.00100 mg/L 1

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.101	mg/L	1	0.100	101	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0953	mg/L	1	0.100	95	67.5 - 140.8

		Celero/Rock	Queen #33		Page Number: 7 Chavez County			
		•		_		N/A		
						AR		
	San	iple Preparatio	n: 2011-08-0	2	Prepared By:	AR		
			RL					
Flag	Се			Units		RL		
	1		5950	mg/L	500	2.50		
	Analy	tical Method:	E 300.0		Prep Method:	N/A		
		•		Analyzed By:	AR			
	Samp	e Preparation:	2011-08-02		Prepared By:	AR		
			RL					
Flag	Ce	rt R		Units	Dilution	RL		
	1		155	mg/L	5	2.50		
			G3.6.0F.10.G		D 16 (1)	BT / A		
					-	N/A AR		
						AR		
	Jampi	e r reparation.	2011-00-00		r repared by.	AIL		
	•		\mathbf{RL}					
	Flag	Cert	Result	Units	Dilution	RL		
	н	1	9820	mg/L	20	10.0		
		Flag Cer Analyt Date A Sample Analyte Date A Sample Flag Flag	Date Analyzed: Sample Preparation Flag Cert R Analytical Method: Date Analyzed: Sample Preparation: Flag Cert R Analytical Method: Date Analyzed: Sample Preparation: Flag Cert Cert Analytical Method: Date Analyzed: Sample Preparation:	Sample Preparation: 2011-08-0 RL Result 1 6950 Analytical Method: E 300.0 Date Analyzed: 2011-08-03 Sample Preparation: 2011-08-02 RL Result 1 155 Analytical Method: SM 2540C Date Analyzed: 2011-08-15 Sample Preparation: 2011-08-08 RL Flag Cert Result RE RE RESULT RE	Date Analyzed: 2011-08-03 Sample Preparation: 2011-08-02	Date Analyzed: 2011-08-03		

Analytical Method: Date Analyzed: Sample Preparation:

S 8021B

2011-08-03

2011-08-03

Laboratory: Midland

QC Batch: 83538 Prep Batch: 70958

BTEX

Analysis:

continued ...

Prep Method: S 5030B

ME ME

Analyzed By: Prepared By:

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 8 of 20 Chavez County, NM

sample 273224 continued ...

				RL				
Parameter	Flag Cert Result Units			its	Dilution	RL		
				RL				
Parameter	Flag	Cert		Result	Ur	iits	Dilution	RL
Benzene	nzene u			<0.00100 mg/L		1	0.00100	
Toluene	υ	1	<	< 0.00100 mg/L		1	0.00100	
Ethylbenzene	υ	1	•	< 0.00100		J/L	1	0.00100
Xylene	U	1	<	< 0.00100	mg	g/L	1	0.00100
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.105	mg/L	1	0.100	105	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0990	mg/L	1	0.100	99	67.5 - 140.8

Sample: 273224 - MW-4

Laboratory: Midland

Analysis: Chloride (IC) QC Batch: 84218 Prep Batch: 71505

Analytical Method: E 300.0 Date Analyzed: 2011-08-22 Sample Preparation: 2011-08-22 Prep Method: N/A Analyzed By: AR Prepared By: AR

			\mathbf{RL}			
Parameter	\mathbf{Flag}	Cert	Result	Units	Dilution	m RL
Chloride		1	5450	m mg/L	500	2.50

Sample: 273224 - MW-4

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 84218 Prep Batch: 71505

Analytical Method: Date Analyzed:

E 300.0 2011-08-22 Sample Preparation: 2011-08-22 Prep Method: N/A Analyzed By: ARPrepared By: AR

			m RL			
Parameter	Flag	Cert	Result	Units	Dilution	m RL
Sulfate		1	258	mg/L	50	2.50

Report Date: August 25, 2011 Work Order: 11080108 Page Number: 9 of 20 115-6403133A Celero/Rock Queen #33 Chavez County, NM Sample: 273224 - MW-4 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 83880 Date Analyzed: 2011-08-15 Analyzed By: AR Prep Batch: 71017 Sample Preparation: 2011-08-08 Prepared By: ARRLParameter Flag Cert Units Dilution RLResult

н

12700

mg/L

5

10.0

Total Dissolved Solids

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 10 of 20 Chavez County, NM

Method Blanks

Method Blank (1)

QC Batch: 83538

QC Batch: 83538 Prep Batch: 70958 Date Analyzed: 2011-08-03 QC Preparation: 2011-08-03 Analyzed By: ME Prepared By: ME

MDL Flag Parameter Cert Result Units RLBenzene < 0.000400 mg/L 0.001 1 Toluene < 0.000300 mg/L 0.001Ethylbenzene < 0.000300 mg/L 0.001 Xylene < 0.000333 mg/L 0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.103	mg/L	1	0.100	103	61.1 - 118.4
4-Bromofluorobenzene (4-BFB)			0.0946	mg/L	1	0.100	95	45.9 - 126.4

Method Blank (1)

QC Batch: 83582

QC Batch: 83582 Prep Batch: 70900 Date Analyzed: 2011-08-03 QC Preparation: 2011-08-02

Analyzed By: AR Prepared By: AR

Method Blank (1)

QC Batch: 83582

QC Batch: 83582 Prep Batch: 70900 Date Analyzed: 20 QC Preparation: 20

2011-08-03 2011-08-02 Analyzed By: AR Prepared By: AR

Report Date: August : 115-6403133A	25, 2011		ler: 11080108 ck Queen #33		1	Page Number: 11 of Chavez County, l				
Method Blank (1)	QC Batch: 83880									
QC Batch: 83880 Prep Batch: 71017		Date Analyzed: QC Preparation:	2011-08-15 2011-08-05			Analyzed By Prepared By				
Parameter		Flag	Cert	MDL Result		Units	$\mathbf{R}\mathbf{L}$			
Total Dissolved Solids			1	<9.75		mg/L	10			
Method Blank (1)	QC Batch: 84218									
QC Batch: 84218		Date Analyzed:	2011-08-22			Analyzed By				
Prep Batch: 71505		QC Preparation:	2011-08-22			Prepared By	: AR			
Parameter	Flag	Cert		$rac{ ext{MDL}}{ ext{Result}}$	ī	Jnits	RL			
Chloride	1106	1		< 0.265		ng/L	2.5			
Method Blank (1) QC Batch: 84218 Prep Batch: 71505	QC Batch: 84218	Date Analyzed: QC Preparation:	2011-08-22 2011-08-22			Analyzed By Prepared By				
_		_		MDL	_					
Parameter Sulfate	Flag	Cert		Result		Jnits ng/L	RL 2.5			
Duplicates (1) Du QC Batch: 83880	plicated Sample: 2732	46 Date Analyzed:	2011-08-15			Analyzed By	: AR			
Prep Batch: 71017		QC Preparation:	2011-08-05			Prepared By	: AR			
		Duplicate	Sample	**	D .1	200	RPD			
Param Total Dissolved Solids	1	Duplicate Result 614	Sample Result 648	Units mg/L	Dilution 2	RPD 5	RPD Limit			

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 70958

83538

Date Analyzed: QC Preparation: 2011-08-03

2011-08-03

Analyzed By: ME Prepared By: ME

Page Number: 12 of 20

Chavez County, NM

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.101	$_{ m mg/L}$	1	0.100	< 0.000400	101	76.8 - 110.3
Toluene		1	0.0979	mg/L	1	0.100	< 0.000300	98	90.9 - 122.2
Ethylbenzene		1	0.0919	mg/L	1	0.100	< 0.000300	92	72.7 - 120.2
Xylene		1	0.276	mg/L	1	0.300	< 0.000333	92	72.1 - 121.5

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}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.103	mg/L	1	0.100	< 0.000400	103	76.8 - 110.3	2	20
Toluene		1	0.0996	${ m mg/L}$	1	0.100	< 0.000300	100	90.9 - 122.2	2	20
Ethylbenzene		1	0.0942	mg/L	1	0.100	< 0.000300	94	72.7 - 120.2	2	20
Xylene		1	0.282	mg/L	1	0.300	< 0.000333	94	72.1 - 121.5	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)	0.0992	0.0894	mg/L	1	0.100	99	89	61.9 - 119.2
4-Bromofluorobenzene (4-BFB)	0.0986	0.0880	mg/L	1	0.100	99	88	56.4 - 127.9

Laboratory Control Spike (LCS-1)

QC Batch:

83582

Date Analyzed:

2011-08-03

Analyzed By: AR Prepared By: AR

Prep Batch: 70900

QC Preparation: 2011-08-02

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	26.3	mg/L	1	25.0	< 0.265	105	90.9 - 113.9

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

 $continued \dots$

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 13 of 20 Chavez County, NM

control spikes continued ...

Param	F	С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	1	1	26.0	mg/L	1	25.0	< 0.265	104	90.9 - 113.9	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:

83582

Date Analyzed:

2011-08-03

Analyzed By: AR

Prep Batch: 70900

QC Preparation: 2011-08-02

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	25.2	mg/L	1	25.0	< 0.177	101	99 - 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	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	25.3	mg/L	1	25.0	< 0.177	101	99 - 113.6	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:

83880

Date Analyzed:

LCS

Result

2011-08-15

Dil.

Spike

Amount

Analyzed By: AR Prepared By: AR

Prep Batch: 71017

Param

QC Preparation: 2011-08-05

Matrix Rec. Result Limit Rec. 85.5 - 112.7

Total Dissolved Solids 1020 1000 < 9.75 102 mg/LPercent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

 \mathbf{F}

 \mathbf{C}

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	1040	mg/L	1	1000	<9.75	104	85.5 - 112.7	2	10

Units

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Work Order: 11080108 Celero/Rock Queen #33 Page Number: 14 of 20 Chavez County, NM

Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

QC Preparation:

2011-08-22

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	24.3	mg/L	1	25.0	< 0.265	97	90.9 - 113.9

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}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	24.0	mg/L	1	25.0	< 0.265	96	90.9 - 113.9	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:

84218

Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

QC Preparation: 2011-08-22

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	26.0	mg/L	1	25.0	< 0.177	104	99 - 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	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	26.1	mg/L	1	25.0	< 0.177	104	99 - 113.6	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: 273037

QC Batch:

83538

QC Preparation:

2011-08-03

Analyzed By: ME

Prep Batch: 70958

Date Analyzed:

2011-08-03

Prepared By: ME

			MS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.587	mg/L	5	0.500	0.127	92	66.9 - 128.2
Toluene		1	0.544	mg/L	5	0.500	0.1205	85	81.6 - 122.9
Ethylbenzene		1	0.421	mg/L	5	0.500	< 0.00150	84	62.7 - 117.9

continued ...

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 15 of 20 Chavez County, NM

matrix spikes continued ...

			MS			Spike	Matrix		${ m Rec.}$
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Xylene		1	1.29	m mg/L	5	1.50	0.1543	76	62.9 - 118.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.607	mg/L	5	0.500	0.127	96	66.9 - 128.2	3	20
Toluene		1	0.563	mg/L	5	0.500	0.1205	88	81.6 - 122.9	3	20
Ethylbenzene		1	0.438	mg/L	5	0.500	< 0.00150	88	62.7 - 117.9	4	20
Xylene		1	1.34	mg/L	5	1.50	0.1543	79	62.9 - 118.2	4	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)	0.511	0.468	mg/L	5	0.5	102	94	58.6 - 119.7
4-Bromofluorobenzene (4-BFB)	0.502	0.461	mg/L	5	0.5	100	92	52.2 - 135.8

Matrix Spike (MS-1) Spiked Sample: 273222

QC Batch: 83582 Prep Batch: 70900 Date Analyzed: 2011-08-03 QC Preparation: 2011-08-02

Analyzed By: AR Prepared By: AR

Analyzed By: AR

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	312	mg/L	10	275	73	87	48.4 - 143.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	318	mg/L	10	275	73	89	48.4 - 143.2	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: 273222

QC Batch: 83582 Prep Batch: 70900

Date Analyzed: 2011-08-03 QC Preparation: 2011-08-02

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 16 of 20 Chavez County, NM

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	464	mg/L	10	275	173	106	59.7 - 115.4

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	466	mg/L	10	275	173	106	59.7 - 115.4	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: 273206

QC Batch: 84218 Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

QC Preparation: 2011-08-22

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	2200	mg/L	50	1380	1010	86	48.4 - 143.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	2150	mg/L	50	1380	1010	83	48.4 - 143.2	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: 273206

QC Batch: Prep Batch: 71505

84218

Date Analyzed:

2011-08-22

QC Preparation: 2011-08-22

Analyzed By: AR Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	1270	mg/L	50	1380	103	85	59.7 - 115.4

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

			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	1230	mg/L	50	1380	103	82	59.7 - 115.4	3	20

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 17 of 20 Chavez County, NM

Calibration Standards

Standard (CCV-1)

QC Batch: 83538

Date Analyzed: 2011-08-03

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	0.0989	99	80 - 120	2011-08-03
Toluene		1	mg/L	0.100	0.0948	95	80 - 120	2011-08-03
Ethylbenzene		1	mg/L	0.100	0.0892	89	80 - 120	2011-08-03
Xylene		1	mg/L	0.300	0.271	90	80 - 120	2011-08-03

Standard (CCV-2)

QC Batch: 83538

Date Analyzed: 2011-08-03

Analyzed By: ME

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.102	102	80 - 120	2011-08-03
Toluene		1	$_{ m mg/L}$	0.100	0.0980	98	80 - 120	2011-08-03
Ethylbenzene		1	mg/L	0.100	0.0920	92	80 - 120	2011-08-03
Xylene		1	mg/L	0.300	0.276	92	80 - 120	2011-08-03

Standard (ICV-1)

QC Batch: 83582

Date Analyzed: 2011-08-03

Analyzed By: AR

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	26.0	104	90 - 110	2011-08-03

Standard (ICV-1)

QC Batch: 83582

Date Analyzed: 2011-08-03

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 18 of 20 Chavez County, NM

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	$_{ m mg/L}$	25.0	25.5	102	90 - 110	2011-08-03

Standard (CCV-1)

QC Batch: 83582

Date Analyzed: 2011-08-03

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	27.5	110	90 - 110	2011-08-03

Standard (CCV-1)

QC Batch: 83582

Date Analyzed: 2011-08-03

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	25.6	102	90 - 110	2011-08-03

Standard (ICV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

Analyzed By: AR

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	24.8	99	90 - 110	2011-08-22

Standard (ICV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

115-6403133A

Work Order: 11080108 Celero/Rock Queen #33 Page Number: 19 of 20 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	25.0	100	90 - 110	2011-08-22

Standard (CCV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

Analyzed By: AR

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	24.3	97	90 - 110	2011-08-22

Standard (CCV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	27.4	110	90 - 110	2011-08-22

Work Order: 11080108 Celero/Rock Queen #33

Report Date: August 25, 2011

115-6403133A Celero/Roc

Page Number: 20 of 20 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
- 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.

TCLP Volatiles TCLP Metals Ag As Ba Cd Vr Pd Hg Se RCRA Metals Ag As Ba Cd Cr Pb Hg Se (Ext. to C35) 2001XT 8015 MOD. BIEX 8021B PRESERVATIVE METHOD NONE Analysis Request of Chain of Custody Record CE **EONH** <u>×</u> нсг FILTERED (Y/N) NUMBER OF CONTAINERS (432) 682-4559 • Fax (432) 682-3946 SAMPLE IDENTIFICATION TETRA TECH 1910 N. Big Spring St. Pack Ouren *33 Midland, Texas 79705 Chaves C. Dr SITE MANAGER: Left Kndley 80108011: # OND 8 2-MH からと かって アスト PROJECT NAMES **BARD** COMP XIRTAM 1630 2271 01791 912 TIME CLIENT NAME: ATO 115-6403133 82/2 DATE 2011 PROJECT NO.: अनुउक्रा gg LAB I.D. NUMBER 233 B

541444

ę.

(Circle or Specify Method No.)

ANALYSIS REQUEST

Major Anions/Cations, pH, TDS

GC.MS Vol. 8240/8260/624

TCLP Semi Volatiles

Gamma Spec. Alpha Beta (Air)

besf: 808\608

RCI

	N/82/1		ts by:	RUSH Charges Authorized: Yes No	
	S Date:	AIRBILL #:	Results by:	Authr Authr	ves Gold copy.
	Print & Initial) 17/2S	ED BY: (Cindle) BUS	HAND DELIVERED UPS TETHA TECH CONTACT PERSON:	Jeff Kindley	- Accounting recei
	SAMPLED BY: (Print & Initial)	SAMPLE SHIPPED BY: (Circle)	TETRA TECH CONTAK	<u>ئ</u>	ains Pink copy
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	RECEIVED BY Topnature)	RECEIUM Str. (Signature)	RECEIVED BY: (Signature)	RECEIVED BY: (Signature) DATE:	NN WHEN RECEIVED: //AC(- Accounting receives Gold copy. Project Manager retains Pink copy - Accounting receives Gold copy.
, ,	Date: //2.3 <	Date: Time:	Date: Time:	(E:	REMARKS: A H
	Cal.		,	STATE: TX PHONE:	IVED:
	RELINQUISHED BY: (Signature)	RELINQUISHED BY: (Signature)	RELINQUISHED BY: (Signature)	RECENTING LABORATORY: ADDRESS: Highland s CDT: CONTACT:	SAMPLE CONDITION WHEN RECEIVED \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: November 4, 2011

Work Order: 11103125

Project Name:

Celero/Rock Queen Unit Tract #33

Project Number: 115-6403133

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
281143	MW-2	water	2011-10-28	14:20	2011-10-31
281144	MW-4	water	2011-10-28	14:30	2011-10-31
281145	MW-3	water	2011-10-28	14:10	2011-10-31
281146	MW-1	water	2011-10-28	14:40	2011-10-31

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

This report consists of a total of 17 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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Case Narrative

Samples for project Celero/Rock Queen Unit Tract #33 were received by TraceAnalysis, Inc. on 2011-10-31 and assigned to work order 11103125. Samples for work order 11103125 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	73013	2011-11-01 at 15:26	85998	2011-11-01 at 15:26
BTEX	S 8021 B	73038	2011-11-02 at 12:52	86025	2011-11-02 at 12:52
Chloride (IC)	E 300.0	73087	2011-11-02 at 10:34	86078	2011-11-02 at 21:51
Chloride (IC)	E 300.0	73088	2011-11-02 at 10:34	86079	2011-11-03 at 02:52

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 11103125 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 4, 2011 Work Order: 11103125

115-6403133 Celero/Rock Queen Unit Tract #33

Analytical Report

Sample: 281143 - MW-2

Laboratory: Lubbock

Analytical Method: Analysis: BTEX S 8021B Prep Method: S 5030B QC Batch: 85998 Date Analyzed: 2011-11-01 Analyzed By: ZLMPrep Batch: 73013 Prepared By: Sample Preparation: 2011-11-01 ZLM

Page Number: 4 of 17

RLFlag Parameter Result Units Dilution RLCert Benzene Ū < 0.00100 mg/L 0.00100 1 U Toluene U < 0.00100 mg/L1 0.00100 U 1 Ethylbenzene U < 0.00100 mg/L 1 0.00100 U 1 Xylene U < 0.00100 mg/L 1 0.00100 U

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.105	mg/L	1	0.100	105	70 - 130
4-Bromofluorobenzene (4-BFB)			0.104	mg/L	1	0.100	104	70 - 130

Sample: 281143 - MW-2

Laboratory: Midland

Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 86078 Date Analyzed: 2011-11-02 Analyzed By: ARPrep Batch: 73087 Sample Preparation: 2011-11-02 Prepared By: AR

RLParameter Flag Cert Result Units Dilution RLChloride 45.4 mg/L 2.50 Qs 5 Qв 2

Sample: 281144 - MW-4

Laboratory: Lubbock

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 85998 Date Analyzed: 2011-11-01 Analyzed By: ZLM Prep Batch: 73013 Sample Preparation: Prepared By: ZLM 2011-11-01

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	\mathbf{Units}	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0968	mg/L	1	0.100	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0992	mg/L	1	0.100	99	70 - 130

Sample: 281144 - MW-4

Laboratory: Midland

Analysis: Chloride (IC)
QC Batch: 86078
Prep Batch: 73087

Analytical Method: E 300.0 Date Analyzed: 2011-11-02 Sample Preparation: 2011-11-02

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

Page Number: 5 of 17

				$\mathbf{R}\mathbf{L}$			
Parameter		Flag	Cert	Result	Units	Dilution	\mathbf{RL}
Chloride	Qs	Qs	2	8170	mg/L	500	2.50

Sample: 281145 - MW-3

Laboratory: Lubbock

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B QC Batch: 85998 Date Analyzed: 2011-11-01 Analyzed By: ZLM Prep Batch: 73013 Sample Preparation: 2011-11-01 Prepared By: ZLM

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

						Spike	Percent	Recovery
Surrogate	\mathbf{Flag}	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.109	mg/L	1	0.100	109	70 - 130
4-Bromofluorobenzene (4-BFB)			0.110	mg/L	1	0.100	110	70 - 130

115-6403133

Work Order: 11103125

Celero/Rock Queen Unit Tract #33

Page Number: 6 of 17

Sample: 281145 - MW-3

Laboratory: Midland

Analysis: Chloride (IC) QC Batch:

86079 Prep Batch: 73088 Analytical Method: Date Analyzed:

E 300.0 2011-11-03 Prep Method: N/A Analyzed By: AR

Sample Preparation:

2011-11-02

Prepared By: AR

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs	Qs	2	5860	mg/L	500	2.50

Sample: 281146 - MW-1

Laboratory: Lubbock

Analysis: BTEX QC Batch: 86025 Prep Batch: 73038

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-11-02 2011-11-02

S 5030B Prep Method: Analyzed By: MT

MT

Prepared By:

RLDilution Parameter Flag Cert Result Units RL0.00100 Benzene 0.00200 mg/L 1 1 Toluene U 1 0.00100 < 0.00100 mg/L υ 1 Ethylbenzene U < 0.00100 mg/L 1 0.00100 U 1 0.00100 Xylene 0.0365 mg/L1 1

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qar	Qsr		0.244	mg/L	1	0.100	244	70 - 130
4-Bromofluorobenzene (4-BFB)				0.103	mg/L	1	0.100	103	70 - 130

Sample: 281146 - MW-1

Laboratory: Midland

Analysis: Chloride (IC) QC Batch: 86079 Prep Batch: 73088

Analytical Method: E 300.0 Date Analyzed: 2011-11-03 Sample Preparation: 2011-11-02

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

RLDilution RLParameter Flag Cert Result Units Chloride 73300 5000 2.50 Qs mg/LQa

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33 Page Number: 7 of 17

Method Blanks

Method Blank (1)

QC Batch: 85998

QC Batch: 85998 Prep Batch: 73013 Date Analyzed: 2011-11-01 QC Preparation: 2011-11-01 Analyzed By: ZLM Prepared By: ZLM

			MDL		
Parameter	Flag	Cert	Result	Units	RL
Benzene		1	< 0.000765	m mg/L	0.001
Toluene		1	< 0.000719	mg/L	0.001
Ethylbenzene		1	< 0.000860	mg/L	0.001
Xylene		1	< 0.000942	m mg/L	0.001

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	\mathbf{Units}	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0927	mg/L	1	0.100	93	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0945	mg/L	1	0.100	94	70 - 130

Method Blank (1)

QC Batch: 86025

QC Batch: 86025 Prep Batch: 73038 Date Analyzed: 2011-11-02 QC Preparation: 2011-11-02 Analyzed By: MT Prepared By: MT

			MDL		
Parameter	Flag	Cert	Result	Units	\mathbf{RL}
Benzene		1	< 0.000765	mg/L	0.001
Toluene		1	< 0.000719	mg/L	0.001
Ethylbenzene		1	< 0.000860	mg/L	0.001
Xylene		1	< 0.000942	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.111	mg/L	1	0.100	111	70 - 130
4-Bromofluorobenzene (4-BFB)			0.113	mg/L	1	0.100	113	70 - 130

Report Date: November 115-6403133	er 4, 2011	Work Or Celero/Rock Q	der: 11103125 ueen Unit Trac	Page Number: 8 of 17		
Method Blank (1)	QC Batch: 86078					
QC Batch: 86078		Date Analyzed:	2011-11-02		Analyzed By:	AR
Prep Batch: 73087		QC Preparation:	2011-11-02		Prepared By:	AR
				MDL		
Parameter	Flag	Cert		Result	Units	RL
Chloride		2		0.685	mg/L	2.5
Method Blank (1)	QC Batch: 86079					
QC Batch: 86079		Date Analyzed:	2011-11-03		Analyzed By:	AR
Prep Batch: 73088		QC Preparation:	2011-11-03		Prepared By:	AR
				MDL		
Parameter	Flag	Cert		Result	Units	RL
Chloride		2		0.677	m mg/L	2.5

Report Date: November 4, 2011 Work Order: 11103125 115-6403133 Celero/Rock Queen Unit Tract #33

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 85998 Date Analyzed: 2011-11-01 Analyzed By: ZLM Prep Batch: 73013 QC Preparation: 2011-11-01 Prepared By: ZLM

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			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.0989	mg/L	1	0.100	< 0.000765	99	70 - 130
Toluene		1	0.0957	mg/L	1	0.100	< 0.000719	96	70 - 130
Ethylbenzene		1	0.0945	mg/L	1	0.100	< 0.000860	94	70 - 130
Xylene		1	0.279	mg/L	1	0.300	< 0.000942	93	70 - 130

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}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.0991	mg/L	1	0.100	< 0.000765	99	70 - 130	0	20
Toluene		1	0.0949	mg/L	1	0.100	< 0.000719	95	70 - 130	1	20
Ethylbenzene		1	0.0941	mg/L	1	0.100	< 0.000860	94	70 - 130	0	20
Xylene		1	0.280	mg/L	1	0.300	< 0.000942	93	70 - 130	0	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)	0.0935	0.0945	mg/L	1	0.100	94	94	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0948	0.0979	mg/L	1	0.100	95	98	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 86025 Date Analyzed: 2011-11-02 Analyzed By: MT Prep Batch: 73038 QC Preparation: 2011-11-02 Prepared By: MT

			LCS			\mathbf{Spike}	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.109	mg/L	1	0.100	< 0.000765	109	70 - 130
Toluene		1	0.103	mg/L	1	0.100	< 0.000719	103	70 - 130
Ethylbenzene		1	0.101	mg/L	1	0.100	< 0.000860	101	70 - 130
Xylene		1	0.301	mg/L	1	0.300	< 0.000942	100	70 - 130

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.106	mg/L	1	0.100	< 0.000765	106	70 - 130	3	20
Toluene		1	0.102	mg/L	1	0.100	< 0.000719	102	70 - 130	1	20
Ethylbenzene		1	0.0990	mg/L	1	0.100	< 0.000860	99	70 - 130	2	20
Xylene		1	0.295	mg/L	1	0.300	< 0.000942	98	70 - 130	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)	0.105	0.102	mg/L	1	0.100	105	102	70 - 130
4-Bromofluorobenzene (4-BFB)	0.103	0.101	mg/L	1	0.100	103	101	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch:

86078

Date Analyzed:

2011-11-02

Analyzed By: AR Prepared By: AR

Page Number: 10 of 17

Prep Batch: 73087

QC Preparation: 2011-11-02

			LCS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		2	23.2	mg/L	1	25.0	< 0.265	93	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
Chloride		2	23.7	mg/L	1	25.0	< 0.265	95	90 - 110	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch:

86079

Date Analyzed:

2011-11-03

Analyzed By: AR

Prep Batch: 73088

QC Preparation: 2011-11-02

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		2	23.8	mg/L	1	25.0	< 0.265	95	90 - 110

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		2	23.8	mg/L	1	25.0	< 0.265	95	90 - 110	0	20

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33

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

Matrix Spike (MS-1) Sp

Spiked Sample: 281133

QC Batch: 85998 Prep Batch: 73013 Date Analyzed: 2011-11-01 QC Preparation: 2011-11-01 Analyzed By: ZLM Prepared By: ZLM

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.104	mg/L	1	0.100	< 0.000765	104	70 - 130
Toluene		1	0.0987	mg/L	1	0.100	< 0.000719	99	70 - 130
Ethylbenzene		1	0.0972	mg/L	1	0.100	< 0.000860	97	70 - 130
Xylene		1	0.290	mg/L	1	0.300	< 0.000942	97	70 - 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	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.104	mg/L	1	0.100	< 0.000765	104	70 - 130	0	20
Toluene		1	0.100	mg/L	1	0.100	< 0.000719	100	70 - 130	1	20
Ethylbenzene		1	0.0979	mg/L	1	0.100	< 0.000860	98	70 - 130	1	20
Xylene		1	0.294	mg/L	1	0.300	< 0.000942	98	70 - 130	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)	0.101	0.0978	mg/L	1	0.1	101	98	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0984	0.0961	mg/L	1	0.1	98	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 281232

QC Batch: 86025 Prep Batch: 73038 Date Analyzed: 2011-11-02 QC Preparation: 2011-11-02 Analyzed By: MT Prepared By: MT

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	5.41	mg/L	50	5.00	< 0.0382	108	70 - 130
Toluene		1	5.16	mg/L	50	5.00	< 0.0360	103	70 - 130
Ethylbenzene		1	5.11	mg/L	50	5.00	< 0.0430	102	70 - 130
Xylene		1	15.1	mg/L	50	15.0	< 0.0471	101	70 - 130

115-6403133

Work Order: 11103125

Celero/Rock Queen Unit Tract #33

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	5.26	mg/L	50	5.00	< 0.0382	105	70 - 130	3	20
Toluene		1	5.06	mg/L	50	5.00	< 0.0360	101	70 - 130	2	20
Ethylbenzene		1	5.03	mg/L	50	5.00	< 0.0430	101	70 - 130	2	20
Xylene		1	14.9	mg/L	50	15.0	< 0.0471	99	70 - 130	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)	5.33	5.12	mg/L	50	5	107	102	70 - 130
4-Bromofluorobenzene (4-BFB)	5.13	5.06	mg/L	50	5	103	101	70 - 130

Matrix Spike (MS-1) Spiked Sample: 281141

QC Batch: Prep Batch: 73087

86078

Date Analyzed: QC Preparation:

2011-11-02

2011-11-02

Analyzed By: AR Prepared By: AR

Page Number: 12 of 17

MS Spike Matrix Rec. Param \mathbf{F} \mathbf{C} Dil. Result Units Amount Result Rec. Limit Chloride Qs 16100 100 2750 14800 47 90 - 110 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		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	Qs	Qs	2	15800	mg/L	100	2750	14800	36	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: 281145

QC Batch: 86079 Prep Batch: 73088 Date Analyzed:

2011-11-03

QC Preparation:

2011-11-02

Analyzed By: AR Prepared By: AR

MS Spike Rec. Matrix Amount Param F \mathbf{C} Dil. Rec. Result Units Result Limit Chloride Qs 7210 mg/L 1380 6710 36 90 - 110

				MSD			Spike	Matrix		Rec.		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	Qв	Qs	2	7250	mg/L	50	1380	6710	39	90 - 110	1	20

Report Date: November 4, 2011 115-6403133

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Work Order: 11103125 Celero/Rock Queen Unit Tract #33

Calibration Standards

Standard (CCV-2)

QC Batch: 85998

Date Analyzed: 2011-11-01

Analyzed By: ZLM

Page Number: 14 of 17

				CCVs True	CCVs Found	${ m CCVs}$ ${ m Percent}$	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-01
Toluene		1	mg/L	0.100	0.0999	100	80 - 120	2011-11-01
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.0984	98	80 - 120	2011-11-01
Xylene		1	mg/L	0.300	0.292	97	80 - 120	2011-11-01

Standard (CCV-3)

QC Batch: 85998

Date Analyzed: 2011-11-01

Analyzed By: ZLM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.105	105	80 - 120	2011-11-01
Toluene		1	$_{ m mg/L}$	0.100	0.100	100	80 - 120	2011-11-01
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.0986	99	80 - 120	2011-11-01
Xylene		1	mg/L	0.300	0.290	96	80 - 120	2011-11-01

Standard (CCV-1)

QC Batch: 86025

Date Analyzed: 2011-11-02

Analyzed By: MT

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.109	109	80 - 120	2011-11-02
Toluene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-02
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.103	103	80 - 120	2011-11-02
Xylene		1	mg/L	0.300	0.301	100	80 - 120	2011-11-02

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Work Order: 11103125 Celero/Rock Queen Unit Tract #33 Page Number: 15 of 17

Standard (CCV-2)

QC Batch: 86025

Date Analyzed: 2011-11-02

Analyzed By: MT

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.107	107	80 - 120	2011-11-02
Toluene		1	mg/L	0.100	0.102	102	80 - 120	2011-11-02
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.0986	99	80 - 120	2011-11-02
Xylene		1	$_{ m mg/L}$	0.300	0.296	99	80 - 120	2011-11-02

Standard (CCV-1)

QC Batch: 86078

Date Analyzed: 2011-11-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		2	mg/L	25.0	23.6	94	90 - 110	2011-11-02

Standard (CCV-2)

QC Batch: 86078

Date Analyzed: 2011-11-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		2	mg/L	25.0	23.8	95	90 - 110	2011-11-02

Standard (CCV-1)

QC Batch: 86079

Date Analyzed: 2011-11-03

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		2	mg/L	25.0	23.8	95	90 - 110	2011-11-03

Report Date: November 4, 2011 115-6403133

Work Order: 11103125

Celero/Rock Queen Unit Tract #33

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Standard (CCV-2)

QC Batch: 86079

Date Analyzed: 2011-11-03

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		2	mg/L	25.0	23.2	93	90 - 110	2011-11-03

Report Date: November 4, 2011 Work Order: 11103125 Page Number: 17 of 17

115-6403133 Celero/Rock Queen Unit Tract #33

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	T104704219-11-4	Lubbock
2	NELAP	T104704392-10-TX	Midland

Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection
- 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.

390 ş Results by: Yes Rajor Anions/Cations, pH, TDS AIRBILL #: Accounting receives Gold copy (Circle or Specify Method No.) ANALYSIS REQUEST ZN003964 1100 PAGE: HEDEX BUS
HEND DELIVERED DIPS
TETRA TECH CONTACT PERSON GC, MS Semi, Vol. 8270/625 SAMPLE SHIPPED BY: (Gircle)
BUS SAMPLED BY: (Print & Initial) Vol. 8240/8260/624 IOH TCLP Semi Volatiles Metals Ag As Ba Cd Vr Pd Hg Se RCRA Metals Ag As Ba Cd Cr Pb Hg Se 8015 MOD. Hq1 (Ext. to C35) **9001XT** BIEX 8021B Albbock - KTEX PRESERVATIVE METHOD NONE Analysis Request of Chain of Custody Record CE Date: Time: Date: Time: HINO3 10 × нсг FILTERED (Y/N) NUMBER OF CONTAINERS RECEIVED BY Signatured, Work X igland-Uhride RECEIVED BY: (Signature) (432) 682-4559 • Fax (432) 682-3946 SAMPLE IDENTIFICATION **TETRA TECH** 1910 N. Big Spring St. Midland, Texas 79705 Rock Queen # 83 SITE MANAGER: Jeff Khalley DATE Please fill out all copies - Laboratory retains Yellow copy 1103135 7me: 1140

Date: 1655

Time: 1655

Date: 12W-3 アワークス アライ ZP: 35 PROJECT NAME: SRAB COMP 3 **XINTAM** 7,400 STATE SAMPLE CONDITION WHEN RECEIVED: 224 TIME FIL AHP! 123 115-(403133 RELINQUISHED BY: (Signature) 34 RECEIVING LABORATORY:
ADDRESS: MINTER d
CONTACT: DATE Š CLIENT NAME PROJECT NO.: なるない 28/143 LAB I.D. NUMBER 746 포 天



200 East Stoner, Road, Sorte E. 5002 Basin Street, Sarta AT

5015 Harris Parkway Sorte 110 - 51 Worth Texas 7613.1

El Paso, Texas, 79922 Midland Texas 79703 188 • 585 • 3443

915 • 585 • 3443 402 • 689 • 6301

TAX 432 • 689 • 6313

317•201•6760

E-Mart Tabre tracearialysis com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: November 30, 2011

Work Order: 11103125



Project Name:

Celero/Rock Queen Unit Tract #33

Project Number: 115-6403133

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
281143	MW-2	water	2011-10-28	14:20	2011-10-31
281144	MW-4	water	2011-10-28	14:30	2011-10-31
281145	MW-3	water	2011-10-28	14:10	2011-10-31
281146	MW-1	water	2011-10-28	14:40	2011-10-31

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

This report consists of a total of 13 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

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

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

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QC Batch 86374 - Method Blank (1)		
QC Batch 86754 - Method Blank (1)		
QC Batch 86754 - Duplicate (1)		
Co Dillott 00104 - Duplicato (1)	 	'
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Report Date: November 30, 2011 Work Order: 11103125 Page Number: 3 of 13

115-6403133 Celero/Rock Queen Unit Tract #33

Case Narrative

Samples for project Celero/Rock Queen Unit Tract #33 were received by TraceAnalysis, Inc. on 2011-10-31 and assigned to work order 11103125. Samples for work order 11103125 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	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
SO4 (IC)	E 300.0	73346	2011-11-01 at 10:24	86373	2011-11-02 at 10:31
SO4 (IC)	E 300.0	73346	2011-11-01 at 10:24	86374	2011-11-02 at 10:33
TDS	SM 2540C	73460	2011-11-16 at 15:57	86754	2011-11-21 at 15:15

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 11103125 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.

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33 Page Number: 4 of 13

Analytical Report

Sample: 281143 - MW-2

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 86373 Analytical Method: E 300.0 Date Analyzed: 2011-11-02 Prep Method: N/A Analyzed By: AR

 QC Batch:
 86373
 Date Analyzed:
 2011-11-02

 Prep Batch:
 73346
 Sample Preparation:
 2011-11-03

Analyzed By: AR Prepared By: AR

SDL MQL Method Based Based Blank

MQLMDL Dilution SDL Parameter F C Result Result Result Units (Unadjusted) (Unadjusted) Sulfate $\overline{\mathbf{Q}}\mathbf{s}$ 163 163 < 0.885 5 0.885 2.50.177mg/L

Sample: 281143 - MW-2

Laboratory: Midland

Analysis: TDS QC Batch: 86754 Prep Batch: 73460 Analytical Method: SM 2540C Date Analyzed: 2011-11-21 Sample Preparation: 2011-11-17

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

SDL MQL Method MQL MDL Based Based Blank Parameter F C Result Result Result Units Dilution SDL(Unadjusted) (Unadjusted) Total Dissolved Solids 566 <9.75 9.75 10 9.75 566 mg/L1

Sample: 281144 - MW-4

Laboratory: Midland

Analysis: SO4 (IC)
QC Batch: 86373
Prep Batch: 73346

Analytical Method: E 300.0
Date Analyzed: 2011-11-02
Sample Preparation: 2011-11-03

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

SDL MQL Method Blank MQL MDL Based Based Parameter F C Result Result Result Units Dilution SDL (Unadjusted) (Unadjusted) Sulfate Qs 324 324 < 8.85 mg/L 50 8.85 2.5 0.177

Sample: 281144 - MW-4

Laboratory: Midland

Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A

115-6403133	: Novembe	r 30, 2	2011			Work Orde Rock Que	Page Number: 5 of 13				
QC Batch: Prep Batch:	86754 73460				te Analy	yzed: eparation:	2011-1 2011-1			Analyze Prepare	
Parameter		F	C	SDL Based Result	MQL Based Result	Method Blank Result	Units	Dilution	SDL	MQL (Unadjusted)	MDL (Unadjusted)
Total Dissolv	red Solids		1	15600	15600	<975	mg/L	100	975	10	9.75
Sample: 28	1145 - M	W-3									
Laboratory: Analysis: QC Batch: Prep Batch:	Midland SO4 (IC) 86374 73346			Da	te Anal	Method: yzed: eparation:	E 300. 2011-1 2011-1	1-02		Prep M Analyze Prepare	d By: AR
Parameter	F	С	SDL Based	Base	d B	thod lank	nits I	Dilution	SDL	MQL	MDL
Sulfate	Qs	1	Result 143				g/L	50	8.85	(Unadjusted) 2.5	(Unadjusted) 0.177
Laboratory: Analysis:	Midland										
QC Batch:	TDS 86754 73460			Da	te Analy	Method: zed: eparation:	SM 254 2011-11 2011-11	1-21		Prep M Analyze Prepare	d By: AR
QC Batch: Prep Batch: Parameter	86754 73460	F		Da Sar SDL Based Result	te Analy nple Pre MQL Based Result	vzed: eparation: Method Blank Result	2011-12 2011-12 Units	1-21	SDL	Analyze	d By: AR
QC Batch: Prep Batch:	86754 73460	F		Da Sar SDL Based Result	te Analy nple Pre MQL Based	zed: eparation: Method Blank	2011-13 2011-13	1-21 1-17	SDL 97.5	Analyze Prepare MQL	d By: AR d By: AR
QC Batch: Prep Batch: Parameter	86754 73460 ed Solids			Da Sar SDL Based Result 11100	te Analymple Pre MQL Based Result 11100	zed: eparation: Method Blank Result <97.5	2011-12 2011-12 Units	1-21 1-17 Dilution 10		Analyze Prepare MQL (Unadjusted)	d By: AR d By: AR MDL (Unadjusted) 9.75
QC Batch: Prep Batch: Parameter Total Dissolve Sample: 281 Laboratory: Analysis: QC Batch:	86754 73460 ed Solids 1146 - MV Midland SO4 (IC) 86374			SDL Based Result 11100 Ar Da Sa L MQ d Base	MQL Based Result 11100 allytical te Analymple Pro	Method: yzed: Method Blank Result <97.5 Method: yzed: eparation: ethod Blank	2011-1: 2011-1: Units mg/L E 300. 2011-1 2011-1	1-21 1-17 Dilution 10		Analyze Prepare MQL (Unadjusted) 10 Prep Me Analyze	d By: AR d By: AR MDL (Unadjusted) 9.75 ethod: N/A d By: AR

115-6403133

Work Order: 11103125

Celero/Rock Queen Unit Tract #33

Page Number: 6 of 13

Sample: 281146 - MW-1

Laboratory: Midland Analysis:

TDS 86754 Analytical Method: Date Analyzed:

SM 2540C

2011-11-21

Prep Method: N/A Analyzed By:

AR

QC Batch: Prep Batch:

73460

Sample Preparation:

2011-11-17

Prepared By: AR

SDL

MQL Method Based

Blank

MQL

MDL

Parameter Total Dissolved Solids

Based \mathbf{F} \mathbf{C} Result 120000

Result 120000

Result Units <975 mg/L

Dilution 100

SDL(Unadjusted) 975 10

(Unadjusted) 9.75

115-6403133

Work Order: 11103125

Celero/Rock Queen Unit Tract #33

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Method Blanks

Method Blank (1)

QC Batch: 86373 Prep Batch: 73346 Date Analyzed: 2011-11-02 QC Preparation: 2011-11-01 Analyzed By: AR Prepared By: AR

Method Blank (1)

QC Batch: 86374 Prep Batch: 73346 Date Analyzed: 2011-11-02 QC Preparation: 2011-11-01 Analyzed By: AR Prepared By: AR

Method Blank (1)

QC Batch: 86754 Prep Batch: 73460 Date Analyzed: 2011-11-21 QC Preparation: 2011-11-16

Analyzed By: AR Prepared By: AR

Duplicate (1) Duplicated Sample: 281151

QC Batch: 86754 Prep Batch: 73460 Date Analyzed: 2011-11-21 QC Preparation: 2011-11-16

Analyzed By: AR Prepared By: AR Report Date: November 30, 2011 115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33

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			Duplicate	\mathbf{Sample}				RPD
Param	\mathbf{F}	\mathbf{C}	Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids		1	130000	135000	mg/L	100	4	10

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch:

86373

Date Analyzed:

2011-11-02

Analyzed By: AR

Page Number: 9 of 13

Prep Batch: 73346

QC Preparation: 2011-11-01 Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	25.2	mg/L	1	25.0	< 0.177	101	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	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	25.1	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-1)

QC Batch: Prep Batch: 86374

73346

Date Analyzed: QC Preparation:

2011-11-02 2011-11-01

Analyzed By: AR

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	24.7	mg/L	1	25.0	< 0.177	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	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	25.3	mg/L	1	25.0	< 0.177	101	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:

86754

Date Analyzed:

2011-11-21

Analyzed By: AR

Prep Batch: 73460

QC Preparation: 2011-11-16

Prepared By: AR

LCS Spike Matrix Rec. Param Result Dil. Units Amount Result Rec. Limit Total Dissolved Solids 1000 1000 < 9.75 100 85.5 - 112.7 mg/L

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

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Work Order: 11103125 Celero/Rock Queen Unit Tract #33

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			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	1030	m mg/L	1	1000	<9.75	103	85.5 - 112.7	3	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: 281141

QC Batch: Prep Batch: 73346

86373

Date Analyzed: QC Preparation: 2011-11-02 2011-11-01

Analyzed By: AR

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	$\mathbf{Q}\mathbf{s}$	1	3480	mg/L	100	2750	1270	80	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	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	3500	mg/L	100	2750	1270	81	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: 281145

QC Batch:

86374

Date Analyzed:

2011-11-02

Analyzed By: AR

Prep Batch: 73346

QC Preparation:

2011-11-01

Prepared By: AR

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Sulfate Qs 1280 mg/L50 1380 143 83 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	\mathbf{F}	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	Qs	1	1280	mg/L	50	1380	143	83	90 - 110	0	20

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

115-6403133

Work Order: 11103125

Celero/Rock Queen Unit Tract #33

Page Number: 11 of 13

Calibration Standards

Standard (ICV-1)

QC Batch: 86373

Date Analyzed: 2011-11-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{F}	\mathbf{C}	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	25.2	101	90 - 110	2011-11-02

Standard (CCV-1)

QC Batch: 86373

Date Analyzed: 2011-11-02

Analyzed By: AR

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	\mathbf{F}	C	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	25.3	101	90 - 110	2011-11-02

Standard (ICV-1)

QC Batch: 86374

Date Analyzed: 2011-11-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	F	C	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	25.3	101	90 - 110	2011-11-02

Standard (CCV-1)

QC Batch: 86374

Date Analyzed: 2011-11-02

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	\mathbf{F}	C	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	25.2	101	90 - 110	2011-11-02

115-6403133

Work Order: 11103125 Celero/Rock Queen Unit Tract #33 Page Number: 12 of 13

Limits of Detection (LOD)

Report Date: November 30, 2011 Work Order: 11103125 Page Number: 13 of 13

115-6403133 Celero/Rock Queen Unit Tract #33

Appendix

Report Definitions

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

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.

9 ş m RUSH Charge Authorized: Results by: Xes Ses Rajor Anions/Catlons, pH, TDS AIRBILL #: Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy OTHER (Circle or Specify Method No.) ANALYSIS REQUEST \$ 2N003964 SAMPLED BY: (Print & Initial) [7] 6A PAGE SAMPLE SHIPPED BY: (Circle)
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TETRA TECH CONTACT PERSON: Jeff Krudky Vol. 8240/8260/624 HCI TCLP Semi Volatiles Metals Ag As Ba Cd Vr Pd Hg Se HCRA Metals Ag As Ba Cd Cr Pb Hg Se (Ext. to C35) 2001XT 8015 MOD. HqT BIEX 8021B Albbock - 6/Ex PRESERVATIVE METHOD NON Analysis Request of Chain of Custody Record × ICE Date: Time: Date: HMO3 × нсг 7 FILTERED (Y/N) NUMBER OF CONTAINERS RECEIVED BY Signature 1 1 1000 Shide (432) 682-4559 • Fax (432) 682-3946 RECEIVED BY: (Signature) SAMPLE IDENTIFICATION **TETRA TECH** 1910 N. Big Spring St. Midland, Texas 79705 Rock Queen # 53 SITE MANAGER: Left Kindley DATE 1103125 Time: 10511° アシーム アシュ TEN-3 3 덛 PROJECT NAME: **BARD** COMP XIRTAM 7,60 STATE SAMPLE CONDITION WHEN RECEIVED: 024 Ŧ Q7FT 430 TIME 115-(403133 RELINQUISHED BY: (Signature) 34 RECEIVING LABORATORY: ADDRESS: MINITAR A DATE ź PROJECT NO.: intact CLIENT NAME LAB I.D. NUMBER 88143 و <u>ک</u> 파 天

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