

1R – 1664

2009 – 2011

GWMR

03 / 29 / 2012



TETRA TECH

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

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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



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

1. 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.
3. 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

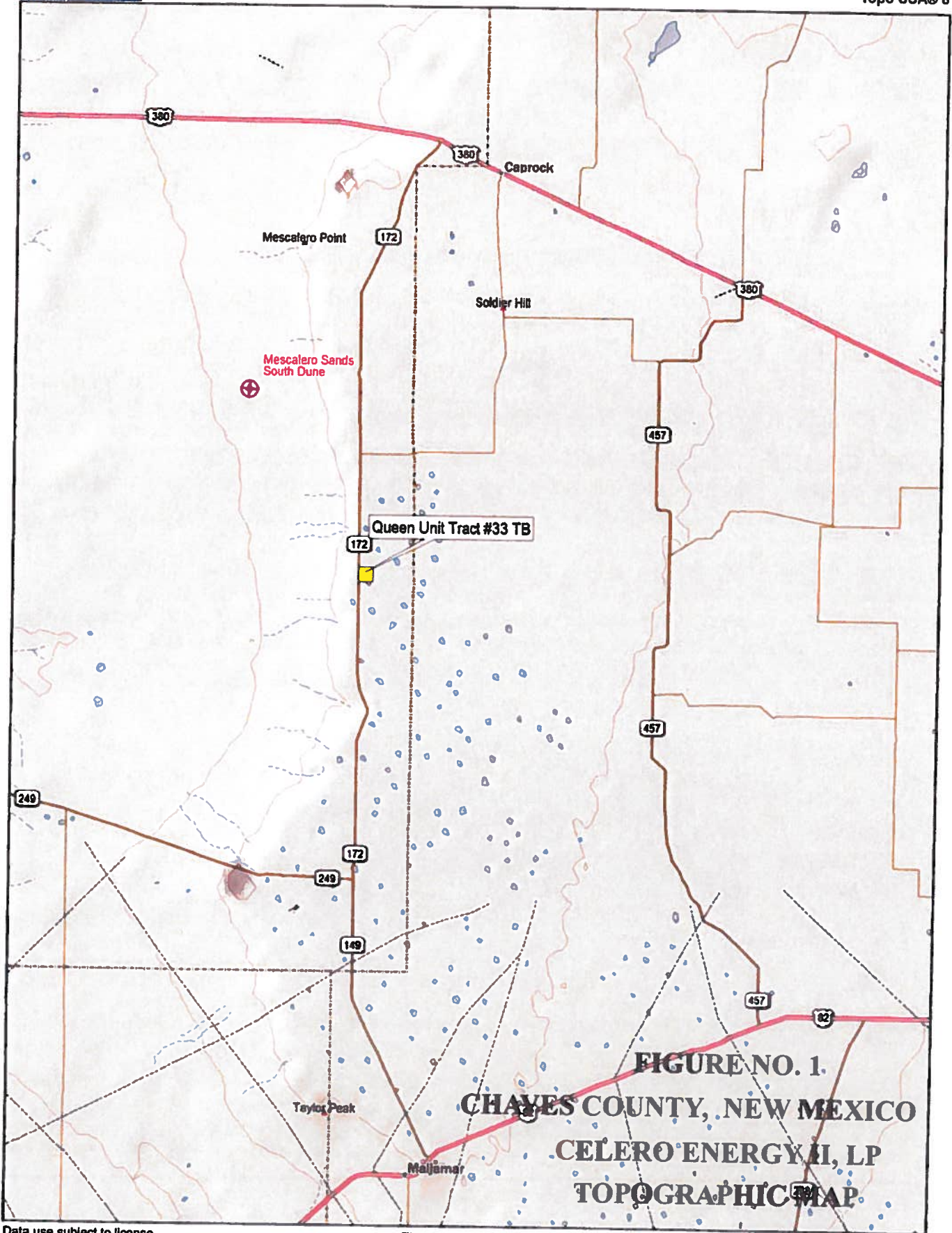
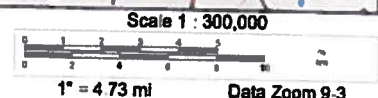


FIGURE NO. 1.
CHAVES COUNTY, NEW MEXICO
CELERO ENERGY II, LP
TOPOGRAPHIC MAP

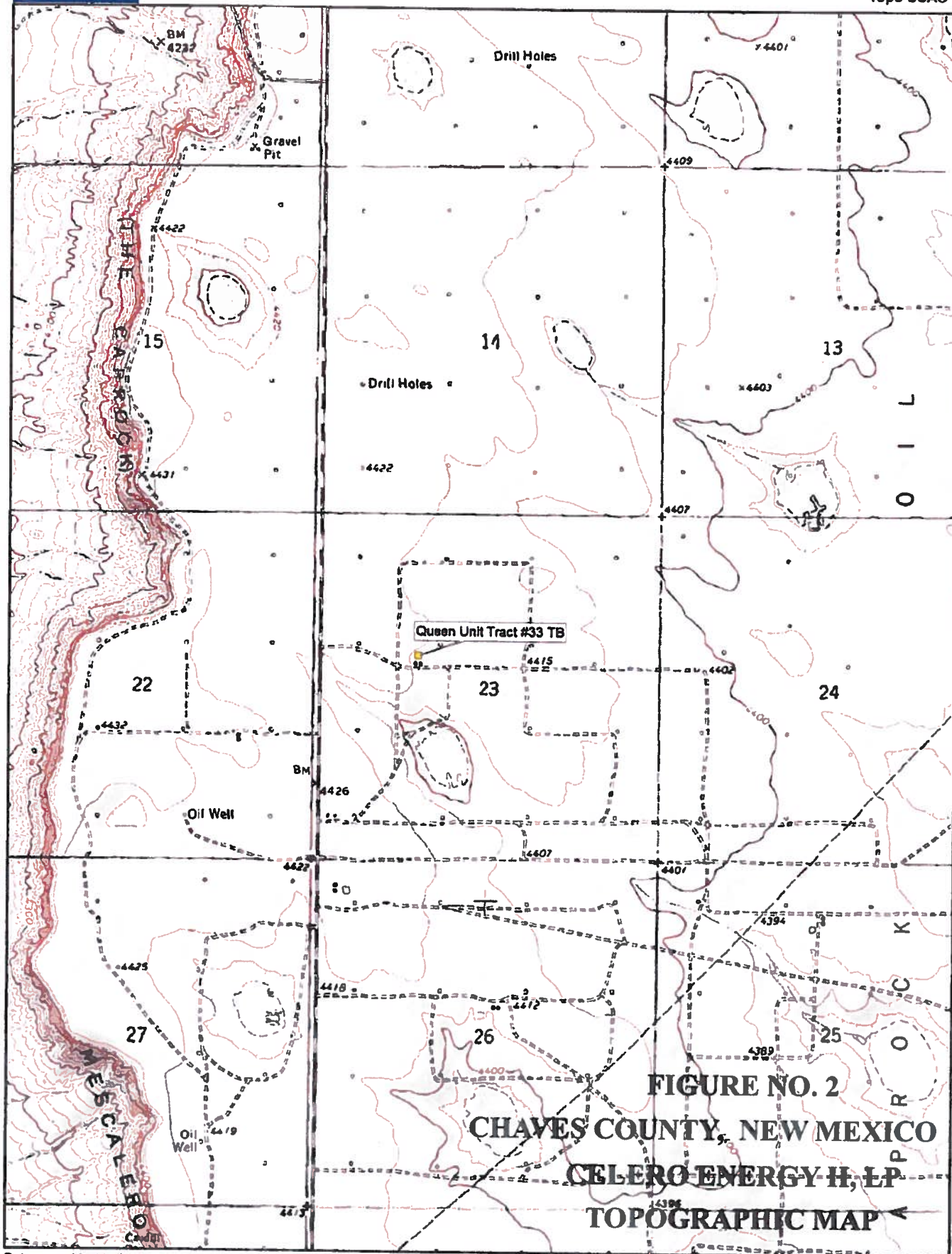
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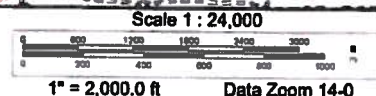
Data Zoom 9-3



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Data Zoom 14-0



FORMER
PIT
AREA

MW-2

RW-1



MW-1

MW-4

MW-3



SCALE: 100'
0 100'

DATE	4/12/2011
DRAWN BY	IM
FILED	DAVIDSON, TEXAS
BY UNIT	23

FIGURE NO. 3

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
SITE MAP

TETRA TECH, INC.
MIDLAND, TEXAS



MW-2
4306.77

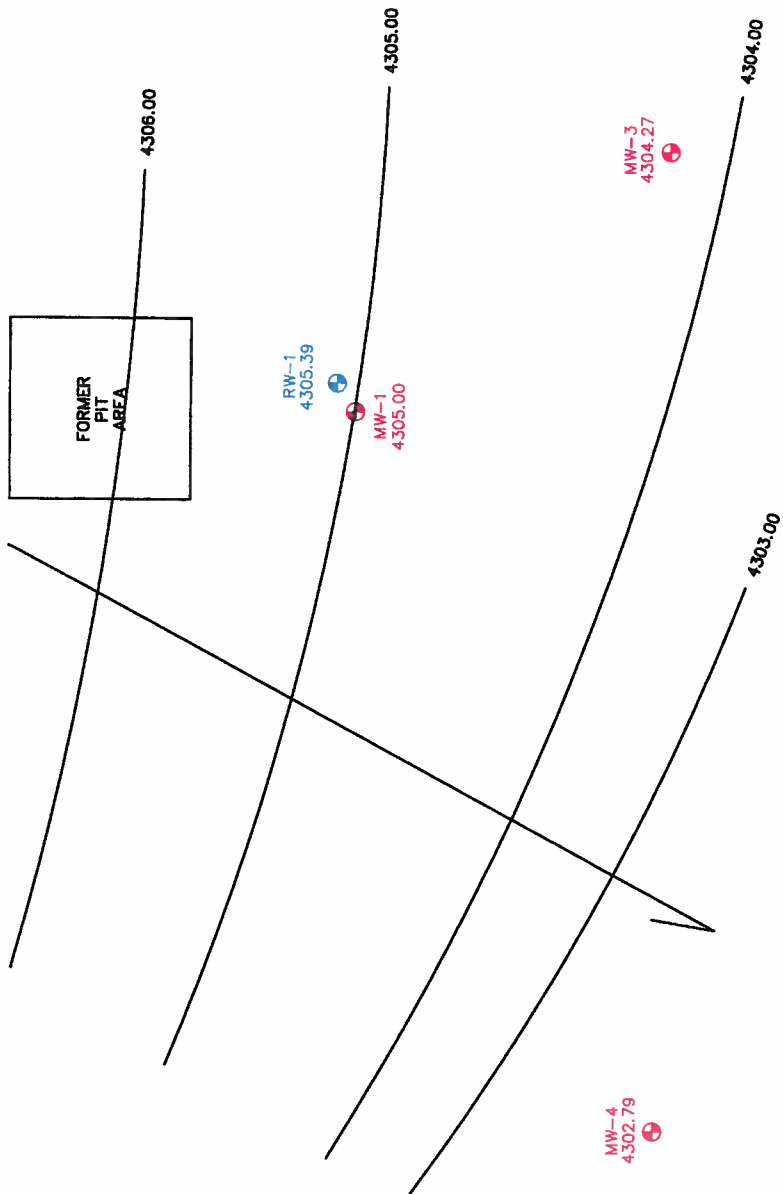


FIGURE NO. 4

CHAVEZ COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 1/17/11

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	1/17/11
TIME	8:11
FILE	04/08/2011
FILE	04/08/2011

C.I. = 1'
SCALE: 100'
0 100'

MONITOR WELL LOCATION
RECOVERY WELL LOCATION



MW-2
4306.78

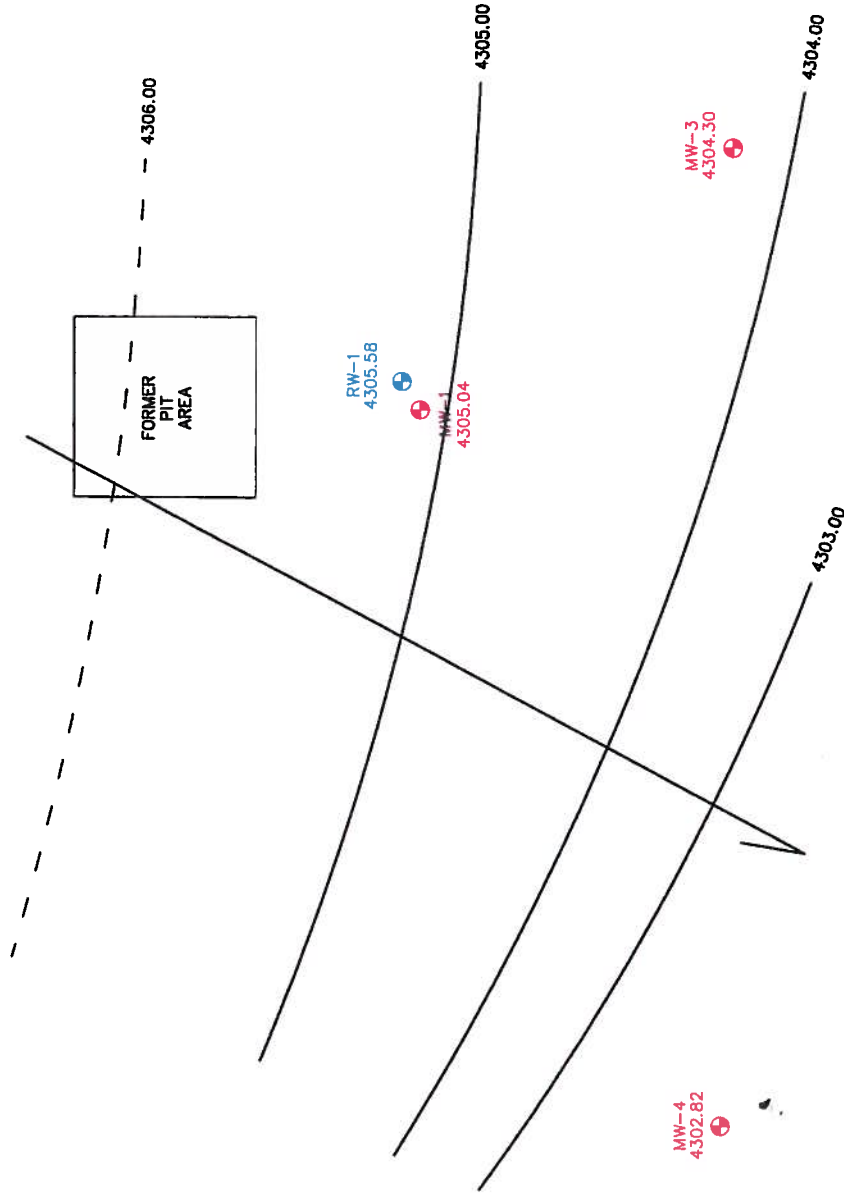


FIGURE NO. 6

CHAVEZ COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 4/12/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	4/12/11
DRAWN BY	MM
FIELD	CHAVEZ COUNTY, NEW MEXICO

SCALE: 100'
0 100'

C.I. = 1'

MONITOR WELL LOCATION
RECOVERY WELL LOCATION



MW-2
4,306.03

4,306.00

FORMER
PIT
AREA

RW-1
4,304.60

MW-1
4,304.25

4,305.00

4,304.00

MW-4
4,302.02

4,302.00

MW-3
4,303.50

4,303.00

MONITOR WELL LOCATION
RECOVERY WELL LOCATION

C.I. = 1' SCALE: 100' 0 100'

DATE: 7/27/2011
DRAWN BY: JLM
CHECKED BY: JLM
SCALE: 1" = 100'

FIGURE NO. 6

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 7/27/2011

TETRA TECH, INC.
MIDLAND, TEXAS



MW-2
4,306.75

4,306.00

FORMER
PIT
AREA

RW-1
4,305.40

MW-1
4,305.00

4,305.00

MW-4
4,302.34

4,303.00

MW-3
4,304.27

4,304.00



C.I. = 1' SCALE: 100'

DATE:	10/24/2011
BY:	IM
FILED:	04/08/2012
BY:	IM

FIGURE NO. 7

CHAVEZ COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
GROUNDWATER GRADIENT MAP
GAUGED ON 10/24/2011

TETRA TECH, INC.
MIDLAND, TEXAS



FORMER
PIT
AREA

MW-1
3,220

DATE:
12/28/2008
DRAWN BY:
JLM
FILE:
CHLORIDE\3157
NO. 3157

SCALE: 100'
0 100'

RESULTS IN mg/L

FIGURE NO. 8

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 12/28/09

TETRA TECH, INC.
MIDLAND, TEXAS



FORMER
PIT
AREA



MW-1
46,800

RESULTS IN mg/L



DATE:	2/25/2010
DRN. EN.	IN
FILED:	CHAVEZ COUNTY, TEXAS
NO. UNIT 25	

FIGURE NO. 9

CHAVEZ COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 02/25/2010

TETRA TECH, INC.
MIDLAND, TEXAS



FORMER
PIT
AREA

⊕
MW-1
63,500



RESULTS IN mg/L

FIGURE NO. 10

CHAVES COUNTY, NEW MEXICO
CELERO ENERGY ROCK QUEEN UNIT TRACT #33 CHLORIDE CONCENTRATION MAP SAMPLED ON 07/13/2010
TETRA TECH, INC. MIDLAND, TEXAS

DATE: 7/13/2010	WELL ID: MW-1	WELL TYPE: UW
FILED: MIDLAND COUNTY	BY: TETRA TECH, INC.	WELL NO.:



FORMER
PIT
AREA

⊕
MW-1
88,700

FIGURE NO. 14

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/11/2010

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	10/11/2010
TIME	07:11
FILE	201010110711
FIG. NO.	14

SCALE: 100'
0 100'

RESULTS IN mg/L



FORMER
PIT
AREA

MW-2
55.6

RW-1
NS

MW-1
81,200

MW-3
5,370

MW-4
6,510

RESULTS IN mg/L
NOT SAMPLED

MONITOR WELL LOCATION
RECOVERY WELL LOCATION

SCALE: 100'
0 100'

FIGURE NO. 12

CHAVES COUNTY, NEW MEXICO

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

TETRA TECH, INC.
MIDLAND, TEXAS

DATE
1/21/11
OWN. BY
TETRA
FILE
TETRA-333A
BY UNIT 33



FORMER
PIT
AREA

MW-2
48.5

RW-1
83,700

MW-1
77,400

MW-4
7,410

MW-3
5,420

MONITOR WELL LOCATION
RECOVERY WELL LOCATION

RESULTS IN mg/L

SCALE: 100'

0 100'

DATE:
4/14/11

TIME:
11 AM

FILE:
CHLORIDE-33.MXD

NO. OF SHEETS:
20 OF 20

FIGURE NO. 13

CEAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 4/14/2011

TETRA TECH, INC.
MIDLAND, TEXAS



MW-2
55.1



FORMER
PIT
AREA

RW-1



MW-1
83,600



MW-4
5,450



MW-3
6,950



FIGURE NO. 14

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 7/28/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	7/28/2011
DRN. IN.	IN
FILE	CHLORIDE CONCENTRATION MAP
BY	CELERO ENERGY

SCALE: 100'



RESULTS IN mg/L

MONITOR WELL LOCATION
RECOVERY WELL LOCATION





MW-2
45.4



FORMER
PIT
AREA

RW-1
NS



MW-1
73,300

MW-4
8,170



MW-3
5,860



MONITOR WELL LOCATION
RECOVERY WELL LOCATION

RESULTS IN mg/L

SCALE: 100'



DATE	10/28/11
DATE	9th
FILE	10/28/11
FILE	10/28/11

FIGURE NO. 15

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #33
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/28/2011

TETRA TECH, INC.
MIDLAND, TEXAS

TABLES

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

Monitor Well	Date Gauged	Date Well Installation	TOC Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-1	12/28/09	12/10/09	4,417.04	153.75	112.14	4,304.90
	02/25/10			153.25	112.09	4,304.95
	07/12/10			153.25	112.07	4,304.97
	10/11/10			153.25	112.11	4,304.93
	01/17/11			153.25	112.04	4,305.00
	04/12/11			153.25	112.00	4,305.04
	07/27/11			153.25	112.79	4,304.25
	10/24/11			153.25	112.04	4,305.00
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

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #33 Tank Battery
Chaves County, New Mexico

Monitor Well	Date Sampled	Dissolved Calcium (mg/L)	Dissolved Magnesium (mg/L)	Dissolved Sodium (mg/L)	Dissolved Potassium (mg/L)	Hydroxide Alkalinity (mg/L)	Carbonate Alkalinity (mg/L)	Bicarbonate Alkalinity (mg/L)	Total Alkalinity (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Hardness (mg/L)	pH
MW-1	12/28/09	607	156	1,080	13.3	<1.00	<1.00	134	134	99.3	3,220	5,430	2,160	7.33
	02/25/10	8,440	3,140	13,700	185.0	<1.00	<1.00	98	98	604	46,800	90,100	34,000	6.44
	07/13/10	-	-	-	-	-	-	-	-	613	63,500	102,000	-	-
	10/11/10	-	-	-	-	-	-	-	-	1,070	88,700	161,000	-	-
	01/21/11	-	-	-	-	-	-	-	-	1,050	81,200	134,000	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,010	77,400	116,000	-	-
	07/28/11	-	-	-	-	-	-	-	-	1,080	83,600	124,000	-	-
MW-2	10/28/11	-	-	-	-	-	-	-	-	1,070	73,300	120,000	-	-
	01/21/11	-	-	-	-	-	-	-	-	124	55.6	2,010	-	-
	04/14/11	-	-	-	-	-	-	-	-	133	48.5	544	-	-
	07/28/11	-	-	-	-	-	-	-	-	171	55.1	576	-	-
MW-3	10/28/11	-	-	-	-	-	-	-	-	163	45.4	566	-	-
	01/21/11	-	-	-	-	-	-	-	-	132	5,370	10,600	-	-
	04/14/11	-	-	-	-	-	-	-	-	126	5,420	6,180	-	-
	07/28/11	-	-	-	-	-	-	-	-	155	6,950	9,820	-	-
MW-4	10/28/11	-	-	-	-	-	-	-	-	143	5,860	11,100	-	-
	01/21/11	-	-	-	-	-	-	-	-	230	6,510	18,400	-	-
	04/14/11	-	-	-	-	-	-	-	-	236	7,410	25,400	-	-
	07/28/11	-	-	-	-	-	-	-	-	258	5,450	12,700	-	-
RW-1	10/28/11	-	-	-	-	-	-	-	-	324	8,170	15,600	-	-
	01/21/11	-	-	-	-	-	-	-	-	NS	NS	NS	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,070	83,700	122,000	-	-
	07/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
RW-1	10/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not sampled
(-) Not analyzed

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract 33 Tank Battery
Chaves County, New Mexico

Monitor Well	Date Sampled	Benzene in (mg/L)	Toluene in (mg/L)	Ethyl- Benzene (mg/L)	Xylene in (mg/L)	Total BTEX (mg/L)
MW-1	12/28/09	<0.001	<0.001	<0.001	<0.001	<0.001
	02/25/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	0.002	0.0015	<0.001	<0.001	0.0035
	10/11/10	0.0048	<0.001	<0.001	<0.001	0.0048
	01/21/11	0.0121	0.0086	<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

SAMPLE LOG

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

SAMPLE LOG

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.

SAMPLE LOG

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.

SAMPLE LOG

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.

SAMPLE LOG

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
15-16'	--	Caliche and 30% Chert
20-21'	--	Caliche and Chert with Buff Fine Grained Well Sorted Sand
25-26'	--	Buff Fine Grain Well Sorted Sand
30-31'	--	Buff Fine Grain Well Sorted Sand
35-36'	--	Buff Fine Grain Well Sorted Sand
40-41'	--	Buff Fine Grain Well Sorted Sand
45-46'	--	Buff 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
110-111'	--	Light Brown Fine Grain Well Sorted Sand with Subangular Gravel
115-116'	--	Light Brown Fine Grain Well Sorted Sand with Subangular Gravel and Red
120-121'	--	Red Bed with Subangular Gravel
125'	--	Red Bed

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

SAMPLE LOG

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**

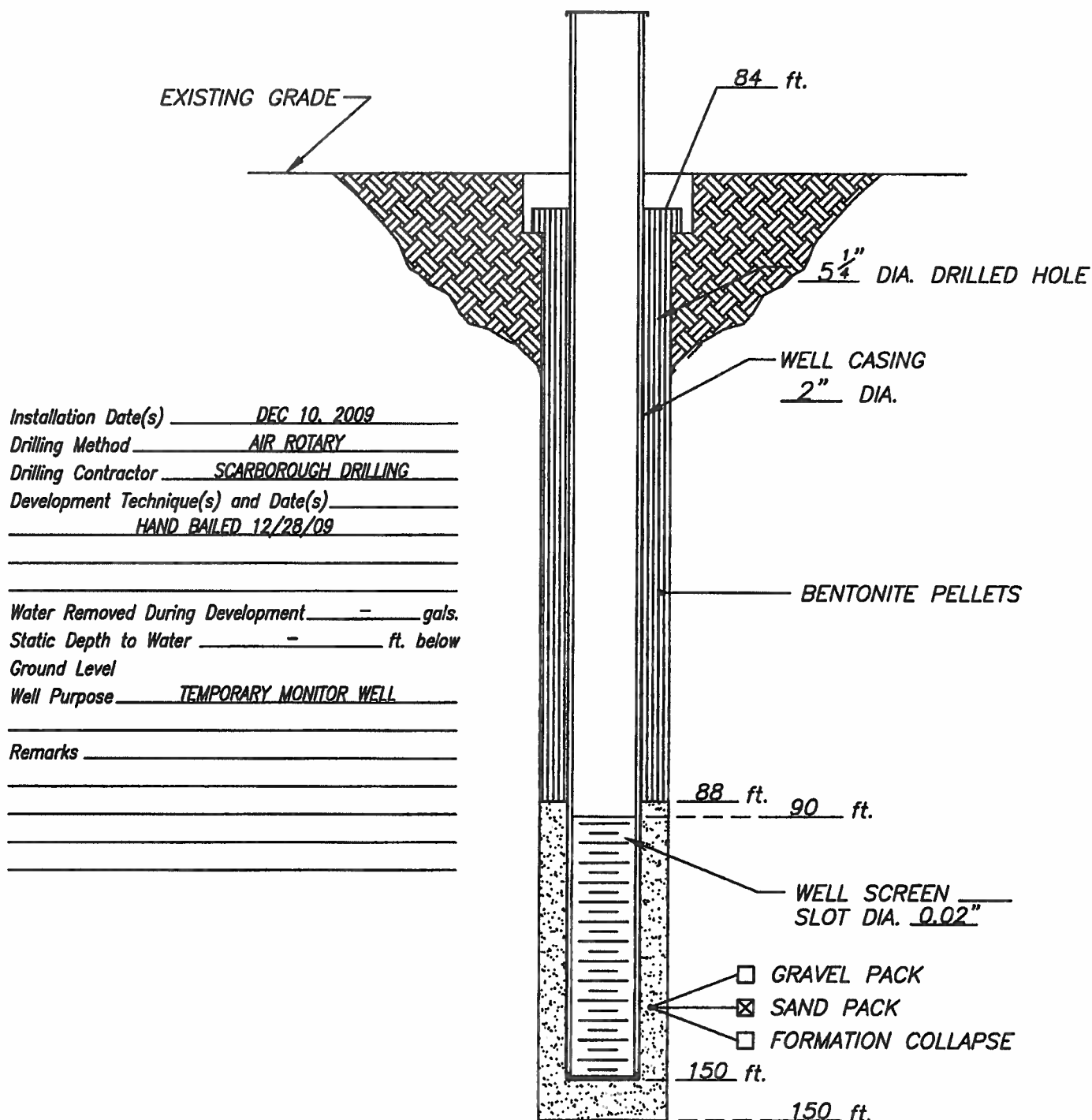
DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-6	--	Buff hard limestone
10-11	--	Buff to tan sandy limestone
15-16	--	Buff hard limestone
20-21	--	Tan calcareous fine grain sand
25-26	--	Tan calcareous fine grain sand
30-31	--	Tan calcareous fine grain sand
35-36	--	Tan fine grain sand
40-41	--	Tan fine grain sand
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

WELL CONSTRUCTION LOG



DATE: DEC. 23, 2009

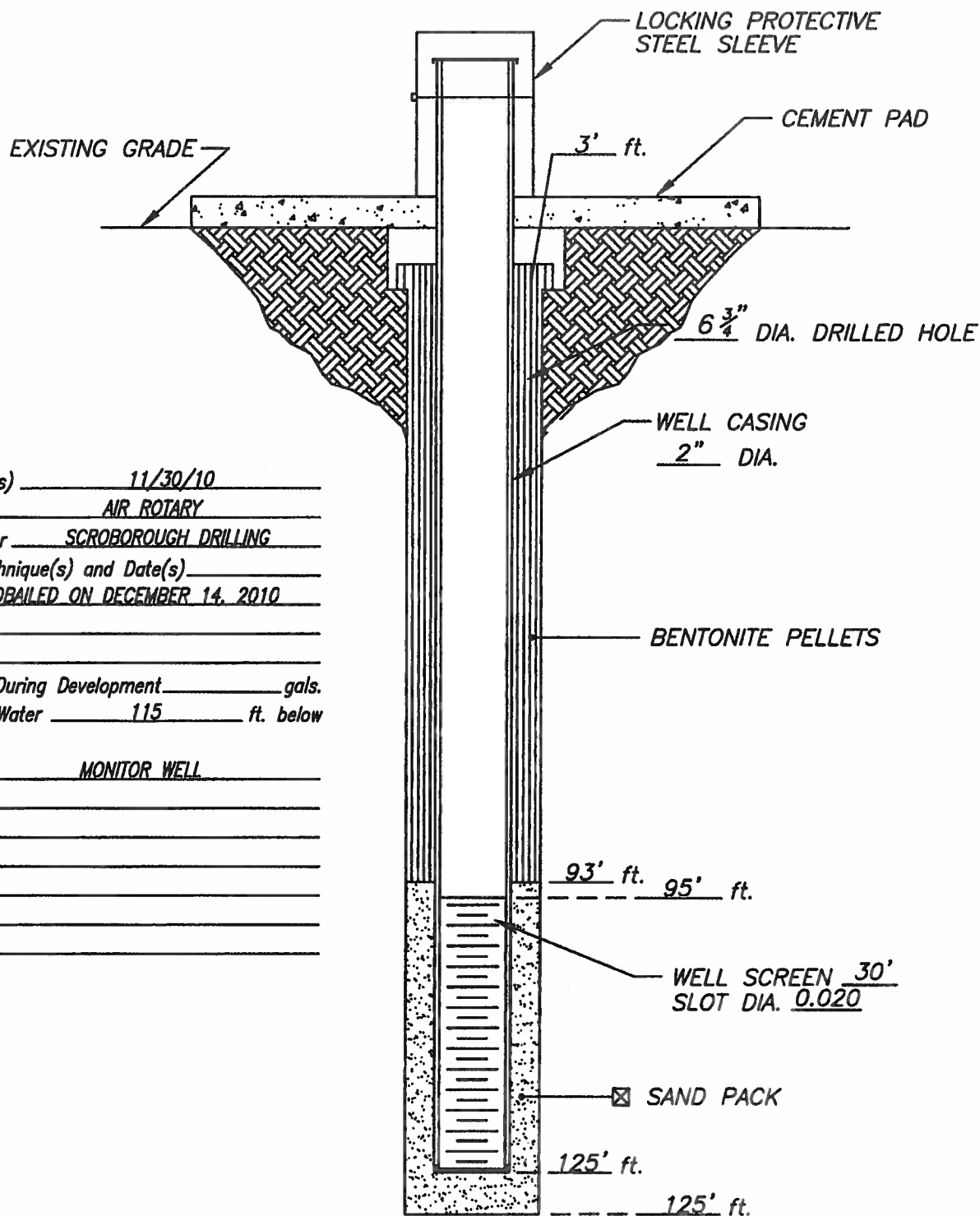
TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LP
PROJECT: ROCK QUEEN UNIT TRACT #33
LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-1

WELL CONSTRUCTION LOG



Installation Date(s) 11/30/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 115 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 11/30/10

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC

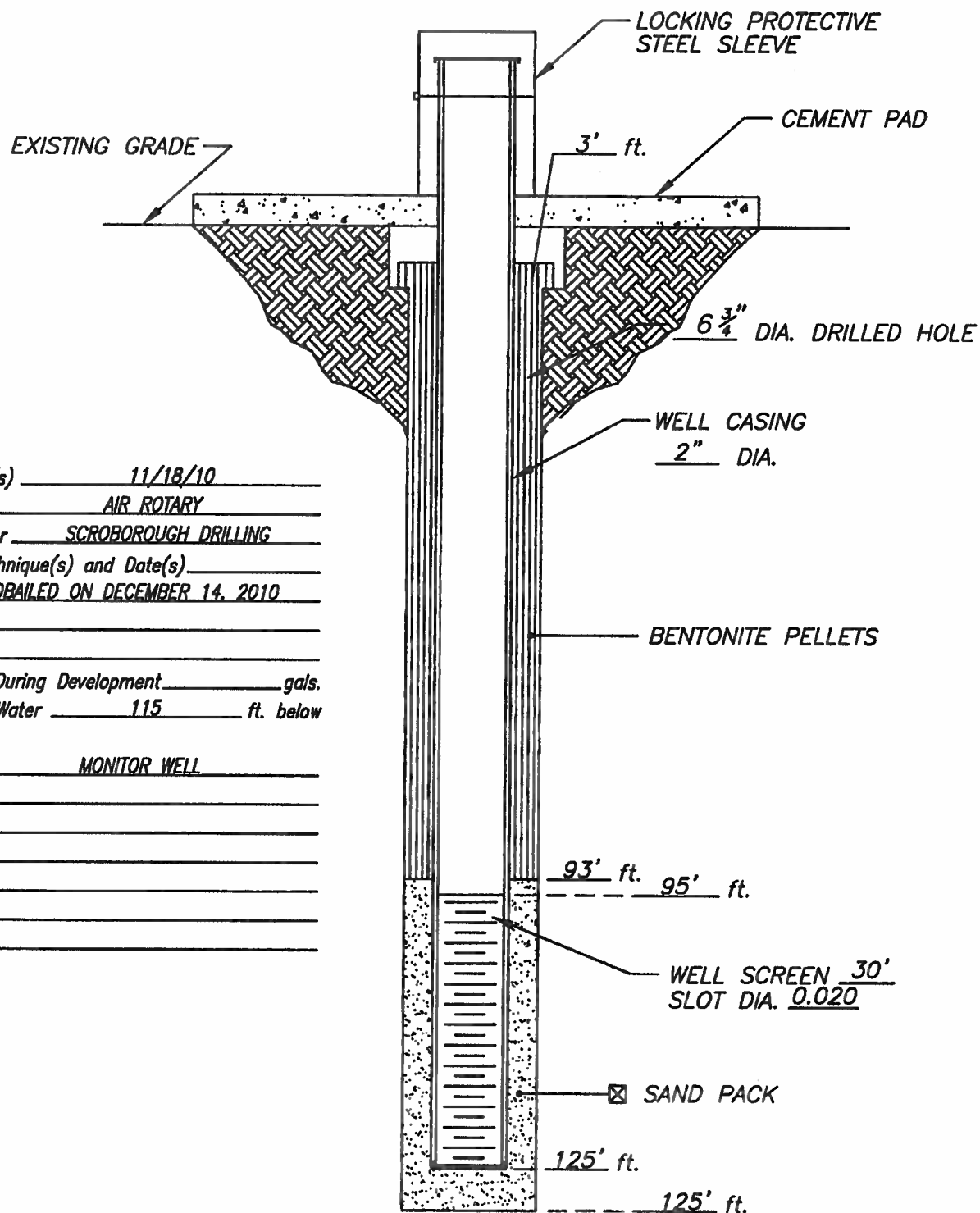
PROJECT: ROCK QUEEN UNIT TRACT #33

LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

MW-2

WELL CONSTRUCTION LOG



Installation Date(s) 11/18/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 115 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 11/18/10

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC

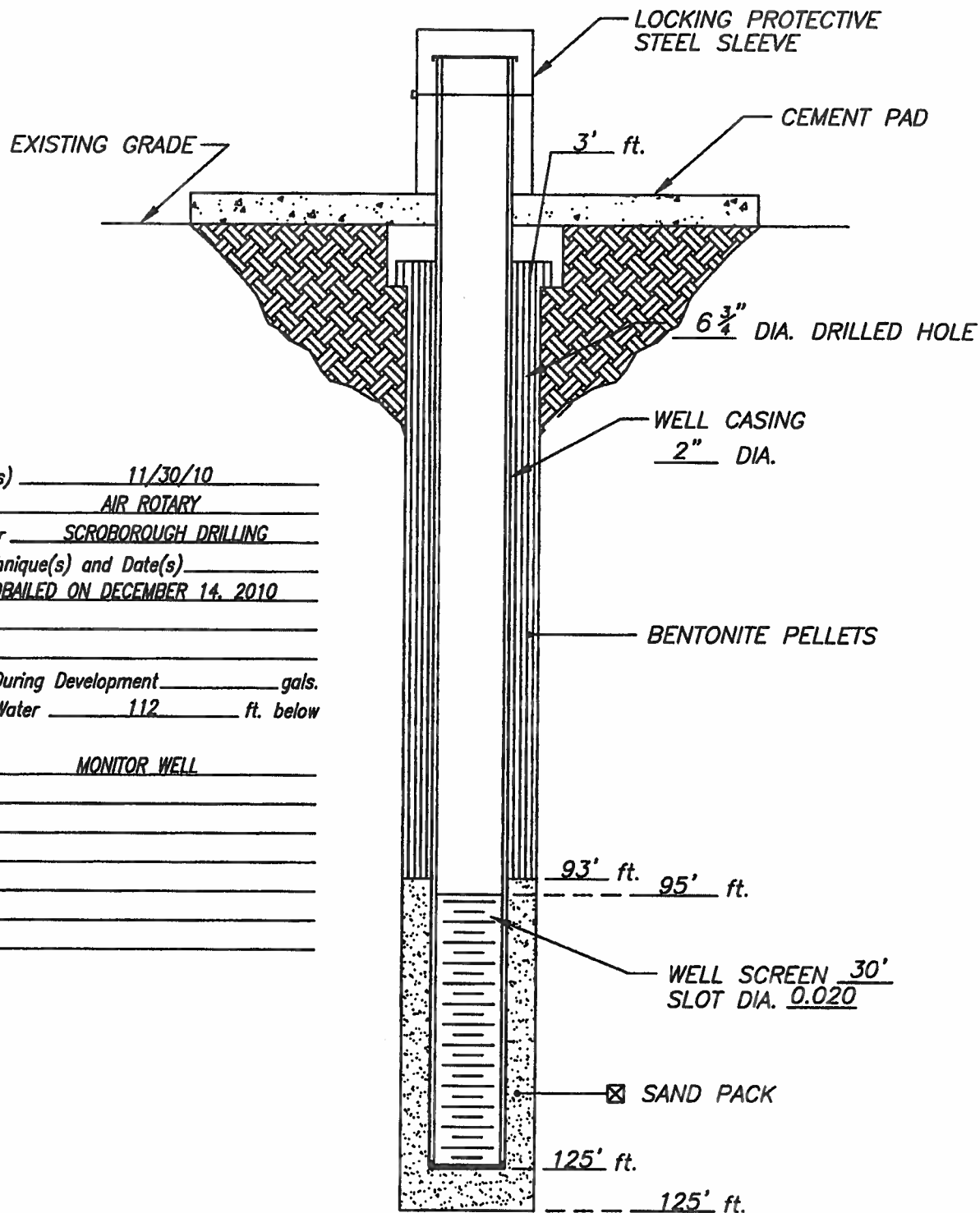
PROJECT: ROCK QUEEN UNIT TRACT #33

LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

MW-3

WELL CONSTRUCTION LOG



Installation Date(s) 11/30/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 112 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 11/30/10

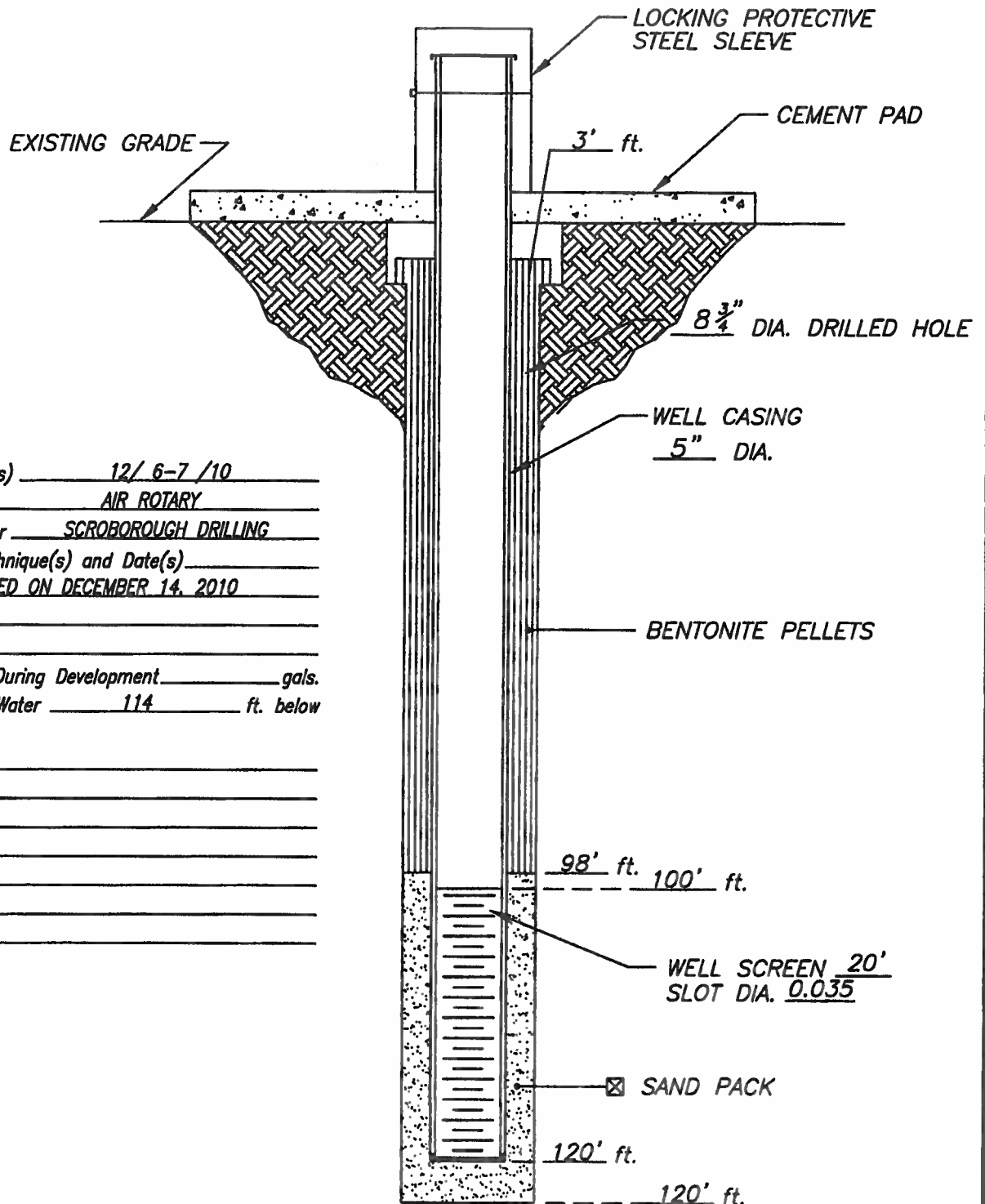
TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: *CELERO ENERGY II, LLC*
 PROJECT: *ROCK QUEEN UNIT TRACT #33*
 LOCATION: *CHAVES COUNTY, NEW MEXICO*

WELL NO.

MW-4

WELL CONSTRUCTION LOG



Installation Date(s) 12/ 6-7 /10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 114 ft. below
 Ground Level
 Well Purpose _____

Remarks _____

DATE: 12/10/10

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

APPENDIX C

LABORATORY ANALYSIS



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRC WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

Lubbock: T104704219-08-TX
LELAP-02003
Kansas E-10317

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: February 7, 2011

Work Order: 11012134



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.

Sample	Description	Matrix	Date Taken	Time Taken	Date 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.



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.

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.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	66157	2011-01-24 at 11:00	77124	2011-01-24 at 13:17
BTEX	S 8021B	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.

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: AG
Prepared By: AG

Parameter	Flag	RL 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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	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: E 300.0
Date Analyzed: 2011-02-02
Sample Preparation: 2011-02-02

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

Parameter	Flag	RL 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/A
Analyzed By: PG
Prepared By: PG

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		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

Parameter	Flag	RL 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: AG
Prepared By: AG

Parameter	Flag	RL 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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	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
Analysis: Chloride (IC)
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
Prepared By: PG

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		55.6	mg/L	5	2.50

Report Date: February 7, 2011
115-6403133A

Work Order: 11012134
Celero/Rock Queen #33

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Chavez County, NM

Sample: 255922 - MW-2

Laboratory: Lubbock
Analysis: SO4 (IC)
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
Prepared By: PG

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		124	mg/L	5	2.50

Sample: 255922 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 77317
Prep Batch: 66164

Analytical Method: SM 2540C
Date Analyzed: 2011-02-01
Sample Preparation: 2011-01-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		2010	mg/L	2	10.0

Sample: 255923 - MW-3

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: AG
Prepared By: AG

Parameter	Flag	RL 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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.112	mg/L	1	0.100	112	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.100	mg/L	1	0.100	100	78.6 - 122.8

Report Date: February 7, 2011
115-6403133A

Work Order: 11012134
Celero/Rock Queen #33

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Chavez County, NM

Sample: 255923 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2011-02-02	Analyzed By:	PG
QC Batch:	77372	Sample Preparation:	2011-02-02	Prepared By:	PG
Prep Batch:	66371				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5370	mg/L	500	2.50

Sample: 255923 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-02-06	Analyzed By:	PG
QC Batch:	77426	Sample Preparation:	2011-02-06	Prepared By:	PG
Prep Batch:	66413				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		132	mg/L	5	2.50

Sample: 255923 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-02-01	Analyzed By:	AR
QC Batch:	77317	Sample Preparation:	2011-01-26	Prepared By:	AR
Prep Batch:	66164				

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		10600	mg/L	20	10.0

Sample: 255924 - MW-4

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-01-25	Analyzed By:	AG
QC Batch:	77170	Sample Preparation:	2011-01-25	Prepared By:	AG
Prep Batch:	66196				

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

continued ...

sample 255924 continued ...

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.115	mg/L	1	0.100	115	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.101	mg/L	1	0.100	101	78.6 - 122.8

Sample: 255924 - MW-4

Laboratory: Lubbock
 Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
 QC Batch: 77372 Date Analyzed: 2011-02-02 Analyzed By: PG
 Prep Batch: 66371 Sample Preparation: 2011-02-02 Prepared By: PG

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6510	mg/L	500	2.50

Sample: 255924 - MW-4

Laboratory: Lubbock
 Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
 QC Batch: 77426 Date Analyzed: 2011-02-06 Analyzed By: PG
 Prep Batch: 66413 Sample Preparation: 2011-02-06 Prepared By: PG

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

Sample: 255924 - MW-4

Laboratory: Midland
 Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
 QC Batch: 77317 Date Analyzed: 2011-02-01 Analyzed By: AR
 Prep Batch: 66164 Sample Preparation: 2011-01-26 Prepared By: AR

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

Method Blank (1) QC Batch: 77124

QC Batch: 77124
Prep Batch: 66157

Date Analyzed: 2011-01-24
QC Preparation: 2011-01-24

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000600	mg/L	0.001
Toluene		<0.000600	mg/L	0.001
Ethylbenzene		<0.000800	mg/L	0.001
Xylene		<0.000767	mg/L	0.001

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

Method Blank (1) QC Batch: 77170

QC Batch: 77170
Prep Batch: 66196

Date Analyzed: 2011-01-25
QC Preparation: 2011-01-25

Analyzed By: AG
Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.111	mg/L	1	0.100	111	70.8 - 117.4
4-Bromofluorobenzene (4-BFB)		0.0994	mg/L	1	0.100	99	79 - 113.4

Method Blank (1) QC Batch: 77255

QC Batch: 77255
Prep Batch: 66142

Date Analyzed: 2011-01-31
QC Preparation: 2011-01-24

Analyzed By: AR
Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		10.0	mg/L	10

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Method Blank (1) QC Batch: 77317

QC Batch: 77317 Date Analyzed: 2011-02-01 Analyzed By: AR
Prep Batch: 66164 QC Preparation: 2011-01-25 Prepared By: AR

Parameter	Flag	MDL 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	MDL Result	Units	RL
Chloride		<0.0142	mg/L	2.5

Method Blank (1) QC Batch: 77372

QC Batch: 77372 Date Analyzed: 2011-02-02 Analyzed By: PG
Prep Batch: 66371 QC Preparation: 2011-02-02 Prepared By: PG

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0142	mg/L	2.5

Method Blank (1) QC Batch: 77372

QC Batch: 77372 Date Analyzed: 2011-02-02 Analyzed By: PG
Prep Batch: 66371 QC Preparation: 2011-02-02 Prepared By: PG

Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.126	mg/L	2.5

Method Blank (1) QC Batch: 77426

QC Batch: 77426 Date Analyzed: 2011-02-06 Analyzed By: PG
Prep Batch: 66413 QC Preparation: 2011-02-06 Prepared By: PG

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Parameter	Flag	MDL Result	Units	RL
Sulfate		<0.126	mg/L	2.5

Duplicates (1) Duplicated Sample: 255921

QC Batch: 77255 Date Analyzed: 2011-01-31 Analyzed By: AR
Prep Batch: 66142 QC Preparation: 2011-01-24 Prepared By: AR

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

Duplicates (1) Duplicated Sample: 255931

QC Batch: 77317 Date Analyzed: 2011-02-01 Analyzed By: AR
Prep Batch: 66164 QC Preparation: 2011-01-25 Prepared By: AR

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

Laboratory Control Spike (LCS-1)

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

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

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

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

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

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
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

Date Analyzed: 2011-01-25

Analyzed By: AG

Prep Batch: 66196

QC Preparation: 2011-01-25

Prepared By: AG

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

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD 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

Date Analyzed: 2011-01-31

Analyzed By: AR

Prep Batch: 66142

QC Preparation: 2011-01-24

Prepared By: AR

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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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Laboratory Control Spike (LCS-1)

QC Batch: 77317
Prep Batch: 66164

Date Analyzed: 2011-02-01
QC Preparation: 2011-01-25

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids	1080	mg/L	1	1000	<9.75	108	90 - 110

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
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

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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: 2011-02-02
QC Preparation: 2011-02-02

Analyzed By: PG
Prepared By: PG

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	24.0	mg/L	1	25.0	<0.0142	96	90 - 110	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 77372
Prep Batch: 66371

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

Analyzed By: PG
Prepared By: PG

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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: 77426
Prep Batch: 66413

Date Analyzed: 2011-02-06
QC Preparation: 2011-02-06

Analyzed By: PG
Prepared By: PG

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

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

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

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.

matrix spikes continued ...

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene	⁴	0.145	mg/L	1	0.300	<0.000767	48	75.7 - 109

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

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

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD 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
Prep Batch: 66196

Date Analyzed: 2011-01-25
QC Preparation: 2011-01-25

Analyzed By: AG
Prepared By: AG

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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. Therefore, MS shows extraction occurred properly.

matrix spikes continued ...

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD 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

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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: 2011-02-02
QC Preparation: 2011-02-02

Analyzed By: PG
Prepared By: PG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	¹⁴ 852	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.

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

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

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 •

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Matrix Spike (MS-1) Spiked Sample: 256247

QC Batch: 77372
Prep Batch: 66371

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

Analyzed By: PG
Prepared By: PG

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	¹⁶	3380	mg/L	10	250	2750	252	90 - 110

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

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 66413

Date Analyzed: 2011-02-06
QC Preparation: 2011-02-06

Analyzed By: PG
Prepared By: PG

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

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

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

¹⁶Matrix spike ran with batch but spiked sample was reported in another batch •

¹⁷Matrix spike ran with batch but spiked sample was reported in another batch •

Standard (CCV-3)

QC Batch: 77124

Date Analyzed: 2011-01-24

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.5	98	90 - 110	2011-02-02

Standard (CCV-2)

QC Batch: 77371

Date Analyzed: 2011-02-02

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.0	96	90 - 110	2011-02-02

Standard (CCV-1)

QC Batch: 77372

Date Analyzed: 2011-02-02

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.0	96	90 - 110	2011-02-02

Standard (CCV-1)

QC Batch: 77372

Date Analyzed: 2011-02-02

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	24.5	98	90 - 110	2011-02-02

Standard (CCV-2)

QC Batch: 77372

Date Analyzed: 2011-02-02

Analyzed By: PG

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

Standard (CCV-2)

QC Batch: 77372

Date Analyzed: 2011-02-02

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	24.6	98	90 - 110	2011-02-02

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Standard (CCV-1)

QC Batch: 77426

Date Analyzed: 2011-02-06

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		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

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



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: May 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.

Sample	Description	Matrix	Date Taken	Time Taken	Date 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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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.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis 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.

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Analytical Report

Sample: 263904 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 80420
Prep Batch: 68258

Analytical Method: S 8021B
Date Analyzed: 2011-04-18
Sample Preparation: 2011-04-18

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.00760	mg/L	1	0.00100
Toluene		1	<0.00100	mg/L	1	0.00100
Ethylbenzene		1	<0.00100	mg/L	1	0.00100
Xylene		1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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)
QC Batch: 80665
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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	77400	mg/L	5000	2.50

Sample: 263904 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 80665
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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1010	mg/L	50	2.50

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Sample: 263904 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 80826
Prep Batch: 68432

Analytical Method: SM 2540C
Date Analyzed: 2011-04-29
Sample Preparation: 2011-04-25

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	116000	mg/L	100	10.0

Sample: 263905 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 80420
Prep Batch: 68258

Analytical Method: S 8021B
Date Analyzed: 2011-04-18
Sample Preparation: 2011-04-18

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

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

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

Sample: 263905 - MW-2

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 80665
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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	48.5	mg/L	5	2.50

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Sample: 263905 - MW-2

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 80665
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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	133	mg/L	5	2.50

Sample: 263905 - MW-2

Laboratory: Midland
Analysis: TDS
QC Batch: 80869
Prep Batch: 68433

Analytical Method: SM 2540C
Date Analyzed: 2011-05-02
Sample Preparation: 2011-04-26

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	544	mg/L	2	10.0

Sample: 263906 - MW-3

Laboratory: Midland
Analysis: BTEX
QC Batch: 80420
Prep Batch: 68258

Analytical Method: S 8021B
Date Analyzed: 2011-04-18
Sample Preparation: 2011-04-18

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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

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Sample: 263906 - MW-3

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	5420	mg/L	1000	2.50

Sample: 263906 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-04-26	Analyzed By:	AR
QC Batch:	80665	Sample Preparation:	2011-04-25	Prepared By:	AR
Prep Batch:	68438				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	126	mg/L	5	2.50

Sample: 263906 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-05-02	Analyzed By:	AR
QC Batch:	80869	Sample Preparation:	2011-04-26	Prepared By:	AR
Prep Batch:	68433				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	6180	mg/L	20	10.0

Sample: 263907 - MW-4

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

continued ...

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sample 263907 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL		
Parameter	Flag	Cert	RL Result	Units	Dilution	RL		
Benzene		1	<0.00100	mg/L	1	0.00100		
Toluene		1	<0.00100	mg/L	1	0.00100		
Ethylbenzene		1	<0.00100	mg/L	1	0.00100		
Xylene		1	<0.00100	mg/L	1	0.00100		
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery 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
Analysis: Chloride (IC)
QC Batch: 80666
Prep Batch: 68439

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	7410	mg/L	1000	2.50

Sample: 263907 - MW-4

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	236	mg/L	5	2.50

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Sample: 263907 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 80869
Prep Batch: 68433

Analytical Method: SM 2540C
Date Analyzed: 2011-05-02
Sample Preparation: 2011-04-26

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	25400	mg/L	100	10.0

Sample: 263908 - RW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 80470
Prep Batch: 68300

Analytical Method: S 8021B
Date Analyzed: 2011-04-20
Sample Preparation: 2011-04-19

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.0124	mg/L	1	0.00100
Toluene		1	0.00700	mg/L	1	0.00100
Ethylbenzene		1	<0.00100	mg/L	1	0.00100
Xylene		1	0.0176	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	0.0794	mg/L	1	0.100	79	67.8 - 129
4-Bromofluorobenzene (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: E 300.0
Date Analyzed: 2011-04-26
Sample Preparation: 2011-04-25

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	83700	mg/L	5000	2.50

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Sample: 263908 - RW-1

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1070	mg/L	50	2.50

Sample: 263908 - RW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 80869
Prep Batch: 68433

Analytical Method: SM 2540C
Date Analyzed: 2011-05-02
Sample Preparation: 2011-04-26

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	122000	mg/L	100	10.0

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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

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000400	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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000400	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

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

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Method Blank (1) QC Batch: 80665

QC Batch: 80665 Date Analyzed: 2011-04-26 Analyzed By: AR
Prep Batch: 68438 QC Preparation: 2011-04-25 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.513	mg/L	2.5

Method Blank (1) QC Batch: 80665

QC Batch: 80665 Date Analyzed: 2011-04-26 Analyzed By: AR
Prep Batch: 68438 QC Preparation: 2011-04-25 Prepared By: AR

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

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.724	mg/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

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

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Method Blank (1) QC Batch: 80826

QC Batch: 80826 Date Analyzed: 2011-04-29 Analyzed By: AR
Prep Batch: 68432 QC Preparation: 2011-04-22 Prepared By: AR

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

Method Blank (1) QC Batch: 80869

QC Batch: 80869 Date Analyzed: 2011-05-02 Analyzed By: AR
Prep Batch: 68433 QC Preparation: 2011-04-25 Prepared By: AR

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

Duplicates (1) Duplicated Sample: 263904

QC Batch: 80826 Date Analyzed: 2011-04-29 Analyzed By: AR
Prep Batch: 68432 QC Preparation: 2011-04-22 Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	121000	116000	mg/L	100	4	10

Duplicates (1) Duplicated Sample: 263914

QC Batch: 80869 Date Analyzed: 2011-05-02 Analyzed By: AR
Prep Batch: 68433 QC Preparation: 2011-04-25 Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	151000	146000	mg/L	100	3	10

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 80420
Prep Batch: 68258

Date Analyzed: 2011-04-18
QC Preparation: 2011-04-18

Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0962	mg/L	1	0.100	<0.000400	96	76.8 - 110
Toluene		1	0.100	mg/L	1	0.100	<0.000300	100	81 - 108
Ethylbenzene		1	0.0993	mg/L	1	0.100	<0.000300	99	78.8 - 118
Xylene		1	0.297	mg/L	1	0.300	<0.000333	99	80.3 - 119

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0930	mg/L	1	0.100	<0.000400	93	76.8 - 110	3	20
Toluene		1	0.0981	mg/L	1	0.100	<0.000300	98	81 - 108	2	20
Ethylbenzene		1	0.0969	mg/L	1	0.100	<0.000300	97	78.8 - 118	2	20
Xylene		1	0.292	mg/L	1	0.300	<0.000333	97	80.3 - 119	2	20

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

Surrogate			LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. 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: 80470
Prep Batch: 68300

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

Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. 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

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

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115-6403133

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Celero/Rock Queen Unit Tract #33

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

Surrogate			LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. 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
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	24.9	mg/L	1	25.0	<0.265	100	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	24.8	mg/L	1	25.0	<0.265	99	90 - 110	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 80665
Prep Batch: 68438

Date Analyzed: 2011-04-26
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	23.1	mg/L	1	25.0	<0.177	92	90 - 110	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 80666
Prep Batch: 68439

Date Analyzed: 2011-04-26
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	27.3	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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 68439

Date Analyzed: 2011-04-26
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.8	mg/L	1	25.0	<0.177	103	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	25.6	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
Prep Batch: 68432

Date Analyzed: 2011-04-29
QC Preparation: 2011-04-22

Analyzed By: AR
Prepared By: AR

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115-6403133

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Celero/Rock Queen Unit Tract #33

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	1050	mg/L	1	1000	<9.75	105	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 68433

Date Analyzed: 2011-05-02
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		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
Prep Batch: 68438

Date Analyzed: 2011-04-26
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

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

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

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115-6403133

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Matrix Spike (MS-1) Spiked Sample: 263903

QC Batch: 80665
Prep Batch: 68438

Date Analyzed: 2011-04-26
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2680	mg/L	100	2750	136	92	90 - 110

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	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

Date Analyzed: 2011-04-26
QC Preparation: 2011-04-25

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	10400	mg/L	100	2750	8280	77	90 - 110

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

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

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

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

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115-6403133

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

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

Calibration Standards

Standard (CCV-1)

QC Batch: 80420

Date Analyzed: 2011-04-18

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0933	93	80 - 120	2011-04-18
Toluene		1	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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0951	95	80 - 120	2011-04-18
Toluene		1	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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0916	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

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Standard (CCV-2)

QC Batch: 80470

Date Analyzed: 2011-04-20

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	0.0907	91	80 - 120	2011-04-20
Toluene		1	mg/L	0.100	0.0978	98	80 - 120	2011-04-20
Ethylbenzene		1	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

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	23.3	93	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.1	92	90 - 110	2011-04-26

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Standard (CCV-1)

QC Batch: 80665

Date Analyzed: 2011-04-26

Analyzed By: AR

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

Standard (ICV-1)

QC Batch: 80666

Date Analyzed: 2011-04-26

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.1	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

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	24.0	96	90 - 110	2011-04-26

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-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 than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
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.

XWB #: 11641529

Analysis Request of Chain of Custody Record



TETRA TECH

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

PAGE: 1 OF: 1
ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

Celerio

SITE MANAGER:

Self Kindley

PROJECT NO.:

115-6463133

PROJECT NAME:

Rock Queen Unit Tract #3

LAB I.D. NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE METHOD

BTEX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Vr Pd Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, FDS

Sulfates

RELINQUISHED BY: (Signature)

James Kennedy

Date: 4-15-11

RECEIVED BY: (Signature)

Self Kindley

Date: 4/15/11

SAMPLED BY: (Print & Initial)

James Kennedy

Date: 4/14/11

RELINQUISHED BY: (Signature)

Self Kindley

Date: 4-15-11

RECEIVED BY: (Signature)

Self Kindley

Date: 4/15/11

SAMPLED BY: (Print & Initial)

James Kennedy

Date: 4/14/11

RECEIVING LABORATORY:

STATE: Texas

ZIP: 79705

PHONE: (432) 682-4559

DATE: 4/15/11

TIME: 1:50

SAMPLE SHIPPED BY: (Circle)

FEDER

HAND DELIVERED

BUS

UPS

OTHER:

Results by:

RUSH Charges

Authorized:

Yes

No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

0162 contact

Self Kindley

test midland



6701 Abardeen Avenue, Suite 9 Lubbock, Texas 79424 800 • 378 • 1296 806 • 794 • 1296 FAX 806 • 794 • 1296
200 East Sunset Road, Suite E El Paso, Texas 79922 888 • 588 • 3443 915 • 585 • 3443 FAX 915 • 585 • 4944
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6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817 • 201 • 5260
E-Mail lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: 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.

Sample	Description	Matrix	Date Taken	Time Taken	Date 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

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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.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis 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
115-6403133A

Work Order: 11080108
Celero/Rock Queen #33

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Chavez County, NM

Analytical Report

Sample: 273221 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 83538
Prep Batch: 70958

Analytical Method: S 8021B
Date Analyzed: 2011-08-03
Sample Preparation: 2011-08-03

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.0114	mg/L	1	0.00100
Toluene	u	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	u	1	<0.00100	mg/L	1	0.00100
Xylene	u	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			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)
QC Batch: 83582
Prep Batch: 70900

Analytical Method: E 300.0
Date Analyzed: 2011-08-03
Sample Preparation: 2011-08-02

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	83600	mg/L	5000	2.50

Sample: 273221 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 83582
Prep Batch: 70900

Analytical Method: E 300.0
Date Analyzed: 2011-08-03
Sample Preparation: 2011-08-02

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1080	mg/L	50	2.50

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Sample: 273221 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 83880
Prep Batch: 71017

Analytical Method: SM 2540C
Date Analyzed: 2011-08-15
Sample Preparation: 2011-08-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	124000	mg/L	100	10.0

Sample: 273222 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 83538
Prep Batch: 70958

Analytical Method: S 8021B
Date Analyzed: 2011-08-03
Sample Preparation: 2011-08-03

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			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: E 300.0
Date Analyzed: 2011-08-03
Sample Preparation: 2011-08-02

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

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

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Sample: 273222 - MW-2

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	171	mg/L	5	2.50

Sample: 273222 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-08-15	Analyzed By:	AR
QC Batch:	83880	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71017				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	576	mg/L	1	10.0

Sample: 273223 - MW-3

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			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

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Sample: 273223 - MW-3

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	6950	mg/L	500	2.50

Sample: 273223 - MW-3

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	155	mg/L	5	2.50

Sample: 273223 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-08-15	Analyzed By:	AR
QC Batch:	83880	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71017				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	9820	mg/L	20	10.0

Sample: 273224 - MW-4

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

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sample 273224 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	5450	mg/L	500	2.50

Sample: 273224 - MW-4

Laboratory: Midland
Analysis: SO4 (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

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

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Sample: 273224 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 83880
Prep Batch: 71017

Analytical Method: SM 2540C
Date Analyzed: 2011-08-15
Sample Preparation: 2011-08-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	I	12700	mg/L	5	10.0

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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

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000400	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

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

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	2.94	mg/L	2.5

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

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

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Method Blank (1) QC Batch: 83880

QC Batch: 83880 Date Analyzed: 2011-08-15 Analyzed By: AR
Prep Batch: 71017 QC Preparation: 2011-08-05 Prepared By: AR

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

Method Blank (1) QC Batch: 84218

QC Batch: 84218 Date Analyzed: 2011-08-22 Analyzed By: AR
Prep Batch: 71505 QC Preparation: 2011-08-22 Prepared By: AR

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

Method Blank (1) QC Batch: 84218

QC Batch: 84218 Date Analyzed: 2011-08-22 Analyzed By: AR
Prep Batch: 71505 QC Preparation: 2011-08-22 Prepared By: AR

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

Duplicates (1) Duplicated Sample: 273246

QC Batch: 83880 Date Analyzed: 2011-08-15 Analyzed By: AR
Prep Batch: 71017 QC Preparation: 2011-08-05 Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	614	648	mg/L	2	5	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 83538
Prep Batch: 70958

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

Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.101	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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.103	mg/L	1	0.100	<0.000400	103	76.8 - 110.3	2	20
Toluene		1	0.0996	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.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD 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
Prep Batch: 70900

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

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control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	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
Prep Batch: 70900

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 71017

Date Analyzed: 2011-08-15
QC Preparation: 2011-08-05

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	1020	mg/L	1	1000	<9.75	102	85.5 - 112.7

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

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

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

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Laboratory Control Spike (LCS-1)

QC Batch: 84218
Prep Batch: 71505

Date Analyzed: 2011-08-22
QC Preparation: 2011-08-22

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	24.0	mg/L	1	25.0	<0.265	96	90.9 - 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
Prep Batch: 71505

Date Analyzed: 2011-08-22
QC Preparation: 2011-08-22

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 70958

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

Analyzed By: ME
Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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

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matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	1.29	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.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD 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

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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

Analyzed By: AR
Prepared By: AR

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 71505

Date Analyzed: 2011-08-22
QC Preparation: 2011-08-22

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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: 84218
Prep Batch: 71505

Date Analyzed: 2011-08-22
QC Preparation: 2011-08-22

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

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

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

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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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.102	102	80 - 120	2011-08-03
Toluene		1	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

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date 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

Analyzed By: AR

Report Date: August 25, 2011
115-6403133A

Work Order: 11080108
Celero/Rock Queen #33

Page Number: 18 of 20
Chavez County, NM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date 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

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

Standard (ICV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date 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

Analyzed By: AR

Report Date: August 25, 2011
115-6403133A

Work Order: 11080108
Celero/Rock Queen #33

Page Number: 19 of 20
Chavez County, NM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date 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

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

Standard (CCV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

Analyzed By: AR

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

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-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 than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
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.

200 #11080108

Analysis Request of Chain of Custody Record



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

CLIENT NAME: <u>Celero</u>		SITE MANAGER: <u>Jeff Kindley</u>	
PROJECT NO.: <u>115-6403133</u>		PROJECT NAME: <u>Celero / Rock Queen #33</u>	
LAB I.D. NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
	2011		
2273221	7/28	1630	MW-1
222		1620	MW-2
223		1640	MW-3
224		1610	MW-4
PRESERVATIVE METHOD			
HCL			
HNO3			
ICE			
NONE			
NUMBER OF CONTAINERS			
4			
FILTERED (Y/N)			
N			
TCLP Semi Volatiles			
TCLP Metals Ag As Ba Cd Cr Pb Hg Se			
RCRA Metals Ag As Ba Cd Cr Pb Hg Se			
PAH 8270			
TCLP Volatiles			
RCI			
GC/MS Vol. 8240/8260/624			
GC/MS Saml. Vol. 8270/626			
PCB's 8080/608			
Post. 808/608			
Chloride			
Gamma Spec.			
Alpha Beta (Air)			
PLM (Asbestos)			
Major Anions/Cations, pH, TDS			
BTEX 8021B			
TPH 8015 MOD. TX1005 (Ext. to C35)			

RELINQUISHED BY: (Signature)	Date: <u>7/28/11</u>	Time: <u>1535</u>	RECEIVED BY: (Signature)	Date: <u>7/28/11</u>	Time: <u>1535</u>
RELINQUISHED BY: (Signature)	Date: <u>7/28/11</u>	Time: <u>1535</u>	RECEIVED BY: (Signature)	Date: <u>7/28/11</u>	Time: <u>1535</u>
RELINQUISHED BY: (Signature)	Date: <u>7/28/11</u>	Time: <u>1535</u>	RECEIVED BY: (Signature)	Date: <u>7/28/11</u>	Time: <u>1535</u>
RECEIVING LABORATORY:	REMARKS: <u>2011 test-Midland</u>				
ADDRESS: <u>Midland</u>	STATE: <u>TX</u>	ZIP: <u></u>	DATE: <u></u>		
CONTACT: <u>10.8 c imact</u>	PHONE: <u></u>	TIME: <u></u>			

SAMPLED BY: (Print & Initial)	Date: <u>7/28/11</u>	Time: <u>1535</u>
SAMPLE SHIPPED BY: (Circle) <u>FEDEX</u>	AIRBILL #:	
<u>HAND DELIVERED</u>	OTHER:	
TETRA TECH CONTACT PERSON: <u>Jeff Kindley</u>	Results by:	
RUSH Charges Authorized:	Yes	No



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•508•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: 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.

Sample	Description	Matrix	Date Taken	Time Taken	Date 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.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	73013	2011-11-01 at 15:26	85998	2011-11-01 at 15:26
BTEX	S 8021B	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.

Analytical Report

Sample: 281143 - MW-2

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 85998
Prep Batch: 73013

Analytical Method: S 8021B
Date Analyzed: 2011-11-01
Sample Preparation: 2011-11-01

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

		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	mg/L	1	0.00100
Ethylbenzene	u	U	1	<0.00100	mg/L	1	0.00100
Xylene	u	U	1	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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)
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

Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q ₂₄	Qs	2	45.4	mg/L	5	2.50

Sample: 281144 - MW-4

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 85998
Prep Batch: 73013

Analytical Method: S 8021B
Date Analyzed: 2011-11-01
Sample Preparation: 2011-11-01

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

Report Date: November 4, 2011
115-6403133

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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

Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	Qs	2	8170	mg/L	500	2.50

Sample: 281145 - MW-3

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 85998
Prep Batch: 73013

Analytical Method: S 8021B
Date Analyzed: 2011-11-01
Sample Preparation: 2011-11-01

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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

Report Date: November 4, 2011
115-6403133

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

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Sample: 281145 - MW-3

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

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

Sample: 281146 - MW-1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 86025
Prep Batch: 73038

Analytical Method: S 8021B
Date Analyzed: 2011-11-02
Sample Preparation: 2011-11-02

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.00200	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene		1	0.0365	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	2	73300	mg/L	5000	2.50

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

Parameter	Flag	Cert	MDL Result	Units	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)			0.0927	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

Parameter	Flag	Cert	MDL Result	Units	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 4, 2011
115-6403133

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

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Method Blank (1) QC Batch: 86078

QC Batch: 86078
Prep Batch: 73087

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

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		2	0.685	mg/L	2.5

Method Blank (1) QC Batch: 86079

QC Batch: 86079
Prep Batch: 73088

Date Analyzed: 2011-11-03
QC Preparation: 2011-11-02

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		2	0.677	mg/L	2.5

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 85998
Prep Batch: 73013

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

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD 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
Prep Batch: 73038

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

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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

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

Report Date: November 4, 2011
115-6403133

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

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Param	F	C	LCS 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.

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS 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
Prep Batch: 73087

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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.

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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
Prep Batch: 73088

Date Analyzed: 2011-11-03
QC Preparation: 2011-11-02

Analyzed By: AR
Prepared By: AR

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

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

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

Report Date: November 4, 2011
115-6403133

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

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

Matrix Spike (MS-1) Spiked Sample: 281133

QC Batch: 85998
Prep Batch: 73013

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

Analyzed By: ZLM
Prepared By: ZLM

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.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	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.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD 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

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	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

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

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115-6403133

Work Order: 11103125
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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.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD 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: 86078
Prep Batch: 73087

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	2	16100	mg/L	100	2750	14800	47 90 - 110

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Qs	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

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	2	7210	mg/L	50	1380	6710	36 90 - 110

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

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

Report Date: November 4, 2011
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Work Order: 11103125
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Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (CCV-2)

QC Batch: 85998

Date Analyzed: 2011-11-01

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-01
Toluene		1	mg/L	0.100	0.0999	100	80 - 120	2011-11-01
Ethylbenzene		1	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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.105	105	80 - 120	2011-11-01
Toluene		1	mg/L	0.100	0.100	100	80 - 120	2011-11-01
Ethylbenzene		1	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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.109	109	80 - 120	2011-11-02
Toluene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-02
Ethylbenzene		1	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

Standard (CCV-2)

QC Batch: 86025

Date Analyzed: 2011-11-02

Analyzed By: MT

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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date 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

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date 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

Analyzed By: AR

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

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Standard (CCV-2)

QC Batch: 86079

Date Analyzed: 2011-11-03

Analyzed By: AR

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

Appendix

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCIRCA	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 limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
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.

