

1R – 1614

2007 – 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 13 Tank Battery, Located in Unit Letter G, Section 36, Township 13 South, Range 31 East, Chaves County, New Mexico (NMOCD 1RP#1614).

Mr. Von Gonten:

This report details the results of the groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Tract 13 Tank Battery (Site) from June 2007 through December 2011. The Site is located approximately 21 1/2 miles north of Maljamar, New Mexico. The Site location is shown on Figures 1 and 2.

FACILITY BACKGROUND

Pit Closure

On September 21, 2007, Highlander (Tetra Tech) submitted an Investigation and Characterization work plan (ICP) for an open pit at the Site. The ICP was subsequently approved by the New Mexico Oil Conservation Division (NMOCD).

The Tract 13 Tank Battery pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in late July to early August 2007. Removed fluids were placed into an existing SWD system or taken for disposal, while the sludge, tank bottom materials, and liner were disposed of at Gandy-Marley, Inc.'s landfill site in Lovington, New Mexico. Upon completion of the removal of the fluids, sludge, and liner, the underlying soils were visually inspected for signs of impact. Approximately 400 cubic yards of soil were excavated and transported to Gandy-Marley, Inc. for disposal. The pit was

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

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

Groundwater Investigation

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

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

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

Gauging and Monitor Well Sampling

On June 1, 2007, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged and sampled with no PSH measured. Utilizing the water level elevation calculations, groundwater gradient maps were generated for all but the June 1, 2007 sampling event. The hydraulic gradient indicates a southeasterly direction. Groundwater gradient maps for the sampling events are included as Figures 4 through 10. 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. Water samples for monitor wells MW-1 (except June 1, 2007), MW-3, and MW-4 were below the NMWQCC standard of 250 mg/L chlorides. Chlorides for the sampling period ranged from 38.3 mg/L in monitor well MW-1 on July 12, 2010 to 17,700 mg/L in monitor well MW-5 on April 13, 2011. The general chemistry and BTEX analyses are shown in Tables 2 and 3, respectively. Chloride concentration maps for the sampling events are included as Figures 11 through 17. Copies of the laboratory analyses are enclosed in Appendix C.

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

CONCLUSIONS

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



RECOMMENDATIONS

1. Quarterly groundwater monitoring and gauging will be continued throughout the year.
2. Additional monitor wells will be installed in order to further delineate the chloride plume at the site.
3. A recovery well (RW-1) will be installed in the vicinity of the chloride plume.
4. Once the recovery well is installed, a remediation system consisting of either a low flow solar/electric pump or a windmill system will be installed in recovery well RW-1. The recovered fluids will be collected in an above ground tank and utilized for possible water flooding purposes in the surrounding oilfield.

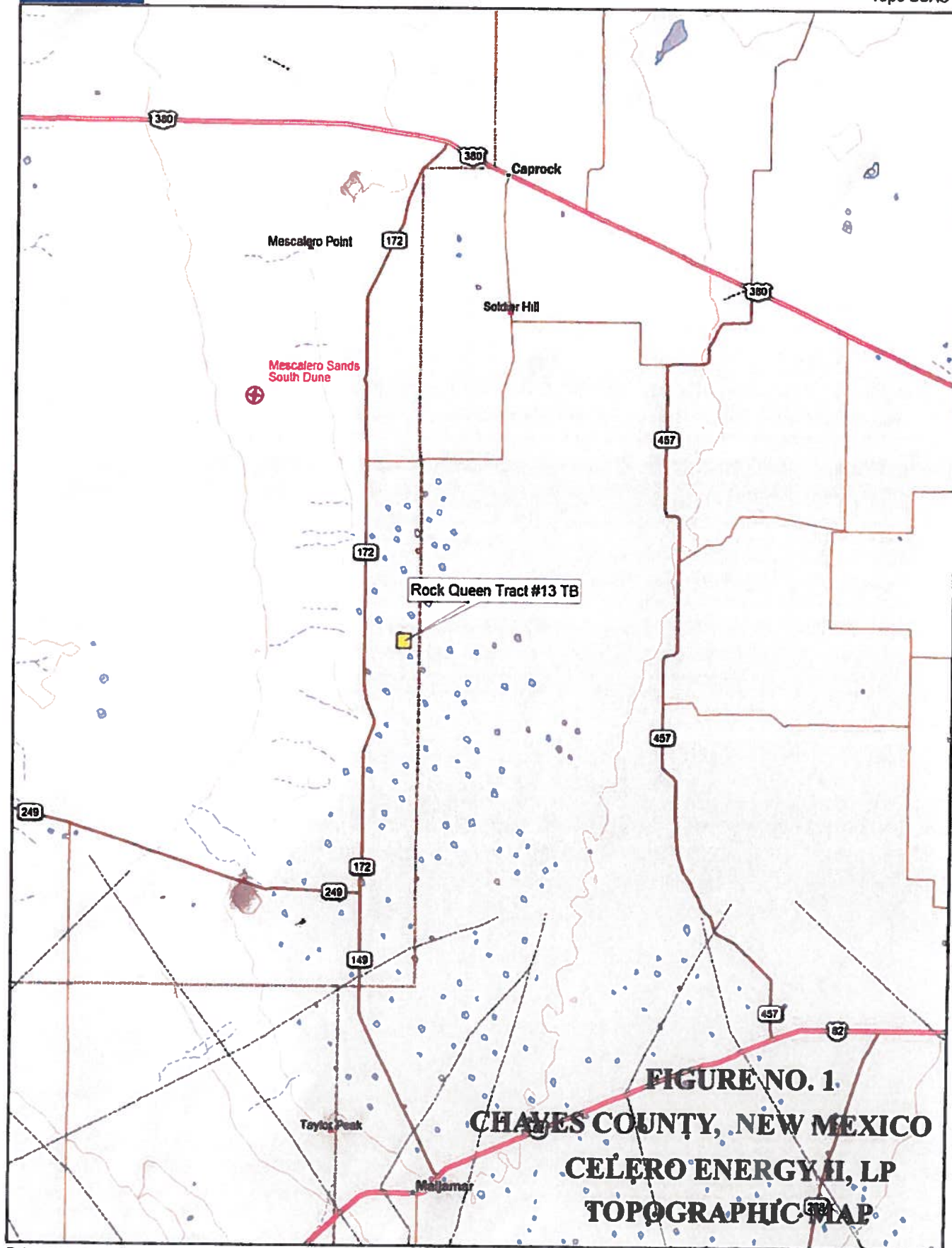
If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted,
Tetra Tech, Inc.


Jeffrey Kindley, P.G.
Senior Environmental Geologist

cc: Bruce Woodard – Celero Energy II, LP

FIGURES



Data use subject to license.

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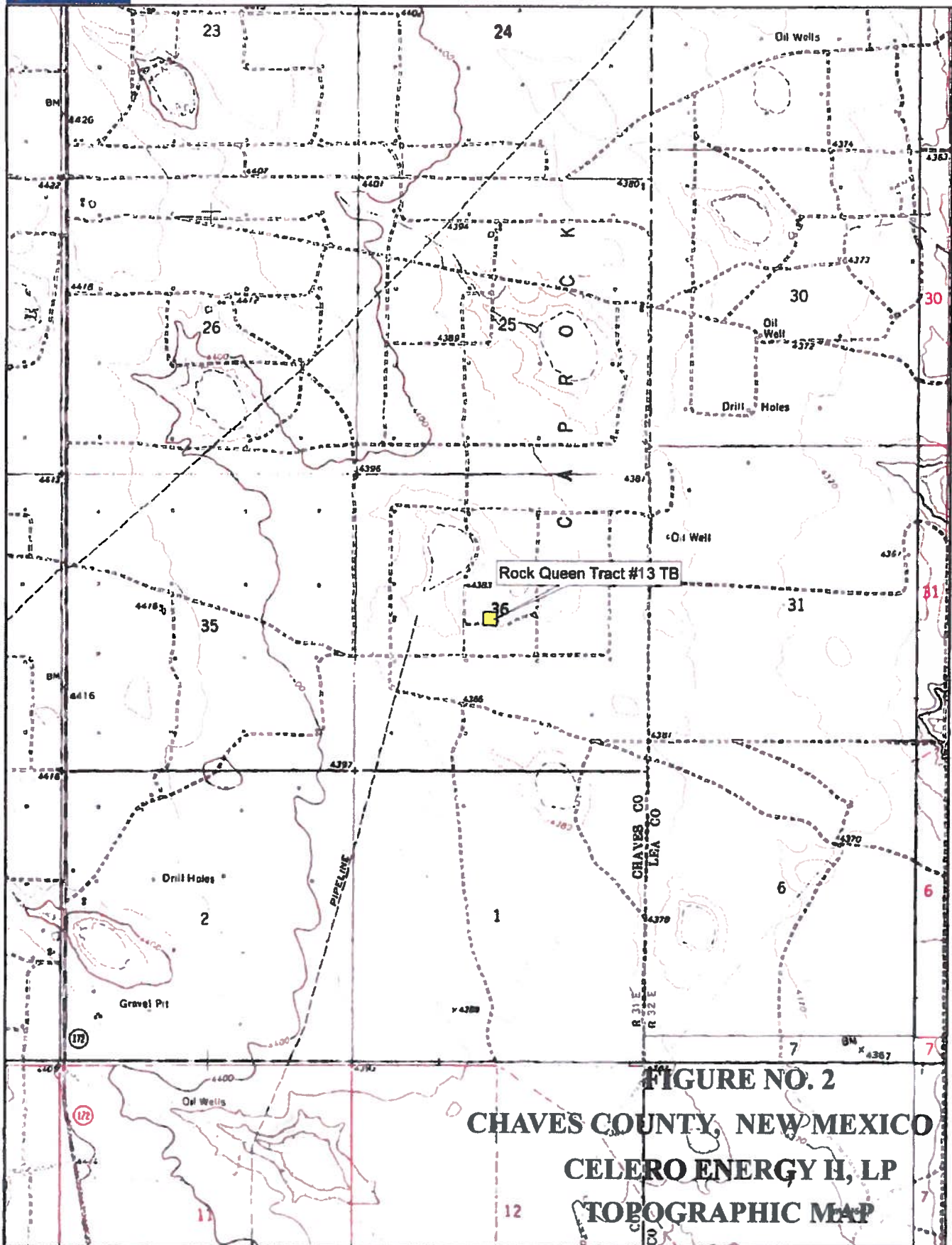
www.delorme.com

TN
 MN (7.7°E)

Scale 1 : 300,000



Data Zoom 9-3



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MW-3
⑤

MW-4
⑤

ROCK QUEEN
TRACT 12
SATELLITE

MW-1
⑤

MW-2
⑤

MW-5
⑤

MW-5
⑤

FIGURE NO. 3

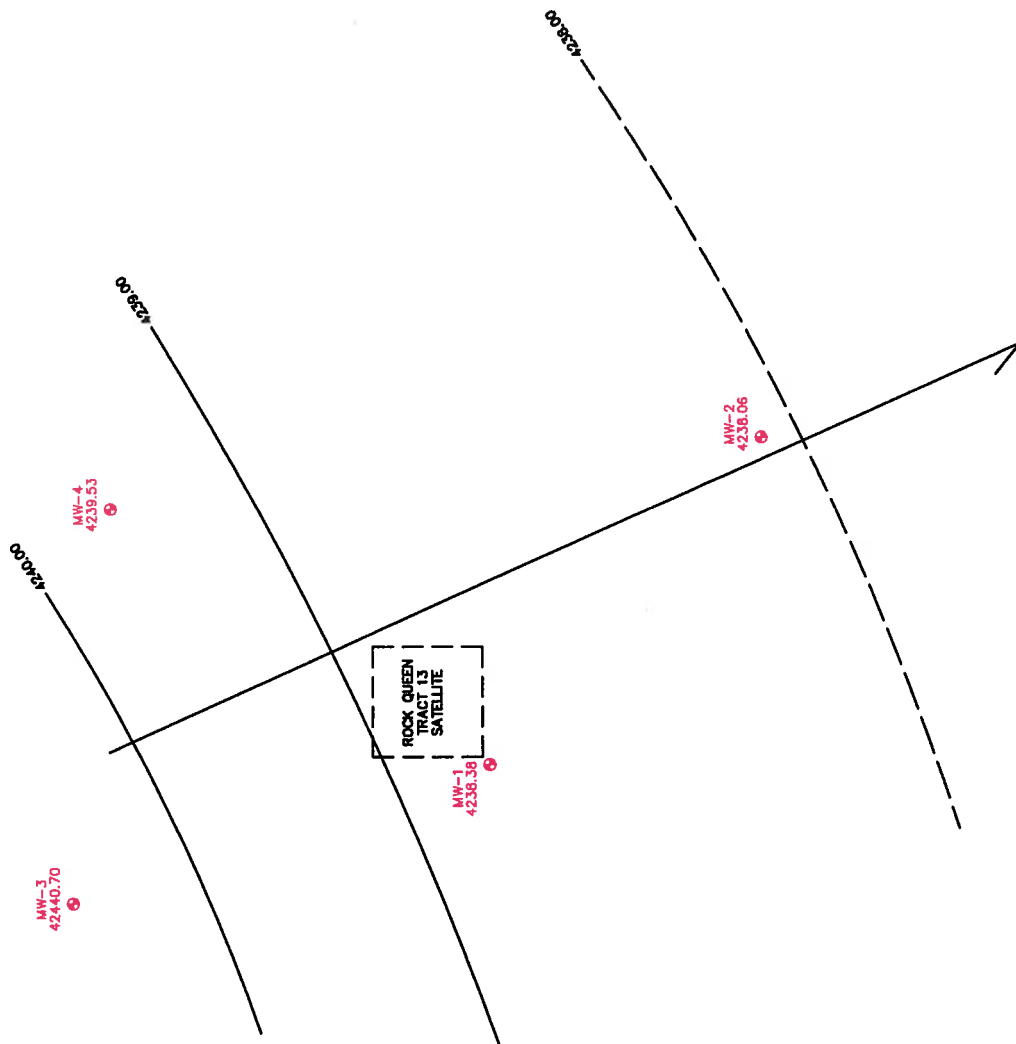
CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
SITE MAP

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:	4/12/2011
DRAWN BY:	IN
FILE:	CAV/ENR/13

SCALE: 1" = 100'



CEAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
GROUNDWATER GRADIENT MAP
GAUGED ON 04/06/2010

TETRA TECH, INC.
MIDLAND, TEXAS

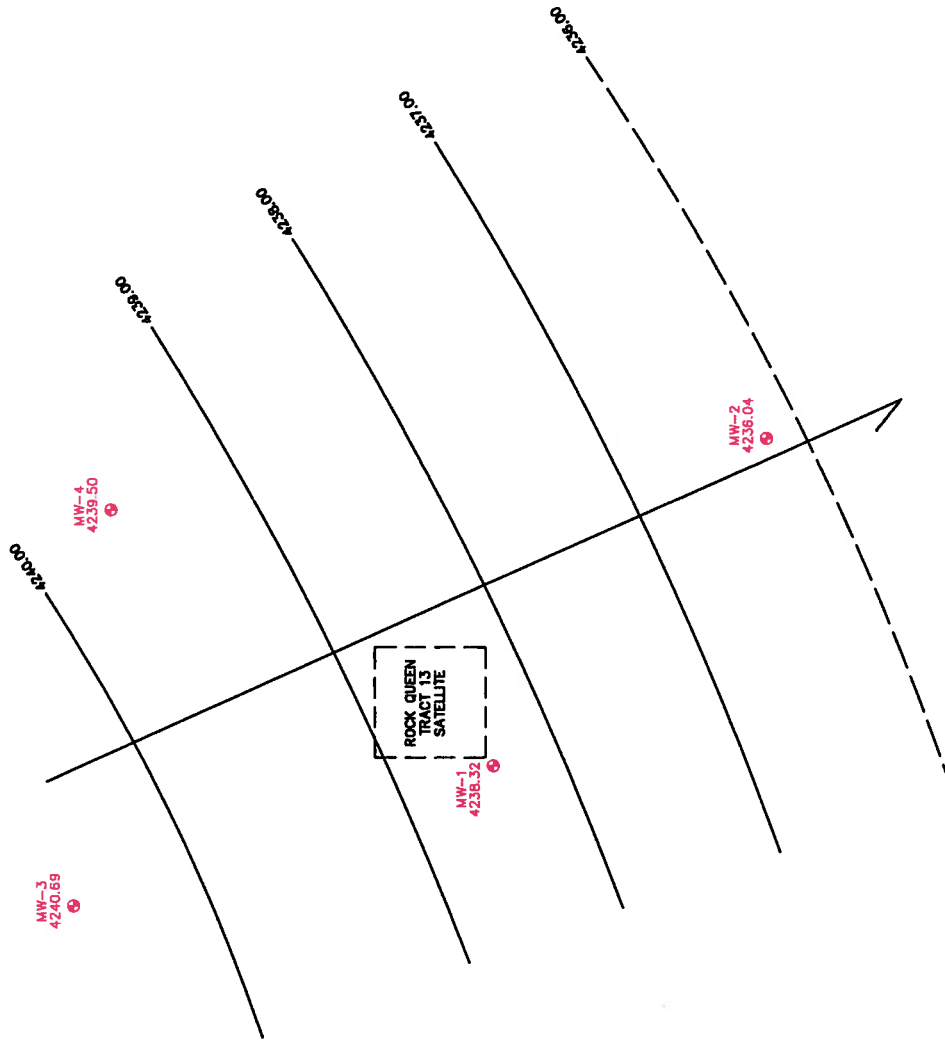
DATE: 4/06/2010

DATE: 07/11/2011

FILE:
CIVIL RIGHTS
JAN 9 1968

C.L. = 1.0'

SCALE 100'



C.I. = 1.0'



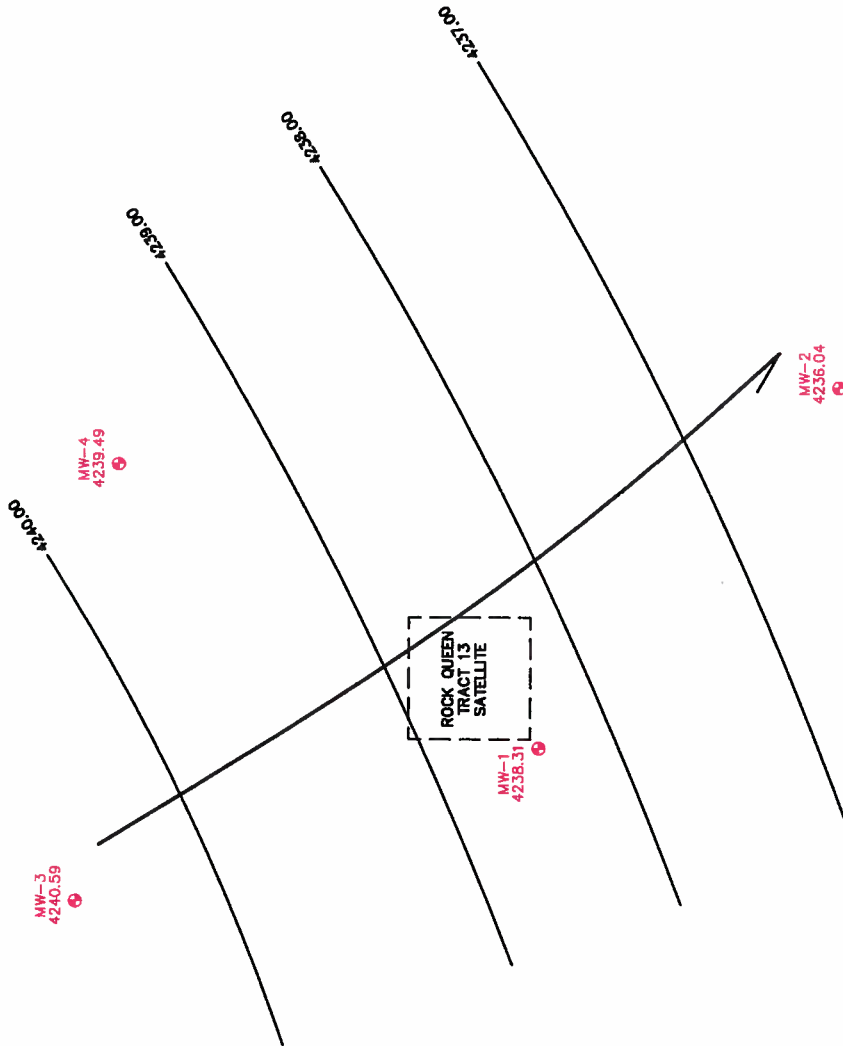
DATE	7/12/2010
Drawn By	LM
FILE	Rock Queen
BY	7/12/2010

FIGURE NO. 5

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
GROUNDWATER GRADIENT MAP
GAUGED ON 07/12/2010

TETRA TECH, INC.
MIDLAND, TEXAS



DATE	10-11-2010
DRAWN BY	IM
FILE	CHAVEZ/MSA
SHEET NO.	6 OF 12

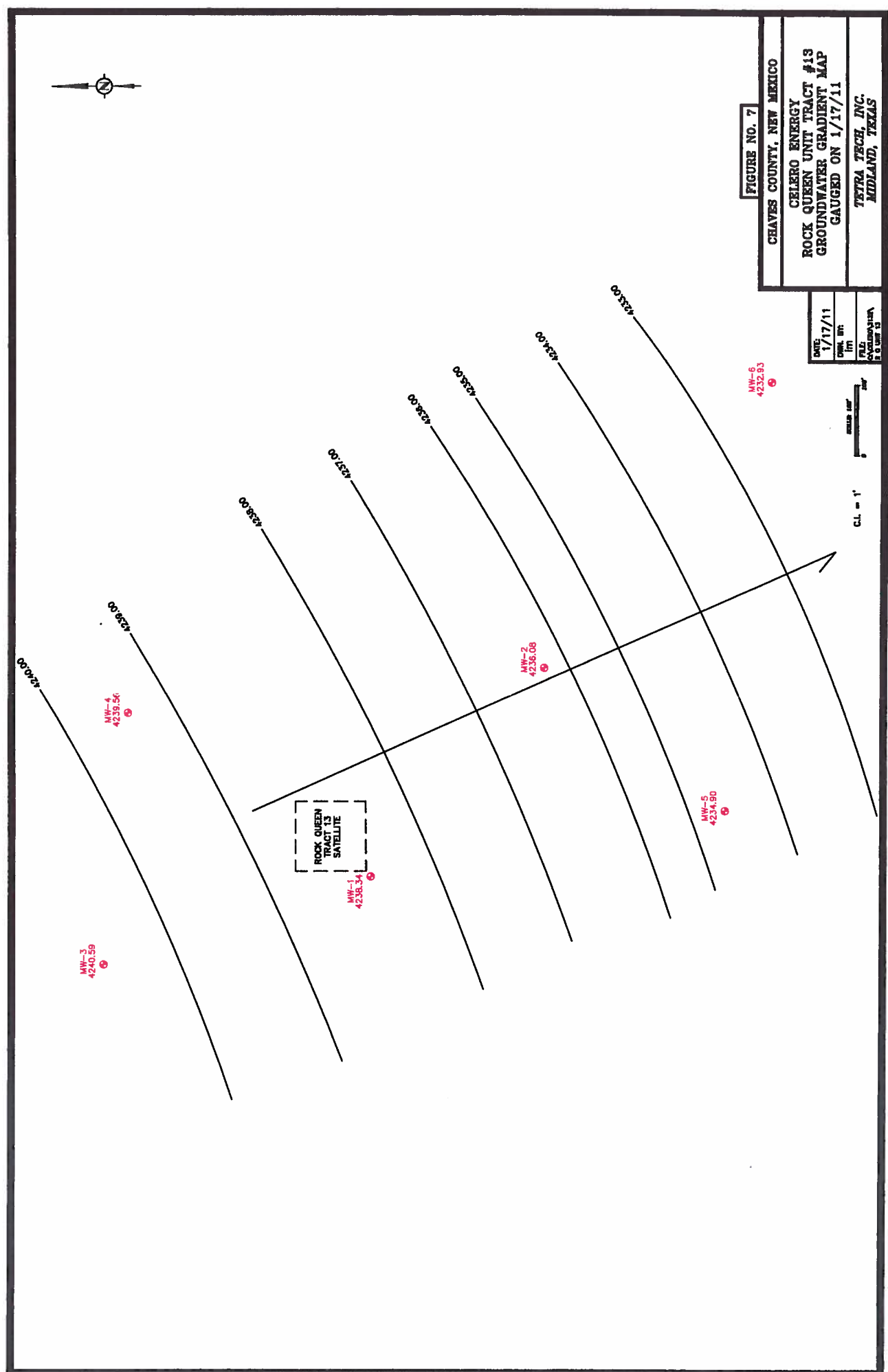
C.I. = 1.0' 100'

FIGURE NO. 6

CHAVEZ COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
GROUNDWATER GRADIENT MAP
GAUGED ON 10/11/2010

TETRA TECH, INC.
MIDLAND, TEXAS



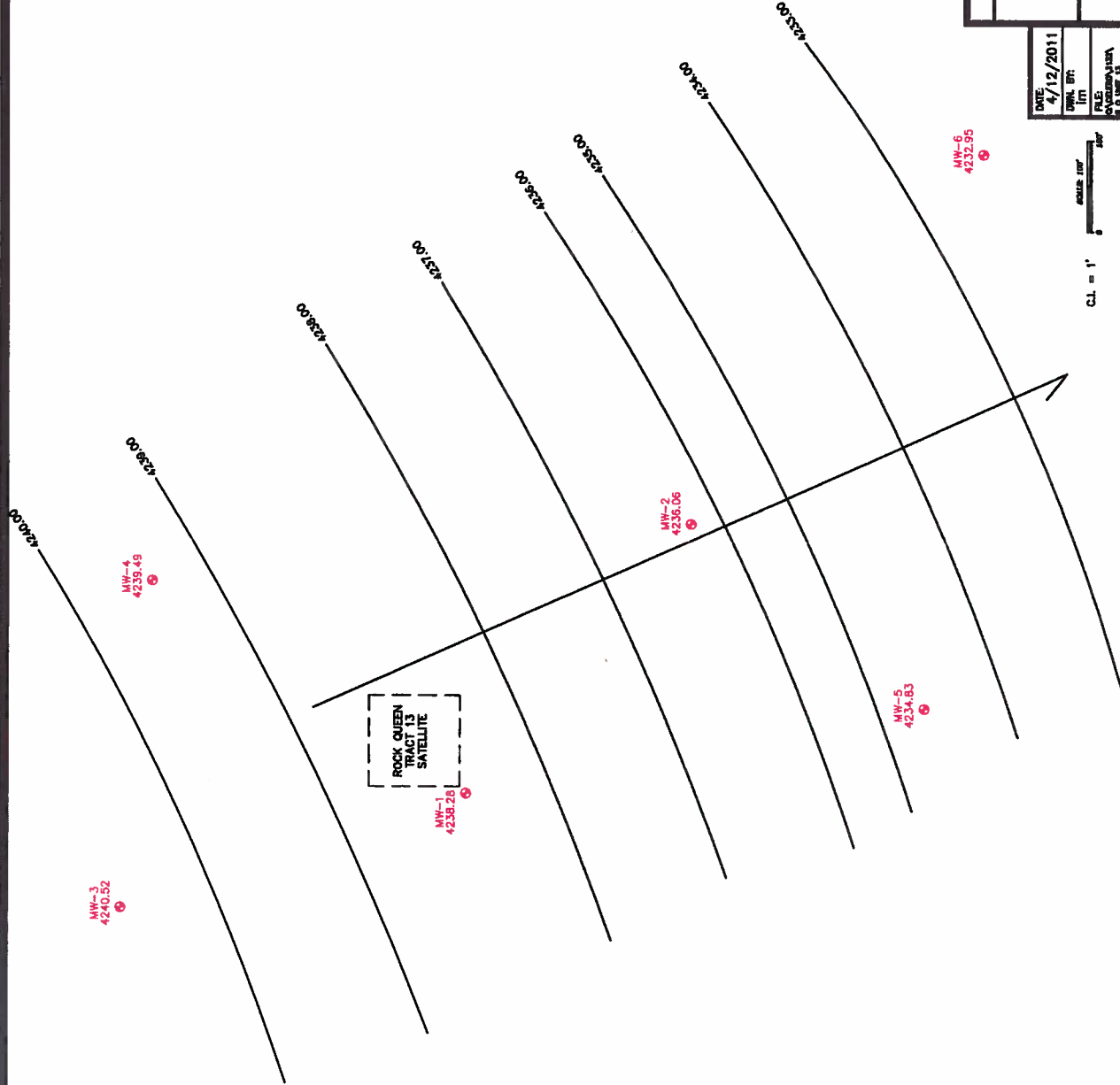


FIGURE NO. 6

CHAVES COUNTY, NEW MEXICO
CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
GROUNDWATER GRADIENT MAP
GAUGED ON 04/12/2011
TETRA TECH, INC.
MIDLAND, TEXAS

DATE	4/12/2011
DRN. BY:	INT
FILE	4235.06
BY	4235.06
DATE	4/12/2011

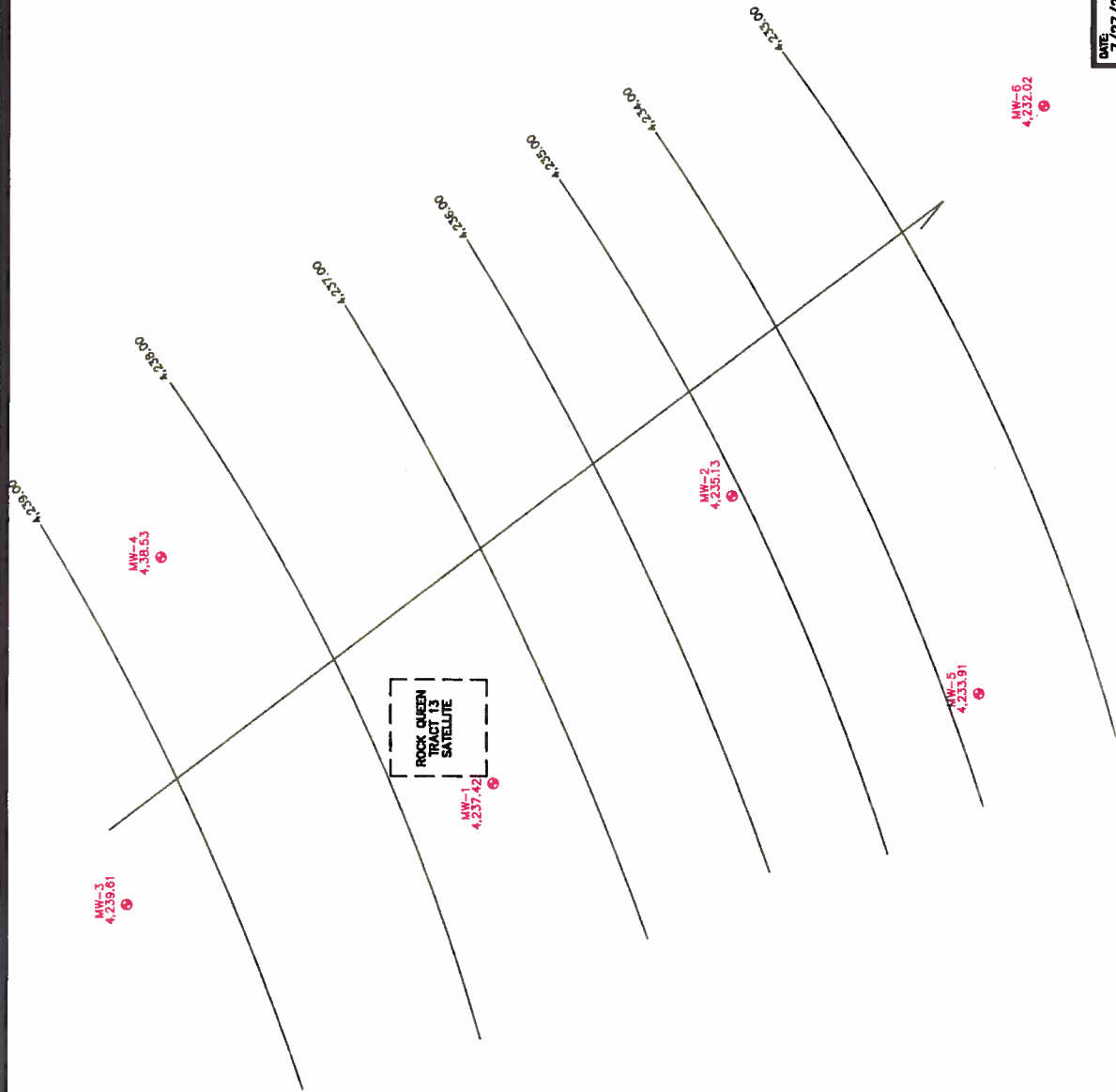


FIGURE NO. 9

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
GROUNDWATER GRADIENT MAP
GAUGED ON 07/27/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:	7/27/2011
DWN. BY:	TM
FILE:	CHAVES\DATA
	8 5 00P 13

CL = 1' 100 FEET

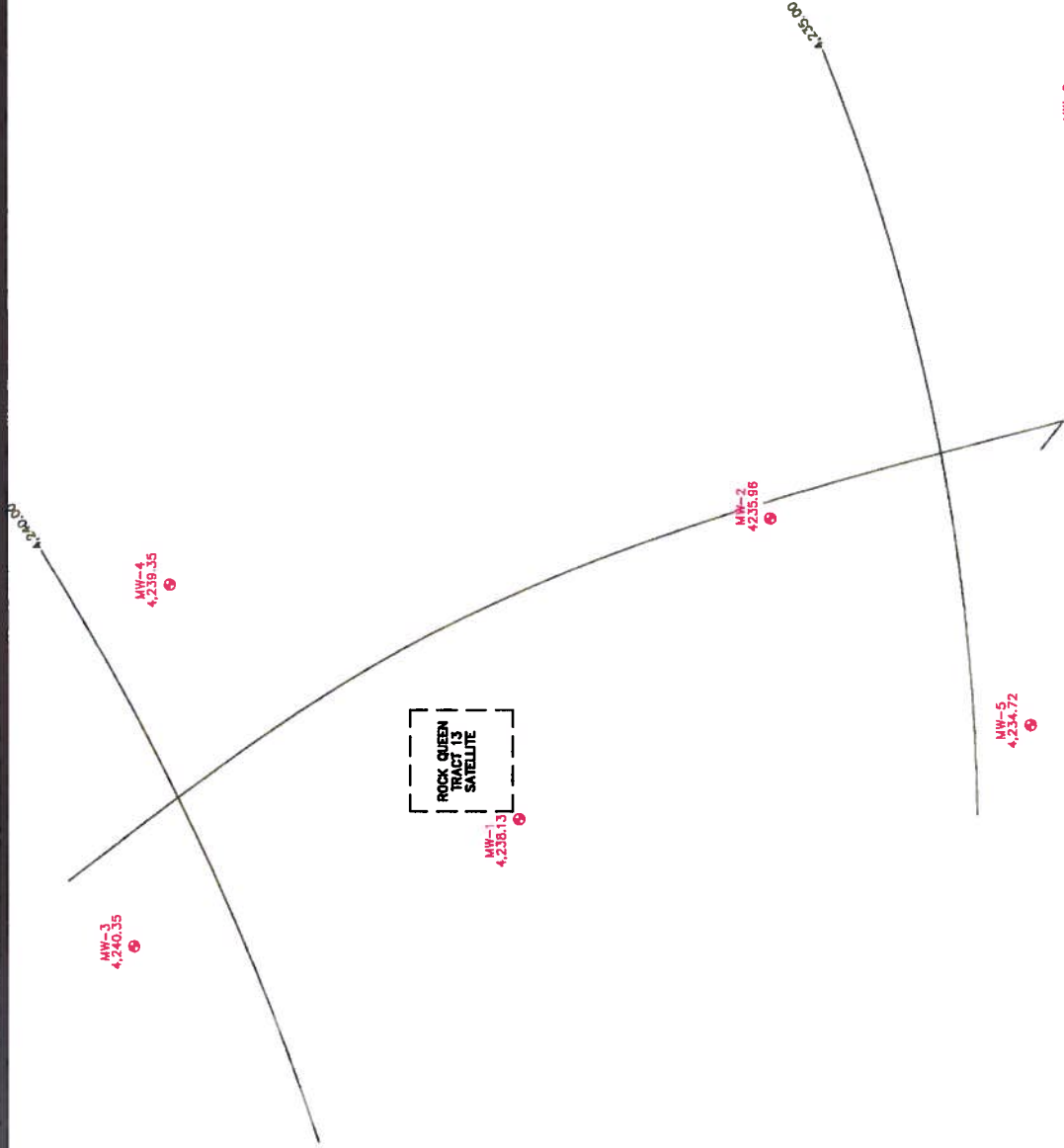


FIGURE NO. 10

CEAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
GROUNDWATER GRADIENT MAP
GAUGED ON 10/24/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	10/24/2011
DRAWN BY	TM
FILE	423472.dwg
BY	10/24/2011

C.I. = 5' 0" 100'



MW-3
58.4

MW-4
58.2

ROCK QUEEN
TRACT 13
SATELLITE

MW-1
43.6

MW-2
2,250

FIGURE NO. 11

CHAVES COUNTY, NEW MEXICO

CHELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 4/08/2010

TETRA TECH, INC.
MIDLAND, TEXAS

DATE 4/08/2010
DRAWN BY JH
FILE TETRA-CHLORIDE
13 & 14-13

RESULTS IN mg/L

SCALE 100'

0 100'



MW-3
83.6

MW-4
147.0

ROCK QUEEN
TRACT 13
SATELLITE

MW-1
38.8

MW-2
9,870

FIGURE NO. 12

CHAVES COUNTY, NEW MEXICO

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

TESTRA TECH, INC.
MIDLAND, TEXAS

DATE	7/12/2010
DRN. BR.	114
FILE	CHAVES COUNTY
DATE	8 8 2010



RESULTS IN mg/L



MW-3
170

MW-4
163

ROCK QUEEN
TRACT 13
SATELLITE

MW-1
52.3

MW-2
7,750

FIGURE NO. 13

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/11/2010

TETRA TECH, INC.
MIDLAND, TEXAS

DATE
10/11/2010
DRAWN BY
IM
FILE
040400030004
R 0 0 13

RESULTS IN mg/L
0 100'



MW-3
1.33

MW-4
210

ROCK QUEEN
TRACT #13
SATELLITE

MW-1
44.5

MW-2
9.076

MW-5
3.680

MW-6
2.860

FIGURE NO. 14

CEAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 1/20/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	1/20/11
DRILL BIT	IN
FILE	CHLORIDE-13X R 9 10/11



RESULTS IN mg/L



MW-3
148
⑤

MW-4
174
⑤

ROCK QUEEN
TRACT 13
SATELLITE
MW-1
52.7
⑤

MW-2
9,360
⑤

MW-5
17,700
⑤

MW-6
3,010
⑤

FIGURE NO. 16

CHAVES COUNTY, NEW MEXICO

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

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	4/13/11
TIME	8:11
FILED	CHAVES COUNTY
BY	W. B. LUTZ, JR.

RESULTS IN mg/L

SCALE 100'



MW-3
166

MW-4
224

ROCK QUEEN
TRACT 13
SATELLITE

MW-1
54.1

MW-2
8,450

MW-5
2,800

MW-6
2,136

FIGURE NO. 10

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 08/01/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 8/01/11
DRAWN BY: JM
FILE: CHAVES-13-13-11

RESULTS IN mg/L





MW-3
225

MW-4
188

ROCK QUEEN
TRACT 13
SATELLITE

MW-1
63.3

MW-2
8,870

MW-5
481

MW-6
2,550

FIGURE NO. 17

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT TRACT #13
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/26/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE	10/26/11
DATA SET	IN
FILE	10/26/11
IN A UNIT	13

RESULTS IN mg/L

0 100 200

TABLES

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

Monitor Well	Date Gauged	of Well Installation	Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Elevation (ft)
MW-1	05/30/07	05/25/07	4,388.74	161.50	117.52	4,271.22
	05/31/07				127.74	4,261.00
	02/05/08				150.41	4,238.33
	04/06/10				150.36	4,238.38
	07/12/10				150.42	4,238.32
	10/11/10				150.43	4,238.31
	01/17/11				150.40	4,238.34
	04/12/11				150.46	4,238.28
	07/28/11				151.32	4,237.42
	10/24/11				150.61	4,238.13
MW-2	04/06/10	03/30/10	4,386.04	161.60	147.98	4,238.06
	07/12/10				150.00	4,236.04
	10/11/10				149.80	4,236.24
	01/17/11				149.96	4,236.08
	04/12/11				149.98	4,236.06
	07/28/11				150.91	4,235.13
	10/24/11				150.08	4,235.96
MW-3	04/06/10	03/31/10	4,388.48	161.90	147.78	4,240.70
	07/12/10				147.79	4,240.69
	10/11/10				147.89	4,240.59
	01/17/11				147.89	4,240.59
	07/28/11				148.87	4,239.61
	10/24/11				148.13	4,240.35
MW-4	04/06/10	03/31/10	4,388.12	161.85	148.59	4,239.53
	07/12/10				148.62	4,239.50
	10/11/10				148.63	4,239.49
	01/17/11				148.56	4,239.56
	04/12/11				148.63	4,239.49
	07/28/11				149.59	4,238.53
	10/24/11				148.77	4,239.35

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

Monitor Well	Date Gauged	of Well Installation	Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Elevation (ft)
MW-5	01/17/11	12/02/10	4,383.81	177.60	148.91	4,234.90
	04/12/11				148.98	4,234.83
	07/28/11				149.90	4,233.91
	10/24/11				149.09	4,234.72
MW-6	01/17/11	12/03/10	4,387.81	169.65	154.88	4,232.93
	04/12/11				154.86	4,232.95
	07/28/11				155.79	4,232.02
	10/24/11				154.93	4,232.88

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract 13 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	06/01/07	282	24.4	2,020	20.1	<1.00	8.00	652	660	91.1	3,270	7,245	804	7.02
	04/06/10	130	7.61	11.40	5.96	<1.00	<1.00	226	226	42.7	43.6	699	356	8.28
	07/12/10	-	-	-	-	-	-	-	-	37.2	38.8	1,130	-	-
	10/11/10	-	-	-	-	-	-	-	-	49.6	52.3	445	-	-
	01/20/11	-	-	-	-	-	-	-	-	48.8	44.5	447	-	-
	04/13/11	-	-	-	-	-	-	-	-	52.4	52.7	481	-	-
	08/01/11	-	-	-	-	-	-	-	-	68.4	64.1	465	-	-
MW-2	10/26/11	-	-	-	-	-	-	-	-	55.4	63.3	492	-	-
	04/06/10	520	73.0	925	15.5	<1.00	<1.00	125	125	133.0	2,250	5,880	1,600	7.70
	07/12/10	-	-	-	-	-	-	-	-	189.0	9,870	27,200	-	-
	10/11/10	-	-	-	-	-	-	-	-	203.0	7,750	15,300	-	-
	01/20/11	-	-	-	-	-	-	-	-	202.0	9,070	15,200	-	-
	04/13/11	-	-	-	-	-	-	-	-	193.0	9,380	16,900	-	-
	08/01/11	-	-	-	-	-	-	-	-	148.0	8,450	9,760	-	-
MW-3	10/26/11	-	-	-	-	-	-	-	-	<292	8,870	18,700	-	-
	04/06/10	76.1	10.3	78.7	4.33	<1.00	<1.00	183	183	116.0	58.4	696	232	8.26
	07/12/10	-	-	-	-	-	-	-	-	84.0	83.6	562	-	-
	10/11/10	-	-	-	-	-	-	-	-	84.5	170.0	608	-	-
	01/20/11	-	-	-	-	-	-	-	-	62.0	133.0	535	-	-
	04/13/11	-	-	-	-	-	-	-	-	84.1	148.0	630	-	-
	08/01/11	-	-	-	-	-	-	-	-	61.5	166.0	812	-	-
MW-4	10/26/11	-	-	-	-	-	-	-	-	65.5	225	1,110	-	-
	04/06/10	89.5	11.5	40.5	3.34	<1.00	<1.00	145	145	116.0	58.2	506	270	8.35
	07/12/10	-	-	-	-	-	-	-	-	48.5	147.0	630	-	-
	10/11/10	-	-	-	-	-	-	-	-	56.4	163.0	616	-	-
	01/20/11	-	-	-	-	-	-	-	-	50.8	210.0	534	-	-
	04/13/11	-	-	-	-	-	-	-	-	49.4	174.0	604	-	-

Table 2

Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract 13 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-4	08/01/11	-	-	-	-	-	-	-	-	48.7	224	690	-	-
	10/26/11	-	-	-	-	-	-	-	-	50.2	188	626	-	-
MW-5	01/20/11	-	-	-	-	-	-	-	-	128.0	5,690	7,890	-	-
	04/13/11	-	-	-	-	-	-	-	-	338.0	17,700	27,000	-	-
	08/01/11	-	-	-	-	-	-	-	-	77.2	2,800	4,140	-	-
	10/26/11	-	-	-	-	-	-	-	-	63.0	481	1,220	-	-
MW-6	01/20/11	-	-	-	-	-	-	-	-	<250	2,880	4,690	-	-
	04/13/11	-	-	-	-	-	-	-	-	85.2	3,010	4,890	-	-
	08/01/11	-	-	-	-	-	-	-	-	59.3	2,130	2,930	-	-
	10/26/11	-	-	-	-	-	-	-	-	68.0	2,550	4,940	-	-

NS - Not sampled

(-) Not Analyzed

APPENDIX A BORING LOGS

SAMPLE LOG

Boring/Well MW-1
GPS N33.146819° W103.775642°
Project Number 115-6403132A
Client: Celero Energy II, LP
Site Name Rock Queen Tract 13 Tank Battery
Site Location Chaves County, New Mexico
Letter K, Section 36, Township 13 South, Range 31 East
Total Depth 160
Date Installed: 05/25/07

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

SAMPLE LOG

Boring/Well **MW-1**
GPS **N33.146819° W103.775642°**
Project Number **115-6403132A**
Client: **Celero Energy II, LP**
Site Name **Rock Queen Tract 13 Tank Battery**
Site Location **Chaves County, New Mexico**
Letter K, Section 36, Township 13 South, Range 31 East
Total Depth **160**
Date Installed: **05/25/07**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
118-120	--	Tan fine sand - v.f. sand
123-125	--	Tan fine sand - v.f. sand
128-130	--	Tan fine sand - v.f. sand
133-135	--	Tan fine sand - v.f. sand
138-140	--	Tan fine sand - v.f. sand
143-145	--	Tan fine sand - v.f. sand
148-150	--	Chert layer intermixed with red sand
153-155	--	Chert layer intermixed with red sand
158-160	--	Red sand

Total Depth: **160'** **Groundwater encountered at 117 feet**

SAMPLE LOG

Boring/Well **MW-2**
GPS **N33.146136° W103.774672°**
Project Number **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Tract 13 Tank Battery**
Site Location **Chaves County, New Mexico**
Letter J, Section 36, Township 13 South, Range 31 East
Total Depth **160**
Date Installed **03/30/10**

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

SAMPLE LOG

Boring/Well **MW-2**
GPS **N33.146136° W103.774672°**
Project Number **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Tract 13 Tank Battery**
Site Location **Chaves County, New Mexico**
Letter J, Section 36, Township 13 South, Range 31 East
Total Depth **160**
Date Installed **03/30/10**

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

Total Depth: **160'**

SAMPLE LOG

Boring/Well **MW-3**
GPS **N33.147867° W103.776047°**
Project Number **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Tract 13 Tank Battery**
Site Location **Chaves County, New Mexico**
Letter F, Section 36, Township 13 South, Range 31 East
Total Depth **160**
Date Installed **03/31/10**

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

SAMPLE LOG

Boring/Well **MW-3**
GPS **N33.147867° W103.776047°**
Project Number **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Tract 13 Tank Battery**
Site Location **Chaves County, New Mexico**
Letter F, Section 36, Township 13 South, Range 31 East
Total Depth **160**
Date Installed **03/31/10**

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

Total Depth: **160'**

SAMPLE LOG

Boring/Well MW-4
GPS N33.147867° W103.776047°
Project Number 115-6403132A
Client Celero Energy II, LP
Site Name Rock Queen Tract 13 Tank Battery
Site Location Chaves County, New Mexico
Letter G, Section 36, Township 13 South, Range 31 East
Total Depth 160
Date Installed 03/31/10

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

SAMPLE LOG

Boring/Well **MW-4**
GPS **N33.147867° W103.776047°**
Project Number **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Tract 13 Tank Battery**
Site Location **Chaves County, New Mexico**
Letter G, Section **36, Township 13 South, Range 31 East**
Total Depth **160**
Date Installed **03/31/10**

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

Total Depth: **160'**

SAMPLE LOG

Boring/ Well MW-5
GPS N33.14564° W103.77608°
Project Number 115-6403132A
Client Celero Energy II, LP
Site Name Rock Queen Unit Tract #13 Tank Battery
Site Location Chaves, New Mexico
Letter K, Section 36, Township 13 South, Range 31 East
Total Depth 180'
Date Installed 12/02/10

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

SAMPLE LOG

Boring/ Well **MW-5**
GPS **N33.14564° W103.77608°**
Project Number **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit Tract #13 Tank Battery**
Site Location **Chaves, New Mexico**
Letter K, Section 36, Township 13 South, Range 31 East
Total Depth **180'**
Date Installed **12/02/10**

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

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

SAMPLE LOG

Boring/ Well MW-6
GPS N33.14564° W103.77608°
Project Number: 115-6403132A
Client Celero Energy II, LP
Site Name Rock Queen Unit Tract #13 Tank Battery
Site Location Chaves, New Mexico
Letter J, Section 36, Township 13 South, Range 31 East
Total Depth 165'
Date Installed 12/03/10

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

SAMPLE LOG

Boring/ Well **MW-6**
GPS **N33.14564° W103.77608°**
Project Number: **115-6403132A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit Tract #13 Tank Battery**
Site Location **Chaves, New Mexico**
Letter J, Section 36, Township 13 South, Range 31 East
Total Depth **165'**
Date Installed **12/03/10**

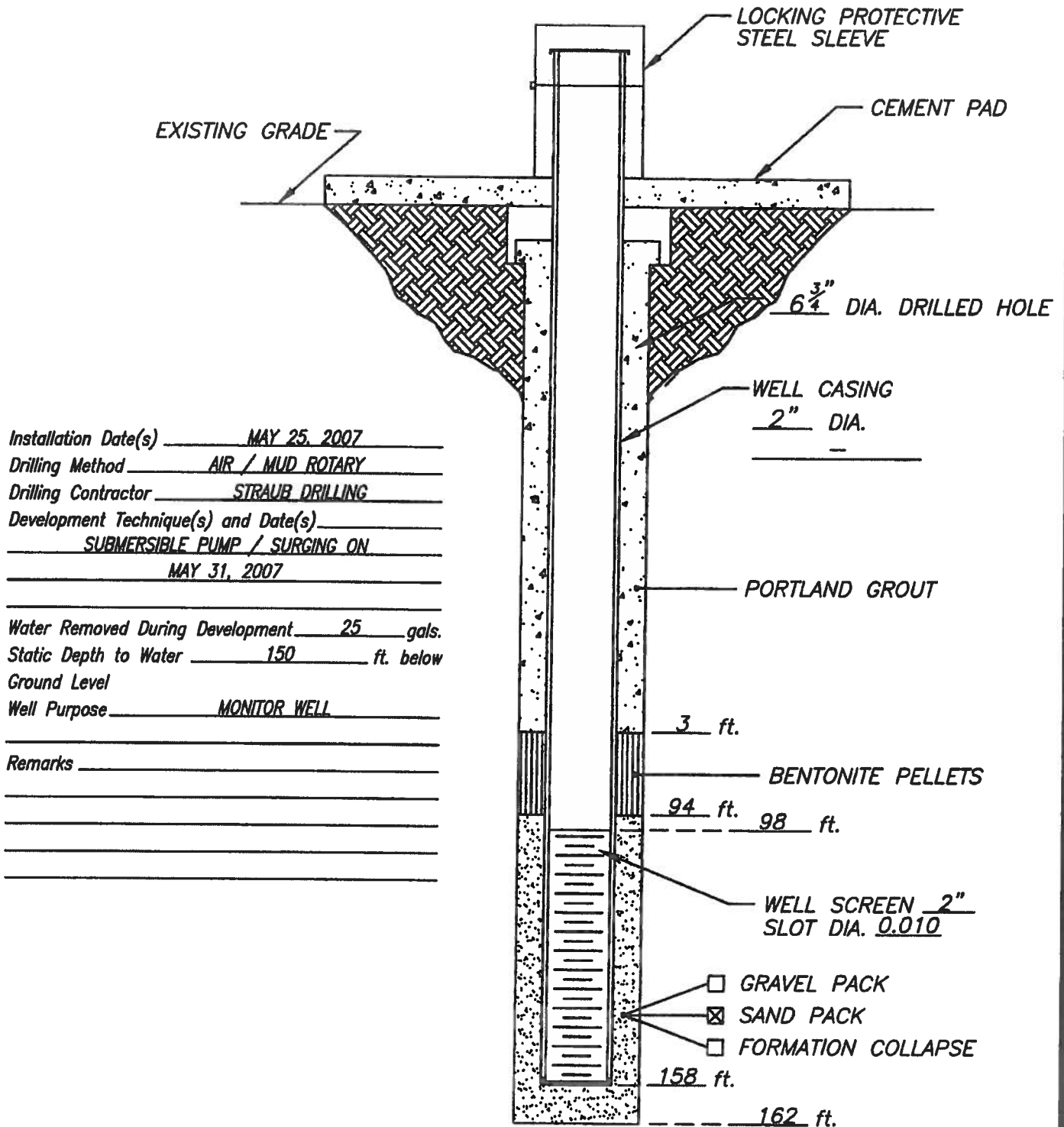
140-141'	--	Light Brown Fine Grain Well Sorted Sand with 15% Buff Sandstone
145-146'	--	Light Brown Fine Grain Well Sorted Sand with 15% Buff Sandstone
150-151'	--	Light Brown Fine Grain Well Sorted Sand with 10% Buff Sandstone
155-156'	--	Light Brown Fine Grain Well Sorted Sand with 10% Buff Sandstone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

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

APPENDIX B

MONITOR WELL INSTALLATION DIAGRAMS

WELL CONSTRUCTION LOG



DATE: 5/25/07

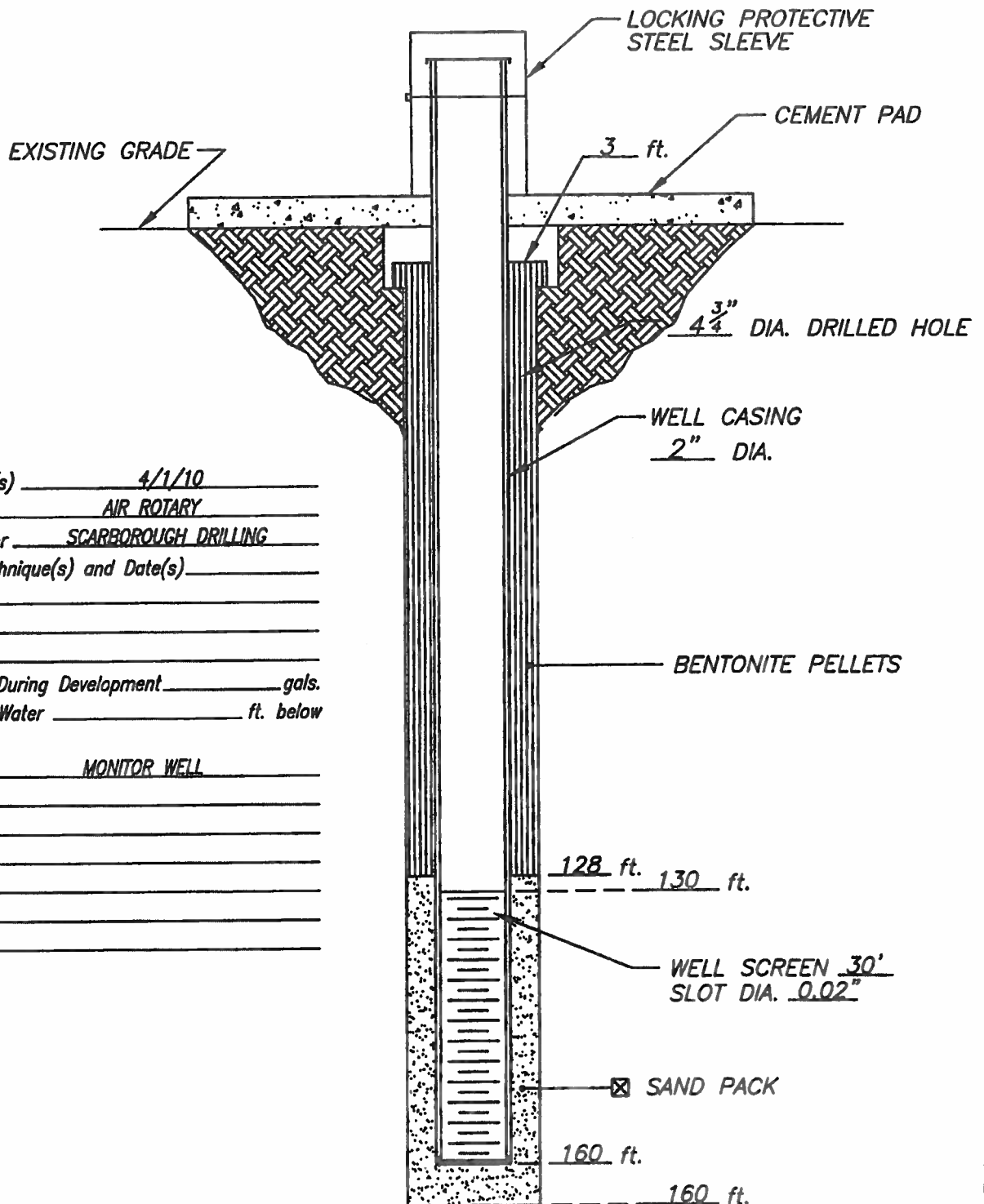
TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LP
PROJECT: ROCK QUEEN UNIT TRACT 13 TB
LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-1

WELL CONSTRUCTION LOG



Installation Date(s) 4/1/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCARBOROUGH DRILLING
 Development Technique(s) and Date(s) _____

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

Remarks _____

DATE: 4/1/10

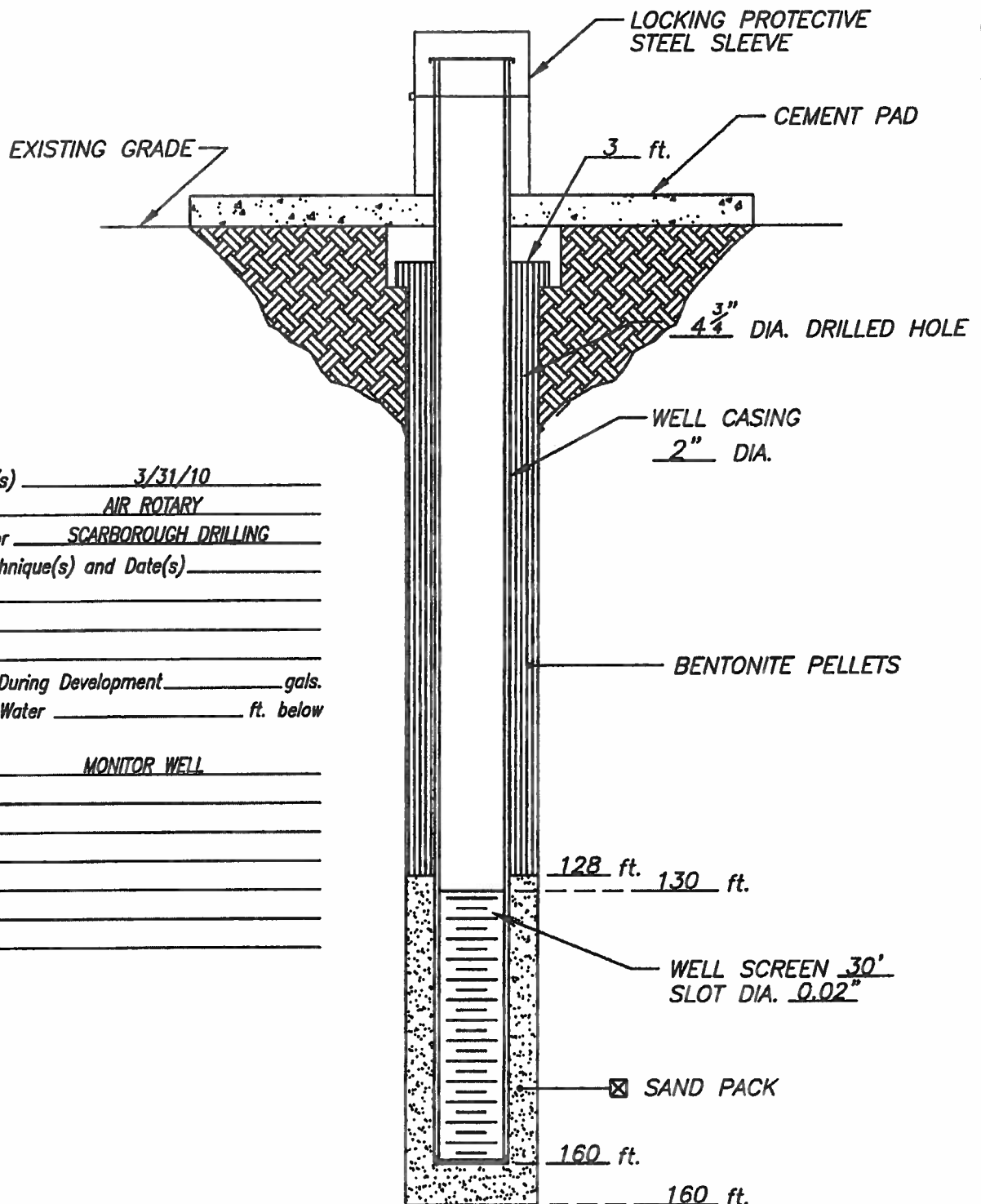
TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II LLC
 PROJECT: ROCK QUEEN TRACT 13 TB
 LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-2

WELL CONSTRUCTION LOG



Installation Date(s) 3/31/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCARBOROUGH DRILLING
 Development Technique(s) and Date(s) _____

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

Remarks _____

DATE: 4/1/10

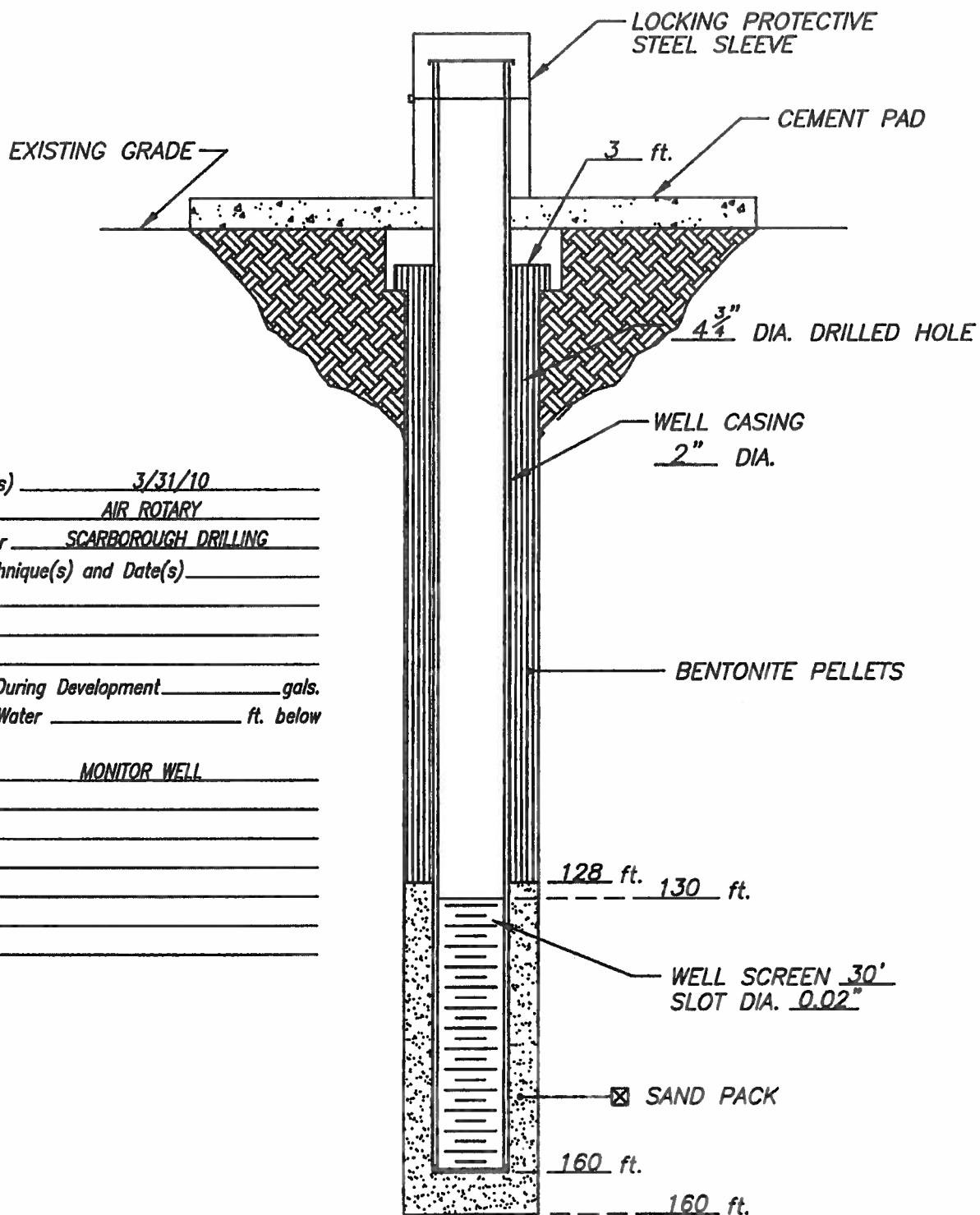
TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II LLC
 PROJECT: ROCK QUEEN TRACT 13 TB
 LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-3

WELL CONSTRUCTION LOG



Installation Date(s) 3/31/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCARBOROUGH DRILLING
 Development Technique(s) and Date(s) _____

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

Remarks _____

DATE: 4/1/10

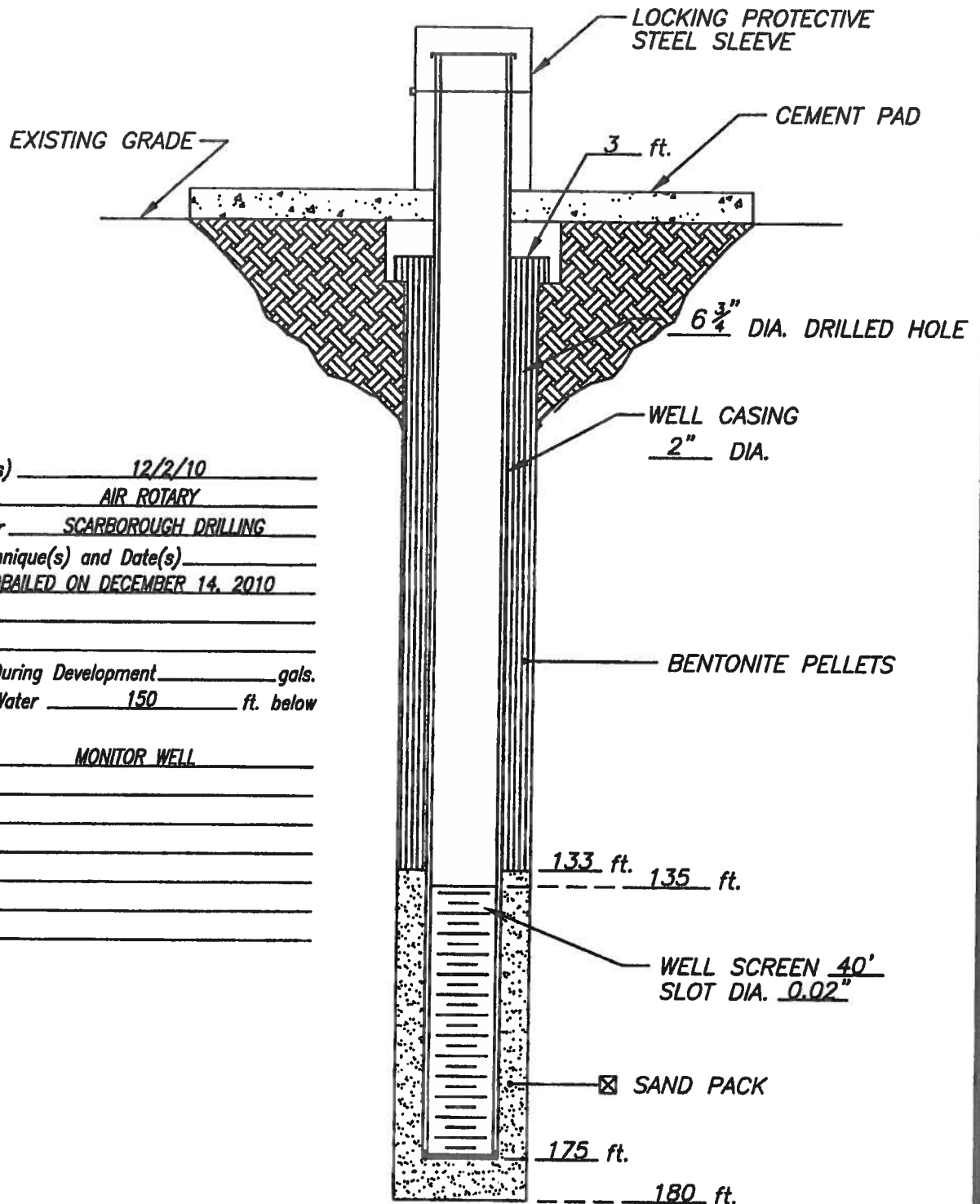
TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II LLC
 PROJECT: ROCK QUEEN TRACT 13 TB
 LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-4

WELL CONSTRUCTION LOG



Installation Date(s) 12/2/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCARBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 150 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 12/2/10

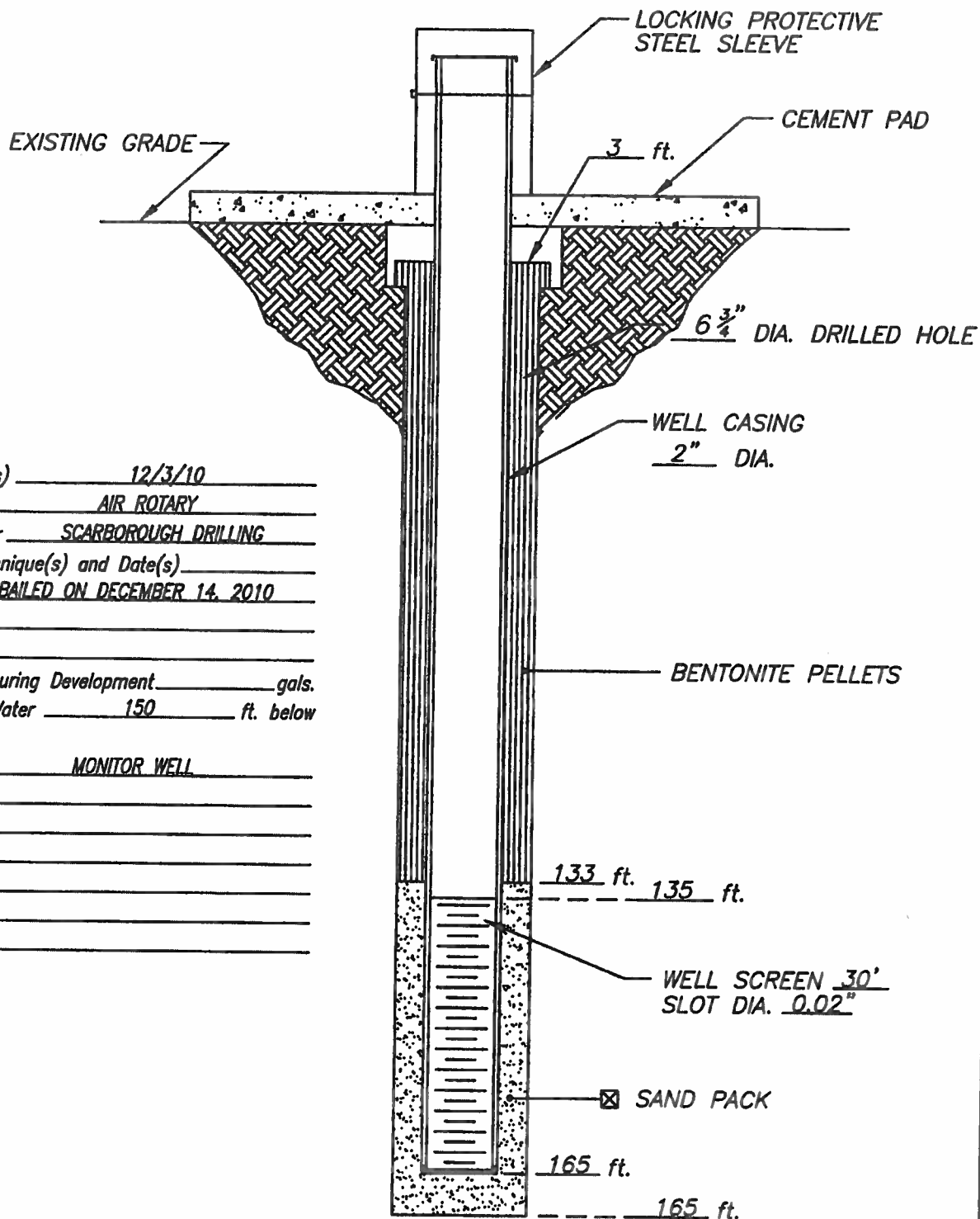
TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC
 PROJECT: ROCK QUEEN TRACT 13 TB
 LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-5

WELL CONSTRUCTION LOG



Installation Date(s) 12/3/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCARBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 150 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 12/3/10

TETRA TECH INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC
 PROJECT: ROCK QUEEN TRACT 13 TB
 LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-6

APPENDIX C

LABORATORY ANALYSIS



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1298 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: lah@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536

DBE: VN 20657

NCTRCA WFWB38444Y0909

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: February 3, 2011

Work Order: 11012128



Project Location: Chavez County, NM
Project Name: Celero/Rock Queen #13 TB
Project Number: 115-6403132

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
255897	MW-1	water	2011-01-21	10:55	2011-01-21
255898	MW-2	water	2011-01-21	10:37	2011-01-21
255899	MW-3	water	2011-01-21	11:05	2011-01-21
255900	MW-4	water	2011-01-21	10:46	2011-01-21
255901	MW-5	water	2011-01-21	10:25	2011-01-21
255902	MW-6	water	2011-01-21	10:10	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 21 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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

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

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
Chloride (IC)	E 300.0	66272	2011-01-30 at 10:00	77264	2011-01-30 at 12:27
Chloride (IC)	E 300.0	66273	2011-01-30 at 10:00	77266	2011-01-30 at 17:14
SO4 (IC)	E 300.0	66272	2011-01-30 at 10:00	77264	2011-01-30 at 12:27
SO4 (IC)	E 300.0	66273	2011-01-30 at 10:00	77266	2011-01-30 at 17:14
SO4 (IC)	E 300.0	66364	2011-02-01 at 10:33	77367	2011-02-01 at 12:49
TDS	SM 2540C	66128	2011-01-24 at 11:48	77161	2011-01-26 at 15:20

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11012128 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: February 3, 2011
115-6403132

Work Order: 11012128
Celero/Rock Queen #13 TB

Page Number: 4 of 21
Chavez County, NM

Analytical Report

Sample: 255897 - MW-1

Laboratory: Midland
Analysis: 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		<0.00100	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)		0.119	mg/L	1	0.100	119	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.112	mg/L	1	0.100	112	51.1 - 128

Sample: 255897 - MW-1

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

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

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

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

Sample: 255897 - MW-1

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

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

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

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

Report Date: February 3, 2011
115-6403132

Work Order: 11012128
Celero/Rock Queen #13 TB

Page Number: 5 of 21
Chavez County, NM

Sample: 255897 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 77161
Prep Batch: 66128

Analytical Method: SM 2540C
Date Analyzed: 2011-01-26
Sample Preparation: 2011-01-24

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		447	mg/L	1	10.0

Sample: 255898 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 77124
Prep Batch: 66157

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

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)		0.110	mg/L	1	0.100	110	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.103	mg/L	1	0.100	103	51.1 - 128

Sample: 255898 - MW-2

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9070	mg/L	500	2.50

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Sample: 255898 - MW-2

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-02-01	Analyzed By:	PG
QC Batch:	77367	Sample Preparation:	2011-02-01	Prepared By:	PG
Prep Batch:	66364				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		202	mg/L	5	2.50

Sample: 255898 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-01-26	Analyzed By:	AR
QC Batch:	77161	Sample Preparation:	2011-01-24	Prepared By:	AR
Prep Batch:	66128				

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		15200	mg/L	100	10.0

Sample: 255899 - MW-3

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-01-24	Analyzed By:	AG
QC Batch:	77124	Sample Preparation:	2011-01-24	Prepared By:	AG
Prep Batch:	66157				

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)		0.111	mg/L	1	0.100	111	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.104	mg/L	1	0.100	104	51.1 - 128

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Sample: 255899 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2011-01-30	Analyzed By:	PG
QC Batch:	77264	Sample Preparation:	2011-01-30	Prepared By:	PG
Prep Batch:	66272				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		133	mg/L	5	2.50

Sample: 255899 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-01-30	Analyzed By:	PG
QC Batch:	77264	Sample Preparation:	2011-01-30	Prepared By:	PG
Prep Batch:	66272				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		62.0	mg/L	5	2.50

Sample: 255899 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-01-26	Analyzed By:	AR
QC Batch:	77161	Sample Preparation:	2011-01-24	Prepared By:	AR
Prep Batch:	66128				

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		535	mg/L	1	10.0

Sample: 255900 - MW-4

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-01-24	Analyzed By:	AG
QC Batch:	77124	Sample Preparation:	2011-01-24	Prepared By:	AG
Prep Batch:	66157				

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 255900 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)		0.113	mg/L	1	0.100	113	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.104	mg/L	1	0.100	104	51.1 - 128

Sample: 255900 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		210	mg/L	5	2.50

Sample: 255900 - MW-4

Laboratory: Lubbock
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 77266 Date Analyzed: 2011-01-30 Analyzed By: PG
Prep Batch: 66273 Sample Preparation: 2011-01-30 Prepared By: PG

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		50.8	mg/L	5	2.50

Sample: 255900 - MW-4

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 77161 Date Analyzed: 2011-01-26 Analyzed By: AR
Prep Batch: 66128 Sample Preparation: 2011-01-24 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		534	mg/L	2	10.0

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Sample: 255901 - MW-5

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		<0.00100	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)		0.116	mg/L	1	0.100	116	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.107	mg/L	1	0.100	107	51.1 - 128

Sample: 255901 - MW-5

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5690	mg/L	500	2.50

Sample: 255901 - MW-5

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		128	mg/L	5	2.50

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Sample: 255901 - MW-5

Laboratory: Midland
Analysis: TDS
QC Batch: 77161
Prep Batch: 66128

Analytical Method: SM 2540C
Date Analyzed: 2011-01-26
Sample Preparation: 2011-01-24

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		7890	mg/L	10	10.0

Sample: 255902 - MW-6

Laboratory: Midland
Analysis: BTEX
QC Batch: 77124
Prep Batch: 66157

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

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

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	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.106	mg/L	1	0.100	106	51.1 - 128

Sample: 255902 - MW-6

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2880	mg/L	100	2.50

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Sample: 255902 - MW-6

Laboratory: Lubbock
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 77266 Date Analyzed: 2011-01-30 Analyzed By: PG
Prep Batch: 66273 Sample Preparation: 2011-01-30 Prepared By: PG

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

Sample: 255902 - MW-6

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 77161 Date Analyzed: 2011-01-26 Analyzed By: AR
Prep Batch: 66128 Sample Preparation: 2011-01-24 Prepared By: AR

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

Method Blank (1) QC Batch: 77124

QC Batch: 77124 Date Analyzed: 2011-01-24 Analyzed By: AG
Prep Batch: 66157 QC Preparation: 2011-01-24 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: 77161

QC Batch: 77161 Date Analyzed: 2011-01-26 Analyzed By: AR
Prep Batch: 66128 QC Preparation: 2011-01-24 Prepared By: AR

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

Method Blank (1) QC Batch: 77264

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

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

Method Blank (1) QC Batch: 77264

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

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

Method Blank (1) QC Batch: 77266

QC Batch: 77266 Date Analyzed: 2011-01-30 Analyzed By: PG
Prep Batch: 66273 QC Preparation: 2011-01-30 Prepared By: PG

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

Method Blank (1) QC Batch: 77266

QC Batch: 77266 Date Analyzed: 2011-01-30 Analyzed By: PG
Prep Batch: 66273 QC Preparation: 2011-01-30 Prepared By: PG

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

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Method Blank (1) QC Batch: 77367

QC Batch: 77367
Prep Batch: 66364

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

Analyzed By: PG
Prepared By: PG

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

Duplicates (1) Duplicated Sample: 255905

QC Batch: 77161
Prep Batch: 66128

Date Analyzed: 2011-01-26
QC Preparation: 2011-01-24

Analyzed By: AR
Prepared By: AR

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

Laboratory Control Spike (LCS-1)

QC Batch: 77124
Prep Batch: 66157

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

Analyzed By: AG
Prepared By: AG

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.

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

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Laboratory Control Spike (LCS-1)

QC Batch: 77161
Prep Batch: 66128

Date Analyzed: 2011-01-26
QC Preparation: 2011-01-24

Analyzed By: AR
Prepared By: AR

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids	999	mg/L	1	1000	<9.75	100	90 - 110	1	10

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

Laboratory Control Spike (LCS-1)

QC Batch: 77264
Prep Batch: 66272

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

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	23.9	mg/L	1	25.0	<0.0142	96	90 - 110	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 77264
Prep Batch: 66272

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

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	24.6	mg/L	1	25.0	<0.126	98	90 - 110	0	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 77266
Prep Batch: 66273

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

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: 77266
Prep Batch: 66273

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

Analyzed By: PG
Prepared By: PG

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 77367
Prep Batch: 66364

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

Analyzed By: PG
Prepared By: PG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	24.4	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	24.0	mg/L	1	25.0	<0.126	96	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: 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
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: 255899

QC Batch: 77264
Prep Batch: 66272

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

Analyzed By: PG
Prepared By: PG

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

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

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

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

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

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

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

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

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.

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

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

Matrix Spike (MS-1) Spiked Sample: 255899

QC Batch: 77264
Prep Batch: 66272

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

Analyzed By: PG
Prepared By: PG

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

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	191	mg/L	5	125	62	103	90 - 110	0	20

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

Matrix Spike (MS-1) Spiked Sample: 256128

QC Batch: 77266
Prep Batch: 66273

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

Analyzed By: PG
Prepared By: PG

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 256128

QC Batch: 77266
Prep Batch: 66273

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

Analyzed By: PG
Prepared By: PG

continued ...

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115-6403132

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matrix spikes continued ...

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

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

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

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

Matrix Spike (MS-1) Spiked Sample: 256245

QC Batch: 77367
Prep Batch: 66364

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

Analyzed By: PG
Prepared By: PG

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

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

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

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

Standard (CCV-1)

QC Batch: 77124

Date Analyzed: 2011-01-24

Analyzed By: AG

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

Standard (CCV-2)

QC Batch: 77124

Date Analyzed: 2011-01-24

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

Standard (CCV-1)

QC Batch: 77264

Date Analyzed: 2011-01-30

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	24.4	98	90 - 110	2011-01-30

Standard (CCV-1)

QC Batch: 77264

Date Analyzed: 2011-01-30

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	24.8	99	90 - 110	2011-01-30

Standard (CCV-2)

QC Batch: 77264

Date Analyzed: 2011-01-30

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	2011-01-30

Standard (CCV-2)

QC Batch: 77264

Date Analyzed: 2011-01-30

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	2011-01-30

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Standard (CCV-1)

QC Batch: 77266

Date Analyzed: 2011-01-30

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	2011-01-30

Standard (CCV-1)

QC Batch: 77266

Date Analyzed: 2011-01-30

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	2011-01-30

Standard (CCV-2)

QC Batch: 77266

Date Analyzed: 2011-01-30

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	2011-01-30

Standard (CCV-2)

QC Batch: 77266

Date Analyzed: 2011-01-30

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	2011-01-30

Standard (CCV-1)

QC Batch: 77367

Date Analyzed: 2011-02-01

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	23.9	96	90 - 110	2011-02-01

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Standard (CCV-2)

QC Batch: 77367

Date Analyzed: 2011-02-01

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	24.1	96	90 - 110	2011-02-01



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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 2, 2011

Work Order: 11041528



Project Location: Chavez County, NM
Project Name: Celero/Rock Queen Tract #13 TB
Project Number: 115-6403132A

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

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

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

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

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Case Narrative

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

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

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
Chloride (IC)	E 300.0	68437	2011-04-25 at 09:23	80664	2011-04-26 at 15:31
Chloride (IC)	E 300.0	68438	2011-04-25 at 11:24	80665	2011-04-26 at 15:32
SO4 (IC)	E 300.0	68437	2011-04-25 at 09:23	80664	2011-04-26 at 15:31
SO4 (IC)	E 300.0	68438	2011-04-25 at 11:24	80665	2011-04-26 at 15:32
TDS	SM 2540C	68432	2011-04-22 at 12:00	80826	2011-04-29 at 14:31

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11041528 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: May 2, 2011
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Work Order: 11041528
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Analytical Report

Sample: 263898 - 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	<0.00100	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	0.0956	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.100	mg/L	1	0.100	100	51.1 - 128

Sample: 263898 - MW-1

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	52.7	mg/L	5	2.50

Sample: 263898 - MW-1

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	52.4	mg/L	5	2.50

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Sample: 263898 - 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	481	mg/L	1	10.0

Sample: 263899 - 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	0.0950	mg/L	1	0.100	95	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.100	mg/L	1	0.100	100	51.1 - 128

Sample: 263899 - MW-2

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 80664

Prep Batch: 68437

Analytical Method: E 300.0

Date Analyzed: 2011-04-26

Sample Preparation: 2011-04-25

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

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Sample: 263899 - MW-2

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	193	mg/L	5	2.50

Sample: 263899 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-04-29	Analyzed By:	AR
QC Batch:	80826	Sample Preparation:	2011-04-25	Prepared By:	AR
Prep Batch:	68432				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	16900	mg/L	100	10.0

Sample: 263900 - MW-3

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				

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	0.0944	mg/L	1	0.100	94	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0969	mg/L	1	0.100	97	51.1 - 128

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Sample: 263900 - 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: 80664	Sample Preparation: 2011-04-25	Prepared By: AR
Prep Batch: 68437		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	148	mg/L	5	2.50

Sample: 263900 - 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: 80664	Sample Preparation: 2011-04-25	Prepared By: AR
Prep Batch: 68437		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	84.1	mg/L	5	2.50

Sample: 263900 - MW-3

Laboratory: Midland	Analytical Method: SM 2540C	Prep Method: N/A
Analysis: TDS	Date Analyzed: 2011-04-29	Analyzed By: AR
QC Batch: 80826	Sample Preparation: 2011-04-25	Prepared By: AR
Prep Batch: 68432		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	630	mg/L	2	10.0

Sample: 263901 - 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 263901 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	0.0982	mg/L	1	0.100	98	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.101	mg/L	1	0.100	101	51.1 - 128

Sample: 263901 - MW-4

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	174	mg/L	5	2.50

Sample: 263901 - MW-4

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

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

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

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

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Sample: 263901 - MW-4

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	604	mg/L	2	10.0

Sample: 263902 - MW-5

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	0.0956	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0975	mg/L	1	0.100	98	51.1 - 128

Sample: 263902 - MW-5

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

Analytical Method: 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	17700	mg/L	1000	2.50

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Sample: 263902 - MW-5

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

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	336	mg/L	100	2.50

Sample: 263902 - MW-5

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	27000	mg/L	100	10.0

Sample: 263903 - MW-6

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	0.0914	mg/L	1	0.100	91	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0955	mg/L	1	0.100	96	51.1 - 128

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Sample: 263903 - MW-6

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	3010	mg/L	100	2.50

Sample: 263903 - MW-6

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	85.2	mg/L	5	2.50

Sample: 263903 - MW-6

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-04-29	Analyzed By:	AR
QC Batch:	80826	Sample Preparation:	2011-04-25	Prepared By:	AR
Prep Batch:	68432				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	4890	mg/L	5	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: 80664

QC Batch: 80664
Prep Batch: 68437

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

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.484	mg/L	2.5

Method Blank (1) QC Batch: 80664

QC Batch: 80664
Prep Batch: 68437

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

Analyzed By: AR
Prepared By: AR

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

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Method Blank (1) QC Batch: 80665

QC Batch: 80665
Prep Batch: 68438

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

Analyzed By: AR
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
Prep Batch: 68438

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

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 80826

QC Batch: 80826
Prep Batch: 68432

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

Analyzed By: AR
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
Prep Batch: 68432

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

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	121000	116000	mg/L	100	4	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: 80664
Prep Batch: 68437

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	25.2	mg/L	1	25.0	<0.265	101	90 - 110

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

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control spikes continued . . .

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.5	mg/L	1	25.0	<0.265	102	90 - 110	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 80664
Prep Batch: 68437

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	23.2	mg/L	1	25.0	<0.177	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
Sulfate		1	23.7	mg/L	1	25.0	<0.177	95	90 - 110	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 80665
Prep Batch: 68438

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

Analyzed By: AR
Prepared By: AR

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	LCS 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.

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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

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

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.

Matrix Spike (MS-1) Spiked Sample: 263900

QC Batch: 80664
Prep Batch: 68437

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	354	mg/L	10	275	139	78	90 - 110

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	352	mg/L	10	275	139	77	90 - 110	1	20

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

Matrix Spike (MS-1) Spiked Sample: 263900

QC Batch: 80664
Prep Batch: 68437

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	292	mg/L	10	275	79.5	77	90 - 110

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	297	mg/L	10	275	79.5	79	90 - 110	2	20

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

Matrix Spike (MS-1) Spiked Sample: 263903

QC Batch: 80665
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.

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

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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.

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 (ICV-1)

QC Batch: 80664

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	22.8	91	90 - 110	2011-04-26

Standard (ICV-1)

QC Batch: 80664

Date Analyzed: 2011-04-26

Analyzed By: AR

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	22.8	91	90 - 110	2011-04-26

Standard (CCV-1)

QC Batch: 80664

Date Analyzed: 2011-04-26

Analyzed By: AR

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

Standard (CCV-1)

QC Batch: 80664

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	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
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

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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

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

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.



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report (Corrected Report)

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

Report Date: August 24, 2011

Work Order: 11080232



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen Tract #13 TB
Project Number: 115-6403132A

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
273451	MW-1	water	2011-08-01	13:50	2011-08-02
273452	MW-2	water	2011-08-01	13:30	2011-08-02
273453	MW-3	water	2011-08-01	14:00	2011-08-02
273454	MW-4	water	2011-08-01	13:40	2011-08-02
273455	MW-5	water	2011-08-01	13:10	2011-08-02
273456	MW-6	water	2011-08-01	13:20	2011-08-02

Report Corrections (Work Order 11080232)

- TDS was run out of hold time. Comments were added to the report. 8/23/11

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

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abel

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

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Case Narrative

Samples for project Celero/Rock Queen Tract #13 TB were received by TraceAnalysis, Inc. on 2011-08-02 and assigned to work order 11080232. Samples for work order 11080232 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	70958	2011-08-03 at 09:47	83538	2011-08-03 at 09:47
Chloride (IC)	E 300.0	71091	2011-08-08 at 09:22	83760	2011-08-08 at 20:19
Chloride (IC)	E 300.0	71092	2011-08-08 at 09:22	83762	2011-08-09 at 10:20
SO4 (IC)	E 300.0	71091	2011-08-08 at 09:22	83760	2011-08-08 at 20:19
SO4 (IC)	E 300.0	71092	2011-08-08 at 09:22	83762	2011-08-09 at 10:20
TDS	SM 2540C	71106	2011-08-09 at 11:05	83929	2011-08-16 at 14:16

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 11080232 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: 273451 - 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	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)			0.100	mg/L	1	0.100	100	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0943	mg/L	1	0.100	94	67.5 - 140.8

Sample: 273451 - MW-1

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 83760
Prep Batch: 71091

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	64.1	mg/L	5	2.50

Sample: 273451 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 83760
Prep Batch: 71091

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	68.4	mg/L	5	2.50

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Sample: 273451 - MW-1

Laboratory: Midland

Analysis: TDS

QC Batch: 83929

Prep Batch: 71106

Analytical Method: SM 2540C

Date Analyzed: 2011-08-16

Sample Preparation: 2011-08-10

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	465	mg/L	1	10.0

Sample: 273452 - 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)			0.0988	mg/L	1	0.100	99	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0928	mg/L	1	0.100	93	67.5 - 140.8

Sample: 273452 - MW-2

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 83760

Prep Batch: 71091

Analytical Method: E 300.0

Date Analyzed: 2011-08-08

Sample Preparation: 2011-08-08

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	8450	mg/L	500	2.50

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Sample: 273452 - MW-2

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-08-08	Analyzed By:	AR
QC Batch:	83760	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71091				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	148	mg/L	5	2.50

Sample: 273452 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-08-16	Analyzed By:	AR
QC Batch:	83929	Sample Preparation:	2011-08-10	Prepared By:	AR
Prep Batch:	71106				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	9760	mg/L	20	10.0

Sample: 273453 - 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)			0.105	mg/L	1	0.100	105	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0966	mg/L	1	0.100	97	67.5 - 140.8

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Sample: 273453 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2011-08-08	Analyzed By:	AR
QC Batch:	83760	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71091				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	166	mg/L	5	2.50

Sample: 273453 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-08-08	Analyzed By:	AR
QC Batch:	83760	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71091				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	61.5	mg/L	5	2.50

Sample: 273453 - MW-3

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-08-16	Analyzed By:	AR
QC Batch:	83929	Sample Preparation:	2011-08-10	Prepared By:	AR
Prep Batch:	71106				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	812	mg/L	2	10.0

Sample: 273454 - 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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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)			0.103	mg/L	1	0.100	103	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0935	mg/L	1	0.100	94	67.5 - 140.8

Sample: 273454 - MW-4

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 83760
Prep Batch: 71091

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	224	mg/L	10	2.50

Sample: 273454 - MW-4

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 83760
Prep Batch: 71091

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	48.7	mg/L	5	2.50

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Sample: 273454 - MW-4

Laboratory: Midland
Analysis: TDS
QC Batch: 83929
Prep Batch: 71106

Analytical Method: SM 2540C
Date Analyzed: 2011-08-16
Sample Preparation: 2011-08-10

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	690	mg/L	2	10.0

Sample: 273455 - MW-5

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)			0.101	mg/L	1	0.100	101	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0950	mg/L	1	0.100	95	67.5 - 140.8

Sample: 273455 - MW-5

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 83762
Prep Batch: 71092

Analytical Method: E 300.0
Date Analyzed: 2011-08-09
Sample Preparation: 2011-08-08

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	2800	mg/L	100	2.50

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Sample: 273455 - MW-5

Laboratory:	Midland		
Analysis:	SO4 (IC)	Analytical Method:	E 300.0
QC Batch:	83762	Date Analyzed:	2011-08-09
Prep Batch:	71092	Sample Preparation:	2011-08-08
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	77.2	mg/L	5	2.50

Sample: 273455 - MW-5

Laboratory:	Midland		
Analysis:	TDS	Analytical Method:	SM 2540C
QC Batch:	83929	Date Analyzed:	2011-08-16
Prep Batch:	71106	Sample Preparation:	2011-08-10
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	4140	mg/L	5	10.0

Sample: 273456 - MW-6

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	83538	Date Analyzed:	2011-08-03
Prep Batch:	70958	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)			0.106	mg/L	1	0.100	106	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0984	mg/L	1	0.100	98	67.5 - 140.8

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Sample: 273456 - MW-6

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2011-08-09	Analyzed By:	AR
QC Batch:	83762	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71092				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	2130	mg/L	100	2.50

Sample: 273456 - MW-6

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-08-09	Analyzed By:	AR
QC Batch:	83762	Sample Preparation:	2011-08-08	Prepared By:	AR
Prep Batch:	71092				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	59.3	mg/L	5	2.50

Sample: 273456 - MW-6

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-08-16	Analyzed By:	AR
QC Batch:	83929	Sample Preparation:	2011-08-10	Prepared By:	AR
Prep Batch:	71106				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids	H	1	2930	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: 83760

QC Batch: 83760
Prep Batch: 71091

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

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	5.69	mg/L	2.5

Method Blank (1) QC Batch: 83760

QC Batch: 83760
Prep Batch: 71091

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

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: 83762

QC Batch: 83762
Prep Batch: 71092

Date Analyzed: 2011-08-09
QC Preparation: 2011-08-08

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	5.68	mg/L	2.5

Method Blank (1) QC Batch: 83762

QC Batch: 83762
Prep Batch: 71092

Date Analyzed: 2011-08-09
QC Preparation: 2011-08-08

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 83929

QC Batch: 83929
Prep Batch: 71106

Date Analyzed: 2011-08-16
QC Preparation: 2011-08-09

Analyzed By: AR
Prepared By: AR

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

Duplicates (1) Duplicated Sample: 273456

QC Batch: 83929
Prep Batch: 71106

Date Analyzed: 2011-08-16
QC Preparation: 2011-08-09

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	2720	2930	mg/L	5	7	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: 83760
Prep Batch: 71091

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

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	90.9 - 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	27.2	mg/L	1	25.0	<0.265	109	90.9 - 113.9	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: 83760
Prep Batch: 71091

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

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	25.7	mg/L	1	25.0	<0.177	103	99 - 113.6	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: 83762
Prep Batch: 71092

Date Analyzed: 2011-08-09
QC Preparation: 2011-08-08

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	90.9 - 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	27.2	mg/L	1	25.0	<0.265	109	90.9 - 113.9	0	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 83762
Prep Batch: 71092

Date Analyzed: 2011-08-09
QC Preparation: 2011-08-08

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.9	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	26.0	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.

Laboratory Control Spike (LCS-1)

QC Batch: 83929
Prep Batch: 71106

Date Analyzed: 2011-08-16
QC Preparation: 2011-08-09

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	1040	mg/L	1	1000	<9.75	104	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	1010	mg/L	1	1000	<9.75	101	85.5 - 112.7	3	10

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

Matrix Spike (MS-1) Spiked Sample: 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

continued ...

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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: 274083

QC Batch: 83760
Prep Batch: 71091

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	2040	mg/L	50	1380	680	99	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	2030	mg/L	50	1380	680	98	48.4 - 143.2	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: 274083

QC Batch: 83760
Prep Batch: 71091

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

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	1800	mg/L	50	1380	447	98	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	1810	mg/L	50	1380	447	99	59.7 - 115.4	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: 273456

QC Batch: 83762
Prep Batch: 71092

Date Analyzed: 2011-08-09
QC Preparation: 2011-08-08

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	4660	mg/L	100	2750	2130	92	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	4420	mg/L	100	2750	2130	83	48.4 - 143.2	5	20

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

Matrix Spike (MS-1) Spiked Sample: 273456

QC Batch: 83762
Prep Batch: 71092

Date Analyzed: 2011-08-09
QC Preparation: 2011-08-08

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2670	mg/L	100	2750	138	92	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	2640	mg/L	100	2750	138	91	59.7 - 115.4	1	20

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: 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 (CCV-3)

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	0.101	101	80 - 120	2011-08-03
Toluene		1	mg/L	0.100	0.0972	97	80 - 120	2011-08-03
Ethylbenzene		1	mg/L	0.100	0.0903	90	80 - 120	2011-08-03
Xylene		1	mg/L	0.300	0.272	91	80 - 120	2011-08-03

Standard (ICV-1)

QC Batch: 83760

Date Analyzed: 2011-08-08

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	27.6	110	90 - 110	2011-08-08

Standard (ICV-1)

QC Batch: 83760

Date Analyzed: 2011-08-08

Analyzed By: AR

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.9	104	90 - 110	2011-08-08

Standard (CCV-1)

QC Batch: 83760

Date Analyzed: 2011-08-08

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	27.0	108	90 - 110	2011-08-08

Standard (CCV-1)

QC Batch: 83760

Date Analyzed: 2011-08-08

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	26.0	104	90 - 110	2011-08-08

Standard (ICV-1)

QC Batch: 83762

Date Analyzed: 2011-08-09

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	27.0	108	90 - 110	2011-08-09

Standard (ICV-1)

QC Batch: 83762

Date Analyzed: 2011-08-09

Analyzed By: AR

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115-6403132A

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2011-08-09

Standard (CCV-1)

QC Batch: 83762

Date Analyzed: 2011-08-09

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	27.0	108	90 - 110	2011-08-09

Standard (CCV-1)

QC Batch: 83762

Date Analyzed: 2011-08-09

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	25.9	104	90 - 110	2011-08-09

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.

Job #: 11080232

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>Celco</u>		SITE MANAGER: <u>Jeff Kinley</u>	
PROJECT NO.: <u>115-2403132</u>		PROJECT NAME: <u>Celco Rock Queen #13</u>	
LAB I.D. NUMBER		SAMPLE IDENTIFICATION	
	DATE	TIME	
273451	9/1	1350	Y
452		1330	
453		1400	
454		1340	
455		1310	
456		1320	

NUMBER OF CONTAINERS	PRELIMINARY METHOD	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH (TDS)	
4	HCL	Y																
	ICE																	
	NONE																	

RELINQUISHED BY: (Signature) <u>[Signature]</u>	Date: <u>8/21/11</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	Date: <u>8/21/11</u>
RELINQUISHED BY: (Signature) <u>[Signature]</u>	Date: <u>8/21/11</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	Date: <u>8/21/11</u>
RELINQUISHED BY: (Signature) <u>[Signature]</u>	Date: <u>8/21/11</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	Date: <u>8/21/11</u>
RECEIVING LABORATORY: <u>Tetra Tech</u>		RECEIVED BY: (Signature) <u>[Signature]</u>	
ADDRESS: <u>Midland</u>	STATE: <u>TX</u>	ZIP: <u>79705</u>	DATE: <u>8/21/11</u>
CONTACT: <u>Jeff Kinley</u>	PHONE: <u>(432) 682-4559</u>		
SAMPLE CONDITION WHEN RECEIVED: <u>390</u>			
REMARKS: <u>tests - Midland</u>			



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

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 10, 2011

Work Order: 11103127



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen Tract #13 TB
Project Number: 115-6403132A

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
281154	MW-3	water	2011-10-26	10:12	2011-10-31
281155	MW-1	water	2011-10-26	11:15	2011-10-31
281156	MW-4	water	2011-10-26	12:07	2011-10-31
281157	MW-6	water	2011-10-26	13:15	2011-10-31
281158	MW-5	water	2011-10-26	14:12	2011-10-31
281159	MW-2	water	2011-10-26	15:24	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 16 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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

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Case Narrative

Samples for project Celero/Rock Queen Tract #13 TB were received by TraceAnalysis, Inc. on 2011-10-31 and assigned to work order 11103127. Samples for work order 11103127 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	73017	2011-11-01 at 15:26	86000	2011-11-01 at 15:26
Chloride (IC)	E 300.0	73106	2011-11-03 at 09:30	86199	2011-11-03 at 11:31
Chloride (IC)	E 300.0	73107	2011-11-03 at 09:31	86200	2011-11-03 at 11:32

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 11103127 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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115-6403132A

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Celero/Rock Queen Tract #13 TB

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Analytical Report

Sample: 281154 - MW-3

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 86000
Prep Batch: 73017

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)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.107	mg/L	1	0.100	107	70 - 130

Sample: 281154 - MW-3

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 86199
Prep Batch: 73106

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

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

Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	Qs	2	225	mg/L	5	2.50

Sample: 281155 - MW-1

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 86000
Prep Batch: 73017

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 10, 2011
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		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)			0.106	mg/L	1	0.100	106	70 - 130

Sample: 281155 - MW-1

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 86199
Prep Batch: 73106

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL	
Chloride	Qs	Qs	2	63.3	mg/L	5	2.50

Sample: 281156 - MW-4

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 86000
Prep Batch: 73017

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	Units	Dilution	RL
				Result			
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)			0.104	mg/L	1	0.100	104	70 - 130
4-Bromofluorobenzene (4-BFB)			0.104	mg/L	1	0.100	104	70 - 130

Report Date: November 10, 2011
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Sample: 281156 - MW-4

Laboratory: Midland
Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 86199 Date Analyzed: 2011-11-03 Analyzed By: AR
Prep Batch: 73106 Sample Preparation: 2011-11-03 Prepared By: AR

Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	Qs	2	188	mg/L	10	2.50

Sample: 281157 - MW-6

Laboratory: Lubbock
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5030B
QC Batch: 86000 Date Analyzed: 2011-11-01 Analyzed By: ZLM
Prep Batch: 73017 Sample Preparation: 2011-11-01 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)			0.103	mg/L	1	0.100	103	70 - 130
4-Bromofluorobenzene (4-BFB)			0.111	mg/L	1	0.100	111	70 - 130

Sample: 281157 - MW-6

Laboratory: Midland
Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 86200 Date Analyzed: 2011-11-03 Analyzed By: AR
Prep Batch: 73107 Sample Preparation: 2011-11-03 Prepared By: AR

Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	Qs	2	2550	mg/L	500	2.50

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Sample: 281158 - MW-5

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 86000
Prep Batch: 73017

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)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.106	mg/L	1	0.100	106	70 - 130

Sample: 281158 - MW-5

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 86200
Prep Batch: 73107

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	Qs	2	481 mg/L	50	2.50

Sample: 281159 - MW-2

Laboratory: Lubbock
Analysis: BTEX
QC Batch: 86000
Prep Batch: 73017

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

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.108	mg/L	1	0.100	108	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	mg/L	1	0.100	108	70 - 130

Sample: 281159 - MW-2

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 86200
Prep Batch: 73107

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

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Qs	2	8870	mg/L	1000	2.50

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Method Blanks

Method Blank (1) QC Batch: 86000

QC Batch: 86000
Prep Batch: 73017

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)			0.106	mg/L	1	0.100	106	70 - 130
4-Bromofluorobenzene (4-BFB)			0.105	mg/L	1	0.100	105	70 - 130

Method Blank (1) QC Batch: 86199

QC Batch: 86199
Prep Batch: 73106

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

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		2	0.704	mg/L	2.5

Method Blank (1) QC Batch: 86200

QC Batch: 86200
Prep Batch: 73107

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

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		2	0.667	mg/L	2.5

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 86000
Prep Batch: 73017

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	0.103	mg/L	1	0.100	<0.000765	103	70 - 130
Toluene		1	0.0993	mg/L	1	0.100	<0.000719	99	70 - 130
Ethylbenzene		1	0.0973	mg/L	1	0.100	<0.000860	97	70 - 130
Xylene		1	0.289	mg/L	1	0.300	<0.000942	96	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	0.107	mg/L	1	0.100	<0.000765	107	70 - 130	4	20
Toluene		1	0.102	mg/L	1	0.100	<0.000719	102	70 - 130	3	20
Ethylbenzene		1	0.0998	mg/L	1	0.100	<0.000860	100	70 - 130	2	20
Xylene		1	0.294	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	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.100	0.0953	mg/L	1	0.100	100	95	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0975	0.0923	mg/L	1	0.100	98	92	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 86199
Prep Batch: 73106

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		2	23.0	mg/L	1	25.0	<0.265	92	90 - 110

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	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		2	23.2	mg/L	1	25.0	<0.265	93	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: 86200
Prep Batch: 73107

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

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		2	22.9	mg/L	1	25.0	<0.265	92	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	23.4	mg/L	1	25.0	<0.265	94	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: 281152

QC Batch: 86000
Prep Batch: 73017

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	0.102	mg/L	1	0.100	<0.000765	102	70 - 130
Toluene		1	0.0935	mg/L	1	0.100	<0.000719	94	70 - 130
Ethylbenzene		1	0.0881	mg/L	1	0.100	<0.000860	88	70 - 130
Xylene		1	0.260	mg/L	1	0.300	<0.000942	87	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0891	mg/L	1	0.100	<0.000765	89	70 - 130	14	20
Toluene		1	0.0813	mg/L	1	0.100	<0.000719	81	70 - 130	14	20

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matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		1	0.0776	mg/L	1	0.100	<0.000860	78	70 - 130	13	20
Xylene		1	0.228	mg/L	1	0.300	<0.000942	76	70 - 130	13	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)	0.102	0.101	mg/L	1	0.1	102	101	70 - 130
4-Bromofluorobenzene (4-BFB)	0.107	0.106	mg/L	1	0.1	107	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 281154

QC Batch: 86199
Prep Batch: 73106

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	2	448	mg/L	10	275	228	80

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	443	mg/L	10	275	228	78	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: 281157

QC Batch: 86200
Prep Batch: 73107

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

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	2	3870	mg/L	50	1380	2750	81

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	3880	mg/L	50	1380	2750	82	90 - 110	0	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 86000

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	0.106	106	80 - 120	2011-11-01
Toluene		1	mg/L	0.100	0.102	102	80 - 120	2011-11-01
Ethylbenzene		1	mg/L	0.100	0.0994	99	80 - 120	2011-11-01
Xylene		1	mg/L	0.300	0.297	99	80 - 120	2011-11-01

Standard (CCV-2)

QC Batch: 86000

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	0.109	109	80 - 120	2011-11-01
Toluene		1	mg/L	0.100	0.104	104	80 - 120	2011-11-01
Ethylbenzene		1	mg/L	0.100	0.101	101	80 - 120	2011-11-01
Xylene		1	mg/L	0.300	0.300	100	80 - 120	2011-11-01

Standard (CCV-1)

QC Batch: 86199

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	22.6	90	90 - 110	2011-11-03

Standard (CCV-2)

QC Batch: 86199

Date Analyzed: 2011-11-03

Analyzed By: AR

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		2	mg/L	25.0	22.6	90	90 - 110	2011-11-03

Standard (CCV-1)

QC Batch: 86200

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	22.6	90	90 - 110	2011-11-03

Standard (CCV-2)

QC Batch: 86200

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	22.9	92	90 - 110	2011-11-03

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	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.

