

1R – 1594

2007 – 2011

GWMR

10 / 13 / 2011



TETRA TECH

October 13, 2011

Mr. Glenn von Gonten
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

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

Mr. Von Gonten:

This report details the results of the groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Saltwater Plant #1 (Site) for May 2007 through April 2011. The Site is located approximately 21-1/2 miles north of Maljamar, New Mexico. The Site location is shown on Figures 1 and 2.

FACILITY BACKGROUND

Pit Closure

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

The Rock Queen Saltwater Plant #1 pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in August 2007. Removed fluids were placed into an existing SWD system or taken for disposal, while the sludge, tank bottom materials, and liner were disposed of at Gandy-Marley, Inc.'s landfill site in Lovington, New Mexico. Upon completion of the removal of the fluids, sludge, and liner, the underlying soils were visually inspected for obvious signs of impact. Approximately 2,200 cubic yards of soil were excavated and transported to Gandy-Marley, Inc. for disposal. The pit was

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

Groundwater Investigation

Between May 2007 and December 2010, Celero installed seven 2-inch monitor wells (MW-1 through MW-7) and one 5-inch recovery well (RW-1) to assess the groundwater quality at the Site. The lithology at the Site was relatively consistent with limestone to approximately 10 to 20 feet bgs and with calcareous sand to very fine grain sand to a depth of approximately 130 to 165 feet bgs. From approximately 130 feet bgs to the terminus (approximately 150 to 198 feet bgs) the soils were a gray/brown to red clay. See Appendix A for Boring Logs.

During the investigation, groundwater was encountered at depths of approximately 134 to 139 feet bgs. Monitor Well MW-1 was drilled into the surrounding underlying clay to 198 feet bgs and sealed back to 145 feet with 40 feet of 0.01 inch slotted screen installed to 105 feet bgs. The remaining monitor wells were drilled to depths of 150 to 155 (MW-7) feet bgs and installed with 30 feet of 0.02 inch slotted screen. Recovery well RW-1 was drilled to a depth of 150 feet and installed with 20 feet of 0.035 inch slotted screen. From the top of the screen to the surface of the boring, the wells were completed with blank schedule 40 PVC casing. See Appendix B for monitor well installation diagrams.

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

Gauging and Monitor Well Sampling

On May 24, 2007, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged, purged, and sampled with no PSH measured. Utilizing the water level elevation calculations, groundwater gradient maps were generated for all the sampling events with the exception of May 24, 2007 which lacked sufficient points for development of a gradient map. The hydraulic gradient indicates a southeasterly direction. Groundwater gradient maps for the sampling events are included as Figures 4 through 8. 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. One sample, MW-1 on January 18, 2011 (0.0116 mg/L) had a result which exceeded the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. The remainder of the samples were below the NMWQCC standards with a majority being at or below detection limits. All the samples collected and analyzed for chlorides were above the NMWQCC standard of 250 mg/L chlorides with samples ranging from 1,320 mg/L in MW-6 on April 14, 2011 to 174,000 mg/L in MW-1 on April 14, 2011. The general chemistry and BTEX analyses are shown in Tables 2 and 3, respectively. Chloride concentration maps for the sampling events are included as Figures 9 through 13. Copies of the laboratory analyses are enclosed in Appendix C.

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

CONCLUSIONS

1. On May 24, 2007, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged, purged, and sampled. 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. One sample, MW-1 on January 18, 2011 (0.0116 mg/L) had a result which exceeded the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. The remainder of the samples were below the NMWQCC standards with a majority being at or below detection limits.
4. All the samples collected and analyzed for chlorides were above the NMWQCC standard of 250 mg/L chlorides with samples ranging from 1,320 mg/L in MW-6 on April 14, 2011 to 174,000 mg/L in MW-1 on April 14, 2011.

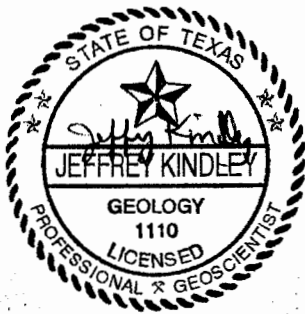


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RECOMMENDATIONS

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

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

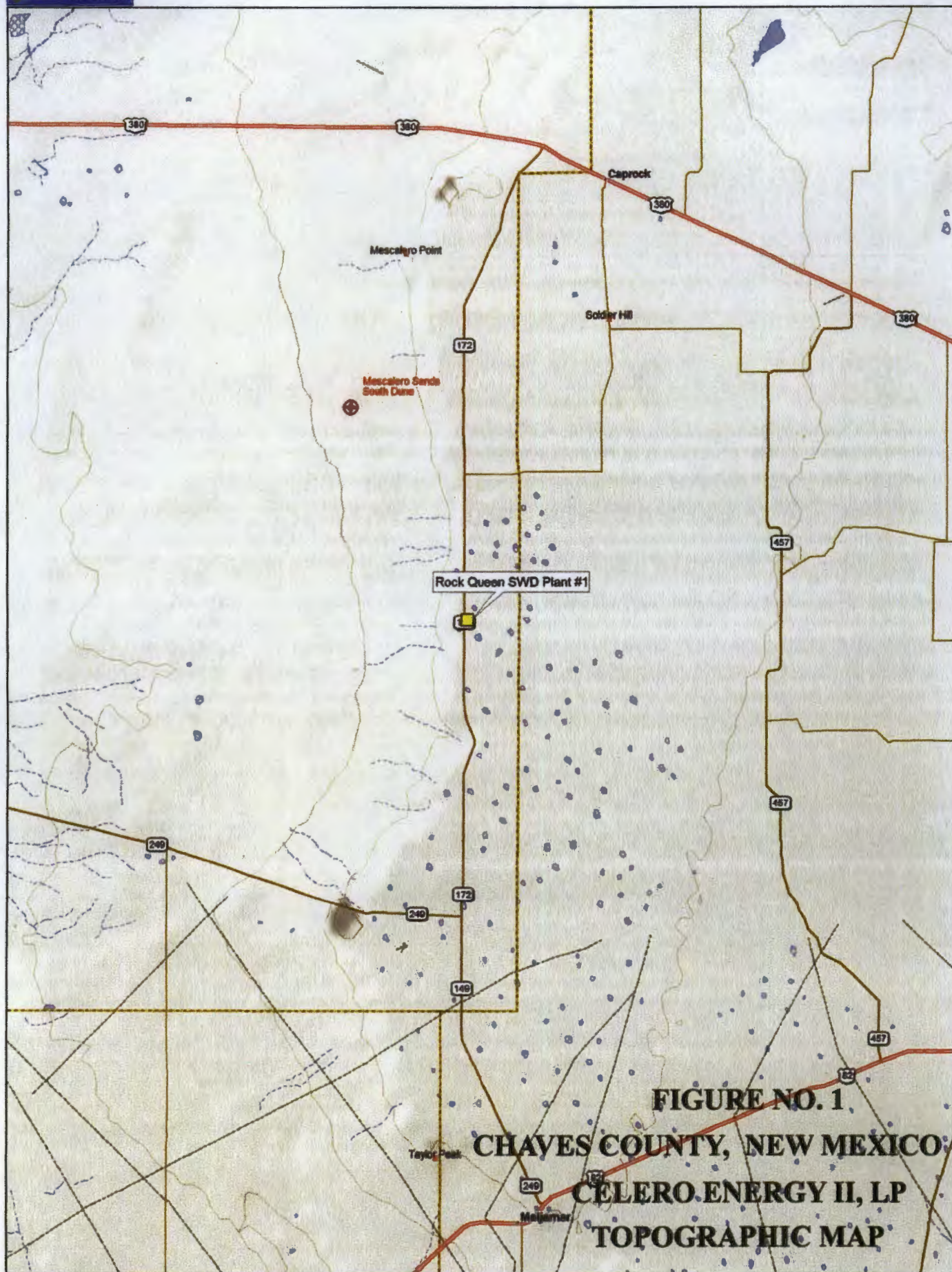


Respectfully submitted,
Tetra Tech, Inc.

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

cc: Bruce Woodard – Celero Energy II, LP

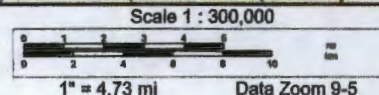
FIGURES

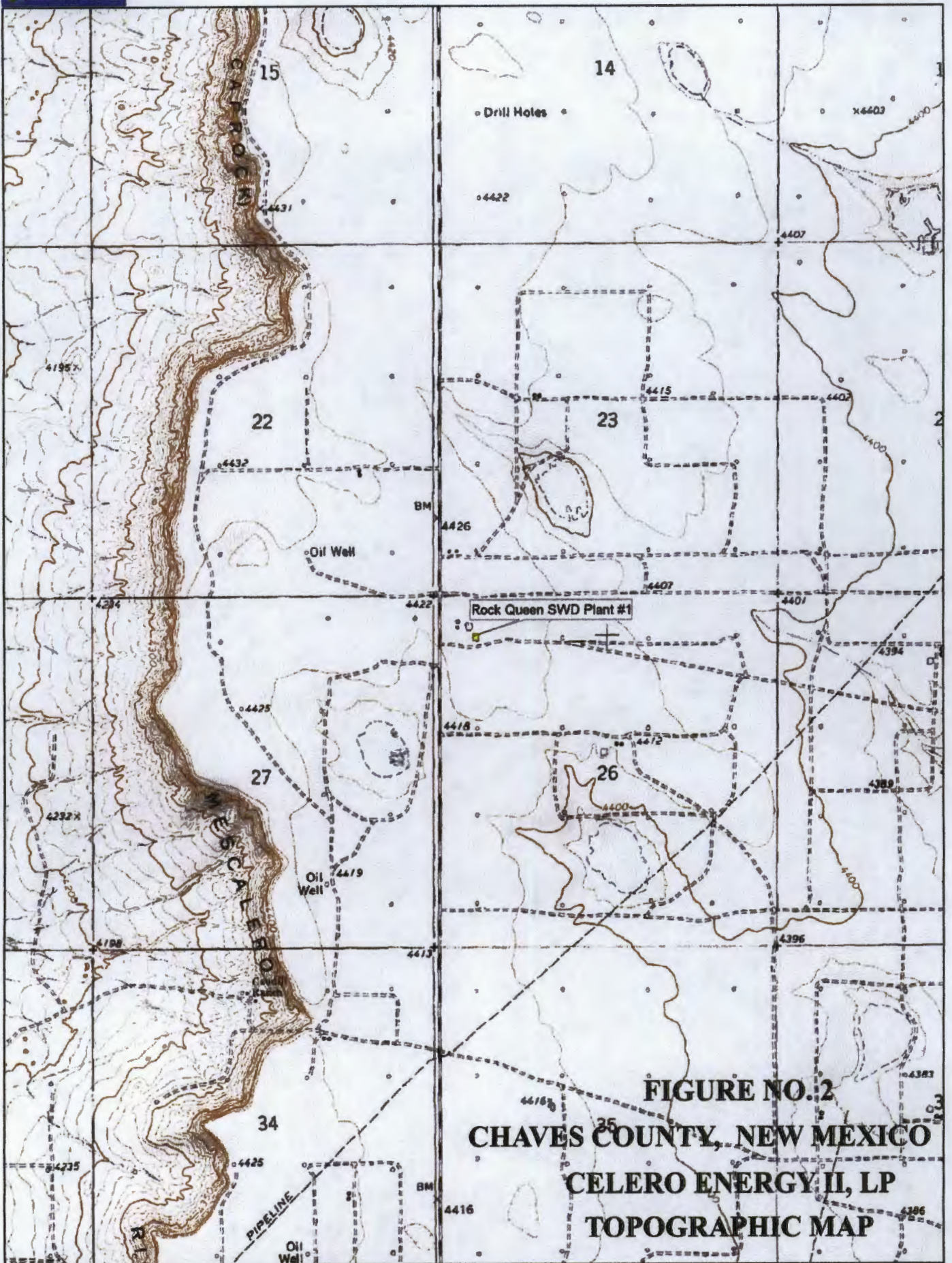


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MW-6

MW-2

FORMER PIT

RW-1

MW-1

ROCK QUEEN
IND. WELL #1

MW-3

MW-7

MW-4

MW-5

SCALE: 1" = 150'

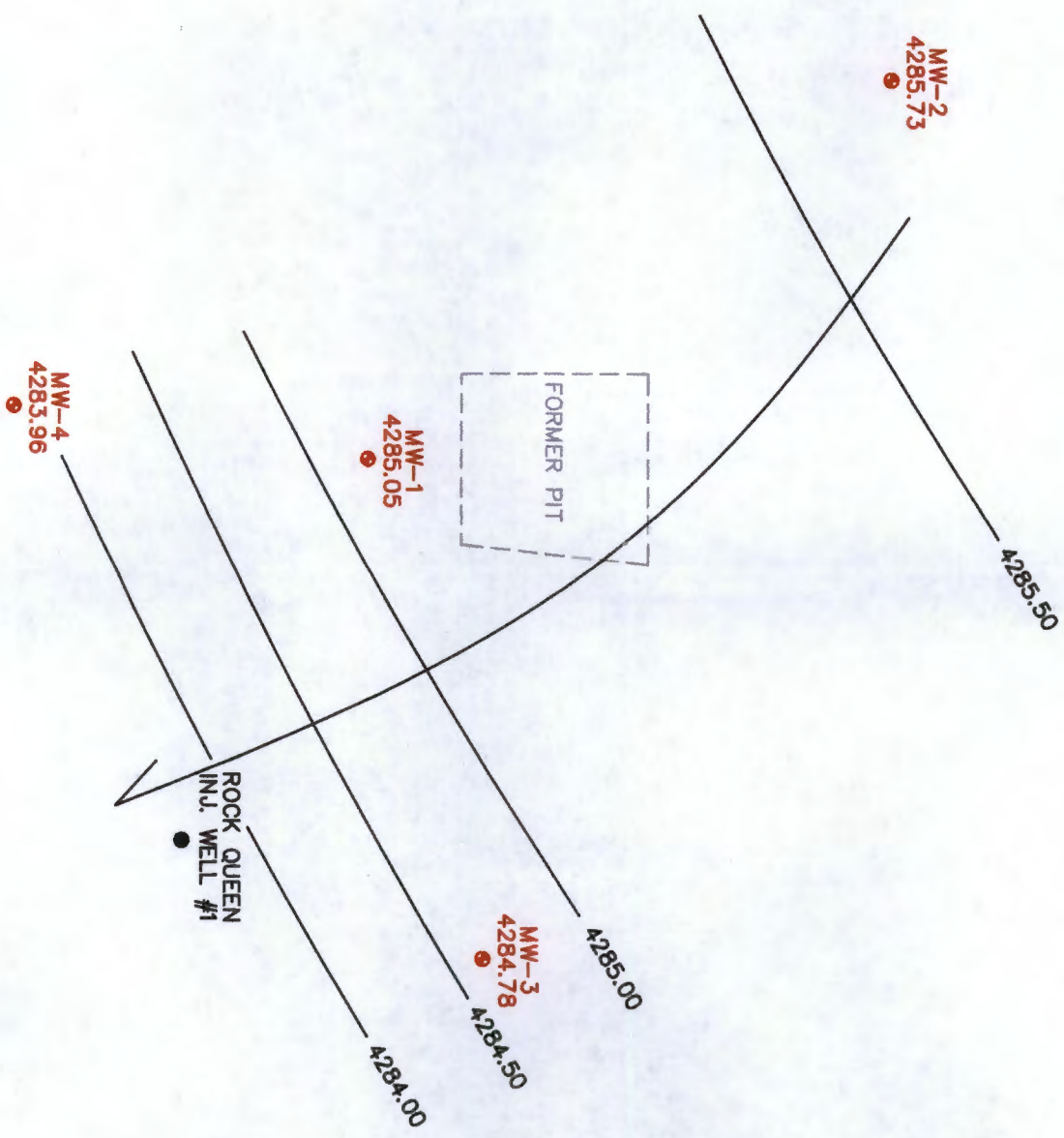
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FIGURE NO. 3

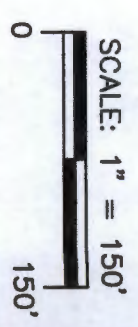
CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SMD PLANT #1
SITE MAP

TETRA TECH, INC.
MIDLAND, TEXAS



C.I. = .50'



DATE: 11/24/2009
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FIGURE NO. 4

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY

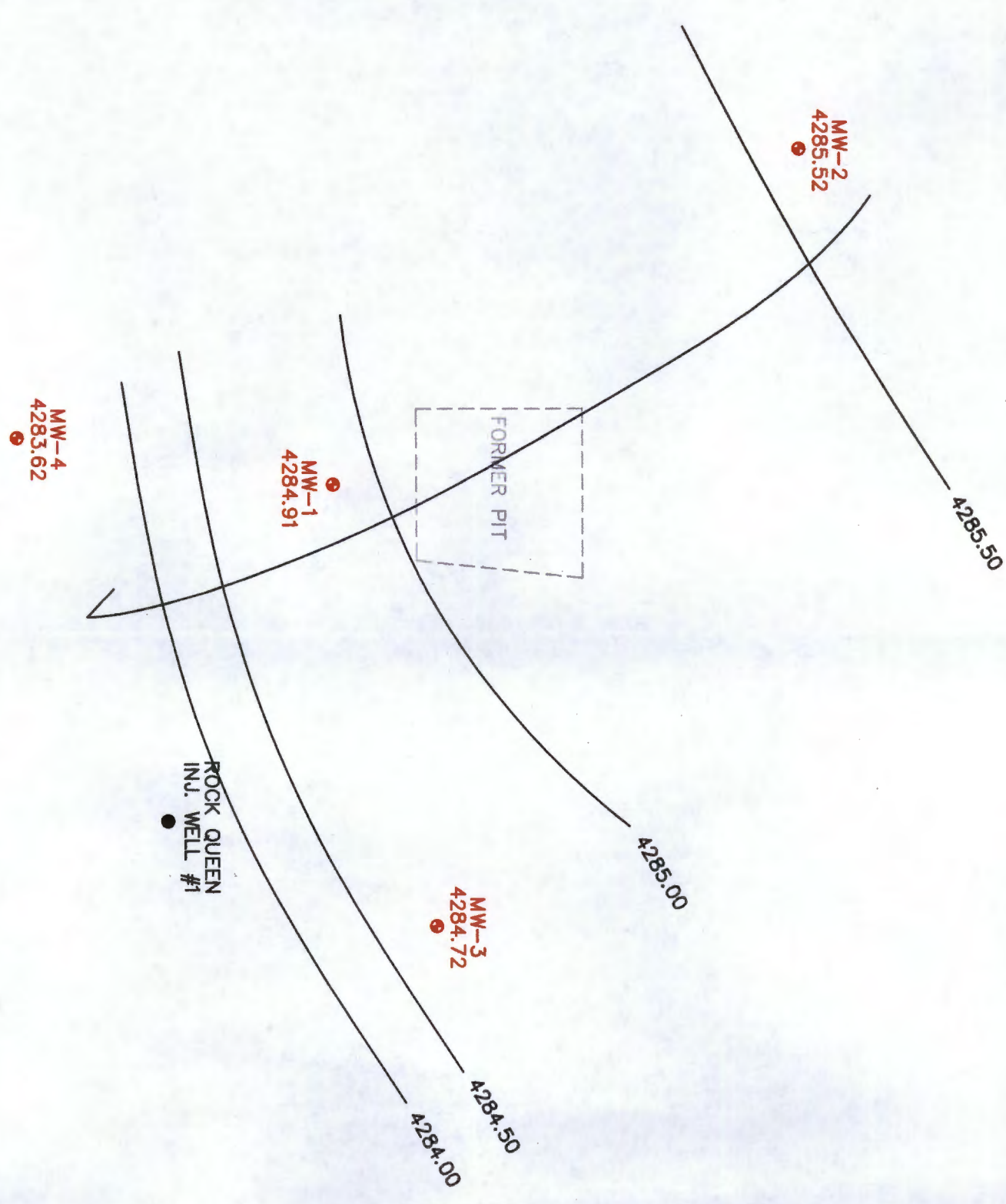
ROCK QUEEN UNIT SWD PLANT #1

GROUNDWATER GRADIENT MAP

11/24/09

TETRA TECH, INC.

MIDLAND, TEXAS



SCALE: 1" = 150'

C.I. = .50'

0 150'

DATE: 07/13/2010
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CHAVES COUNTY, NEW MEXICO

CELERO ENERGY

ROCK QUEEN UNIT SWD PLANT #1

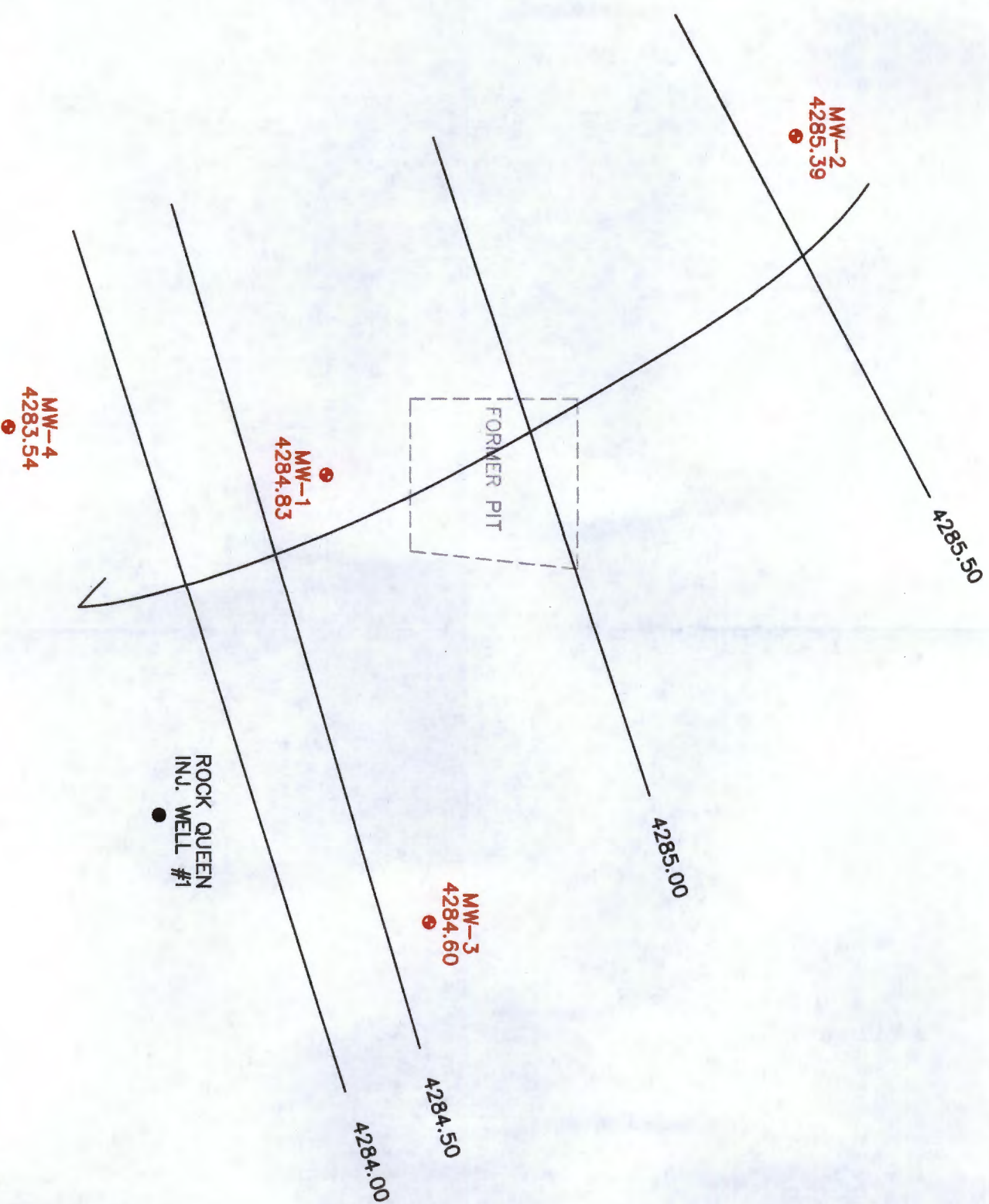
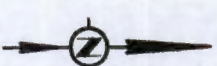
GROUNDWATER GRADIENT MAP

07/13/10

TETRA TECH, INC.

MIDLAND, TEXAS

FIGURE NO. 5



ROCK QUEEN
INJ. WELL #1

C.I. = .50'



FIGURE NO. 6

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
GROUNDWATER GRADIENT MAP
10/11/2010

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:
10/11/2010
DWN. BY:
IM
FILE:
C:\CELERO\3134\
R Q UNIT SWD PLANT 1

MW-6
4285.95

MW-2
4285.43

RW-1
4285.72
MW-1
4284.80

FORMER PIT

MW-3
4285.01

MW-7
4283.76

MW-4
4283.51

ROCK QUEEN
INJ. WELL #1

MW-5
4281.49



C.I. = .05'

SCALE: 1" = 150'
0 150'

DATE: 01/17/2011
DWN. BY: IM
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FIGURE NO. 7

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
GROUNDWATER GRADIENT MAP
01/17/2011

TETRA TECH, INC.
MIDLAND, TEXAS

MW-6
4285.76

MW-2
4285.34

FORMER PIT
RW-1
4285.34
MW-1
4284.66

MW-4
4283.37

ROCK QUEEN
INJ. WELL #1

MW-3
4285.04

MW-5
4281.44

MW-7
4283.73

4285.50

4285.00

4284.50

4284.00

4283.50

4283.00

4282.50

4282.00

4281.50



C.I. = .05'

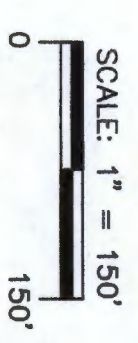


FIGURE NO. 8

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
GROUNDWATER GRADIENT MAP
04/12/2011

TETRA TECH, INC.
MIDLAND, TEXAS

DATE: 04/12/2011
DWN. BY: JM
FILE: C:\GEBRO\3134\ R Q UNIT SWD PLANT 1



MW-2
19,900

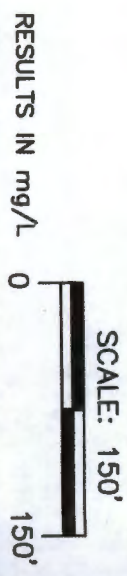
FORMER PIT

MW-1
139,000

MW-4
9,360

MW-3
59,500

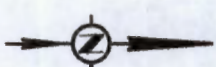
ROCK QUEEN
INJ. WELL #1



DATE:
11/24/2009
DWN. BY:
IM
FILE:
C:\GASPRO\3134\
RQ UNIT SWD PLANT 1

CHAVES COUNTY, NEW MEXICO	
CELEIRO ENERGY	
ROCK QUEEN UNIT SWD PLANT #1	
CHLORIDE CONCENTRATION MAP	
SAMPLED ON 11/24/2009	
TETRA TECH, INC.	
MIDLAND, TEXAS	

FIGURE NO. 9



MW-2
43,200

FORMER PIT

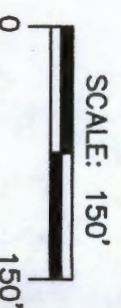
MW-1
155,000

MW-3
73,200

ROCK QUEEN
INJ. WELL #1

MW-4
85,800

RESULTS IN mg/L



DATE: 07/13/2010
DWN. BY: IM
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FIGURE NO. 10

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN UNIT SWD PLANT #1
CHLORIDE CONCENTRATION MAP
SAMPLED ON 07/13/2010

TETRA TECH, INC.
MIDLAND, TEXAS



MW-2
51,800

FORMER PIT

MW-1
130,000

MW-4
93,200

MW-3
85,500

ROCK QUEEN
INJ. WELL #1

RESULTS IN mg/L



SCALE: 150'

DATE:	10/11/2010
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FILE:	C:\GEOLOG\3134\10-11-2010 SWD PLANT #1

FIGURE NO. 11

CHAVES COUNTY, NEW MEXICO

CELEIRO ENERGY

ROCK QUEEN UNIT SWD PLANT #1
CHLORIDE CONCENTRATION MAP
SAMPLED ON 10/11/2010

TETRA TECH, INC.
MIDLAND, TEXAS

MW-6
3,010

MW-2
66,600

FORMER PIT

RW-1
NS
MW-1
132,000

MW-4
93,200

ROCK QUEEN
INJ. WELL #1

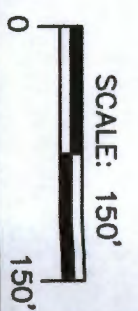
MW-3
85,200

MW-7
35,700



RESULTS IN mg/L
NS - NOT SAMPLED

MW-5
32,400



DATE: 1/18/11
DWN. BY: IM
FILE: C:\GOLDEN\3134\ R & Q UNIT SWD PLANT 1

FIGURE NO. 12

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY

ROCK QUEEN UNIT SWD PLANT #1

CHLORIDE CONCENTRATION MAP

SAMPLED ON 1/18/11

TETRA TECH, INC.

MIDLAND, TEXAS

MW-6
1,320

MW-2
99,700

FORMER PIT

RW-1
NS

MW-1
174,000

MW-4
102,000

ROCK QUEEN
INJ. WELL #1

MW-3
118,000

MW-7
61,500

MW-5
20,000

RESULTS IN mg/L
NS - NOT SAMPLED

SCALE: 150'



FIGURE NO. 13

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY

ROCK QUEEN UNIT SWD PLANT #1

CHLORIDE CONCENTRATION MAP

SAMPLED ON 04/14/2011

TETRA TECH, INC.

MIDLAND, TEXAS

DATE:
4/14/2011
DWN. BY:
JM
FILE:
C:\CELERO\3134\
R Q UNIT SWD PLANT 1

TABLES

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

Monitor Well	Date Gauged	Date Well Installation	TOC Elevation (ft)	Depth of Well (bgs in ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-1	05/24/07	05/24/07	4,421.40	148.00	136.57	4,284.83
	02/05/08				136.08	4,285.32
	11/24/09				136.35	4,285.05
	07/13/10				136.49	4,284.91
	10/11/10				136.57	4,284.83
MW-2	01/17/11	11/18/09	4,423.57	150.00	136.60	4,284.80
	04/12/11				136.74	4,284.66
	11/24/09				137.84	4,285.73
	07/13/10				138.05	4,285.52
	10/11/10				138.18	4,285.39
MW-3	01/17/11	11/18/09	4,421.79	150.00	138.14	4,285.43
	04/12/11				138.23	4,285.34
	11/24/09				137.01	4,284.78
	07/13/10				137.07	4,284.72
	10/11/10				137.19	4,284.60
MW-4	01/17/11	11/18/09	4,421.49	150.00	136.78	4,285.01
	04/12/11				136.75	4,285.04
	11/24/09				137.30	4,283.96
	07/13/10				137.64	4,283.62
	10/11/10				137.72	4,283.54
MW-5	01/17/11	11/22/10	4,420.25	152.40	137.75	4,283.51
	04/12/11				137.89	4,283.37
	11/17/11				138.76	4,281.49
	04/12/11				138.81	4,281.44
	01/17/11				137.62	4,285.95
MW-6	04/12/11	11/22/10	4,423.57	149.70	137.81	4,285.76
MW-7	01/17/11	11/19/10	4,423.52	159.02	139.76	4,283.76
RW-1	04/12/11	12/12/10	4,420.69	153.03	139.79	4,283.73
	01/17/11				134.97	4,285.72
	04/12/11				135.35	4,285.34

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Saltwater Injection Plant #1
Chaves County, New Mexico

Monitor Well	Date Sampled	Dissolved Calcium (mg/L)	Dissolved Magnesium (mg/L)	Dissolved Sodium (mg/L)	Dissolved Potassium (mg/L)	Hydroxide Alkalinity (mg/L)	Carbonate Alkalinity (mg/L)	Bicarbonate Alkalinity (mg/L)	Total Alkalinity (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Hardness (mg/L)	pH
MW-1	05/24/07	3,040	4,620	79,100	1950	<1.00	<1.00	154	154	1,800	154,000	231,100	26,600	6.45
	11/24/09	2,060	3,630	70,000	1840	<1.00	<1.00	127	127	1,600	139,000	220,000	20,100	5.15
	07/13/10	NA	NA	NA	NA	NA	NA	NA	NA	1,530	155,000	225,000	NA	NA
	10/11/10	NA	NA	NA	NA	NA	NA	NA	NA	1,500	130,000	235,000	NA	NA
	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	1,940	132,000	234,000	NA	NA
MW-2	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	1,830	174,000	237,000	NA	NA
	11/24/09	1,010	633	10,800	270	<1.00	<1.00	127	127	413	19,900	146,000	5,130	6.97
	07/13/10	NA	NA	NA	NA	NA	NA	NA	NA	652	43,200	72,700	NA	NA
	10/11/10	NA	NA	NA	NA	NA	NA	NA	NA	945	51,800	235,000	NA	NA
	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	1,640	66,600	133,000	NA	NA
MW-3	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	1,820	99,700	159,000	NA	NA
	11/24/09	6,030	2,150	29,900	323	<1.00	<1.00	92	92	908	59,500	108,000	23,900	6.02
	07/13/10	NA	NA	NA	NA	NA	NA	NA	NA	931	73,200	150,000	NA	NA
	10/11/10	NA	NA	NA	NA	NA	NA	NA	NA	934	85,500	167,000	NA	NA
	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	1,230	85,200	154,000	NA	NA
MW-4	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	1,250	118,000	188,000	NA	NA
	11/24/09	791	253	4,880	76.7	<1.00	<1.00	118	118	286	9,360	22,600	3,020	7.35
	07/13/10	NA	NA	NA	NA	NA	NA	NA	NA	1,540	85,800	159,000	NA	NA
	10/11/10	NA	NA	NA	NA	NA	NA	NA	NA	1,640	93,200	175,000	NA	NA
	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	2,360	93,200	173,000	NA	NA
MW-5	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	1,950	102,000	159,000	NA	NA
	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	822	32,400	69,700	NA	NA
	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	1,070	20,000	39,400	NA	NA
	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	<250	3,010	16,500	NA	NA
	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	188	1,320	2,100	NA	NA
MW-7	01/18/11	NA	NA	NA	NA	NA	NA	NA	NA	478	35,700	75,700	NA	NA
	04/14/11	NA	NA	NA	NA	NA	NA	NA	NA	657	61,500	91,000	NA	NA
RW-1	01/18/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/14/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not sampled

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Saltwater Injection Plant #1
Chaves County, New Mexico

Monitor Well	Date Sampled	Benzene in (mg/L)	Toluene in (mg/L)	Ethyl- Benzene (mg/L)	Xylene in (mg/L)	Total BTEX (mg/L)
MW-1	11/24/09	0.0016	<0.001	<0.001	<0.001	0.0016
	07/13/10	0.0031	<0.001	<0.001	<0.001	0.0031
	10/11/10	0.0038	<0.001	<0.001	<0.001	0.0038
	01/18/11	0.0116	0.0059	<0.001	<0.001	0.0175
	04/14/11	0.0088	0.0055	<0.001	<0.001	0.0143
MW-2	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	0.0017	<0.001	<0.001	<0.001	<0.001
	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	0.0076	<0.001	<0.001	<0.001	0.0076
MW-3	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	0.0059	<0.001	<0.001	<0.001	0.0059
MW-4	11/24/09	<0.001	<0.001	<0.001	<0.001	<0.001
	07/13/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	0.0015	<0.001	<0.001	<0.001	0.0015
	01/18/11	0.0095	<0.001	<0.001	<0.001	0.0095
	04/14/11	0.0064	<0.001	<0.001	<0.001	0.0064
MW-5	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-6	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
MW-7	01/18/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
RW-1	01/18/11	NS	NS	NS	NS	NS
	04/14/11	NS	NS	NS	NS	NS

NS - Not sampled

APPENDIX A BORING LOGS

SAMPLE LOG

Boring/Well **MW-1**
GPS **N33.166683° W103.798806°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen SWD Plant #1**
Site Location **Chaves County, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **198**
Date Installed: **05/24/07**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	--	Buff limestone with chert intermixed with tan sand
5-10	--	Buff limestone with chert intermixed with tan sand
10-15	--	Buff to tan sandy limestone with chert
15-20	--	Tan calcareous fine grain sand
23-25	--	Tan calcareous fine grain sand
28-30	--	Tan well sorted calcareous sand
33-35	--	Tan well sorted calcareous sand
38-40	--	Tan well sorted calcareous sand
43-45	--	Tan well sorted calcareous sand
48-50	--	Tan well sorted calcareous sand
53-55	--	Tan fine grain sand
58-60	--	Tan fine grain sand
63-65	--	Tan fine grain sand
68-70	--	Tan fine grain sand
73-75	--	Tan fine grain sand
78-80	--	Tan fine grain sand
83-85	--	Tan fine grain sand
88-90	--	Tan fine grain sand
98-100	--	Tan fine grain sand
108-110	--	Tan fine grain sand
118-120	--	Tan fine grain sand
128-130	--	Tan fine grain sand
138-140	--	Tan fine grain sand

SAMPLE LOG

Boring/Well **MW-1**
GPS **N33.166683° W103.798806°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen SWD Plant #1**
Site Location **Chaves County, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **198**
Date Installed: **05/24/07**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
148-150	--	Red fine grain sand
158-160	--	Tan fine grain sand
168-170	--	Dark brown clayey sand
178-180	--	Light red sandy clay
188-190	--	Red clayey sand
198	--	Red sandy clay

Total Depth: 198' Groundwater at 133 feet piping installed to 145 feet

SAMPLE LOG

Boring/Well **MW-2**
GPS **N33.167611° W103.799578°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen SWD Plant #1**
Site Location **Chaves County, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150**
Date Installed: **11/18/09**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	--	Buff hard limestone with chert intermixed
5-10	--	Buff hard limestone
10-15	--	Buff hard limestone
15-20	--	Buff hard limestone with chert intermixed
23-25	--	Tan well sorted fine grain calcareous sand
28-30	--	Tan well sorted fine grain calcareous sand
33-35	--	Tan well sorted fine grain calcareous sand
38-40	--	Tan well sorted fine grain calcareous sand
43-45	--	Tan well sorted fine grain calcareous sand
48-50	--	Tan well sorted fine grain calcareous sand
53-55	--	Tan well sorted fine grain calcareous sand
58-60	--	Tan well sorted fine grain sand
63-65	--	Tan well sorted fine grain sand
68-70	--	Tan well sorted fine grain sand
73-75	--	Tan well sorted fine grain sand
78-80	--	Tan well sorted fine grain sand (Mud up)
83-85	--	Tan well sorted fine grain sand
88-90	--	Tan well sorted fine grain sand
98-100	--	Tan well sorted fine grain sand
108-110	--	Tan well sorted fine grain sand
118-120	--	Tan well sorted fine grain sand
128-130	--	Tan well sorted fine grain sand
138-140	--	Tan well sorted fine grain sand

SAMPLE LOG

Boring/Well **MW-2**
GPS **N33.167611° W103.799578°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen SWD Plant #1**
Site Location **Chaves County, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150**
Date Installed: **11/18/09**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
148-150	--	Red/brown Clay (Red bed)

Total Depth: 150' Groundwater at 137 feet below ground surface

SAMPLE LOG

Boring/Well **MW-3**
GPS **N33.166881° W103.797775°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen SWD Plant #1**
Site Location **Chaves County, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150**
Date Installed: **11/18/09**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	--	Buff hard limestone with chert intermixed
5-10	--	Buff hard chert with some limestone intermixed
10-15	--	Buff hard limestone with chert intermixed
15-20	--	Hard buff limestone
23-25	--	Tan well sorted fine grain calcareous sand
28-30	--	Tan well sorted fine grain calcareous sand
33-35	--	Tan well sorted fine grain calcareous sand
38-40	--	Tan well sorted fine grain calcareous sand
43-45	--	Tan well sorted fine grain calcareous sand
48-50	--	Tan well sorted fine grain calcareous sand
53-55	--	Tan well sorted fine grain calcareous sand
58-60	--	Tan well sorted fine grain sand
63-65	--	Tan well sorted fine grain sand
68-70	--	Tan well sorted fine grain sand
73-75	--	Tan well sorted fine grain sand
78-80	--	Tan well sorted fine grain sand (Mud up)
83-85	--	Tan well sorted fine grain sand
88-90	--	Tan well sorted fine grain sand
98-100	--	Tan well sorted fine grain sand
108-110	--	Tan well sorted fine grain sand
118-120	--	Tan well sorted fine grain sand
128-130	--	Tan well sorted fine grain sand
138-140	--	Tan well sorted fine grain sand

SAMPLE LOG

Boring/Well **MW-3**
GPS **N33.166881° W103.797775°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen SWD Plant #1**
Site Location **Chaves County, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150**
Date Installed: **11/18/09**

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
143-145	--	Red/brown Clay (Red bed)
148-150	--	Red/brown Clay (Red bed)

Total Depth: 150' Groundwater at 137 feet below ground surface

SAMPLE LOG

Boring/Well: MW-4
GPS N33.166061° W103.798919°
Project Number 115-6403134A
Client Celero Energy II, LP
Site Name Rock Queen SWD Plant #1
Site Location Chaves County, New Mexico
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth 150
Date Installed: 11/19/09

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	--	Buff hard limestone with chert intermixed
5-10	--	Buff hard limestone with chert intermixed
10-15	--	Buff hard limestone with chert intermixed
15-20	--	Hard buff limestone
23-25	--	Tan well sorted fine grain calcareous sand
28-30	--	Tan well sorted fine grain calcareous sand
33-35	--	Tan well sorted fine grain calcareous sand
38-40	--	Tan well sorted fine grain calcareous sand
43-45	--	Tan well sorted fine grain calcareous sand
48-50	--	Tan well sorted fine grain calcareous sand
53-55	--	Tan well sorted fine grain calcareous sand
58-60	--	Tan well sorted fine grain sand
63-65	--	Tan well sorted fine grain sand
68-70	--	Tan well sorted fine grain sand
73-75	--	Tan well sorted fine grain sand
78-80	--	Tan well sorted fine grain sand (Mud up)
83-85	--	Tan well sorted fine grain sand
88-90	--	Tan well sorted fine grain sand
98-100	--	Tan well sorted fine grain sand
108-110	--	Tan well sorted fine grain sand
118-120	--	Tan well sorted fine grain sand
128-130	--	Tan well sorted fine grain sand
138-140	--	Tan well sorted fine grain sand
143-145	--	Red/brown Clay (Red bed)
148-150	--	Red/brown Clay (Red bed)

Total Depth: 150' Groundwater at 137 feet below ground surface

SAMPLE LOG

Boring/Well **MW-5**
GPS **N33.16536° W103.79881°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150'**
Date Installed **11/22/10**

Depth (Ft)	OVM	Sample Description
5-6'	--	Caliche and 10% Chert
10-11'	--	Caliche and 10% Chert
15-16'	--	Caliche and 25% Chert
20-21'	--	Buff Fine Grain Sand with 45% Caliche
25-26'	--	Buff Fine Grain Sand with 30% Caliche
30-31'	--	Buff Fine Grain Sand with 15% Caliche
35-36'	--	Buff Fine Grain Sand with 10% Caliche
40-41'	--	Buff Fine Grain Sand with 5% Caliche
45-46'	--	Tan Fine Grain Well Sorted Sand
50-51'	--	Tan Fine Grain Well Sorted Sand
55-56'	--	Tan Fine Grain Well Sorted Sand
60-61'	--	Tan 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 45% Subangular Gravel
125-126'	--	Light Brown Fine Grain Well Sorted Sand with 40% Subangular Gravel
130-131'	--	Light Brown Fine Grain Well Sorted Sand with 20% Subangular Gravel
135-136'	--	Light Brown Fine Grain Well Sorted Sand with 10% Subangular Gravel

SAMPLE LOG

Boring/Well **MW-5**
GPS **N33.16536° W103.79881°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150'**
Date Installed **11/22/10**

140-141'	--	Light Brown Sand with Light Brown Buff Clay
145-146'	--	Light Brown Grey Sandy Clay
150'	--	Grey Buff Clay with Red Bed

Total Depth: 150' Ground water depth not encountered while drilling.

SAMPLE LOG

Boring/Well **MW-6**
GPS **N33.16840° W103.80038°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150'**
Date Installed **11/22/10**

Depth (Ft)	OVM	Sample Description
5-6'	--	Caliche
10-11'	--	Caliche and 10% Chert
15-16'	--	Caliche and 10% Chert
20-21'	--	Buff Fine Grain Sand with Caliche
25-26'	--	Buff Fine Grain Sand with 401% Caliche
30-31'	--	Buff Fine Grain Sand with 30% Caliche
35-36'	--	Buff Fine Grain Sand with 15% Caliche
40-41'	--	Buff Fine Grain Sand with 10% Caliche
45-46'	--	Light Brown Fine Grain Well Sorted Sand
50-51'	--	Light Brown Fine Grain Well Sorted Sand
55-56'	--	Light Brown Fine Grain Well Sorted Sand
60-61'	--	Light Brown Fine Grain Well Sorted Sand
65-66'	--	Light Brown Fine Grain Well Sorted Sand
70-71'	--	Light Brown Fine Grain Well Sorted Sand
75-76'	--	Light Brown Fine Grain Well Sorted Sand
80-81'	--	Light Brown Fine Grain Well Sorted Sand
85-86'	--	Light Brown Fine Grain Well Sorted Sand
90-91'	--	Light Brown Fine Grain Well Sorted Sand
95-96'	--	Light Brown Fine Grain Well Sorted Sand
100-101'	--	Light Brown Fine Grain Well Sorted Sand
105-106'	--	Light Brown Fine Grain Well Sorted Sand
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
125-126'	--	Light Brown Fine Grain Well Sorted Sand with 5% Subangular Gravel

SAMPLE LOG

Boring/Well **MW-6**
GPS **N33.16840° W103.80038°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150'**
Date Installed **11/22/10**

Depth (Ft)	OVM	Sample Description
130-131'	--	Light Brown Fine Grain Well Sorted Sand with 5% Subangular Gravel
135-136'	--	Light Brown Fine Grain Well Sorted Sand with 10% Grey Buff Clay
140-141'	--	Light Brown Fine Grain Well Sorted Sand with 25% Grey Buff Clay
145-146'	--	Grey Buff Clay with 10% Red Bed
150'	--	Grey Buff Clay with 20% Red Bed

Total Depth: 150' Ground water depth not encountered while drilling.

SAMPLE LOG

Boring/Well **MW-7**
GPS **N33.16710° W103.79710°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **155'**
Date Installed **11/19/10**

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

SAMPLE LOG

Boring/Well **MW-7**
GPS **N33.16710° W103.79710°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **155'**
Date Installed **11/19/10**

Depth (Ft)	OVM	Sample Description
130-131'	--	Light Brown Fine Grain Well Sorted Sand
135-136'	--	Light Brown Fine Grain Well Sorted Sand
140-141'	--	Light Brown Fine Grain Well Sorted Sand
145-146'	--	Light Brown Sandy Clay with Subangular Gravel
150-151'	--	Light Brown Sandy Clay with Reddish Brown Clay
155'	--	Light Brown Sandy Clay with Reddish Brown Clay

Total Depth: 155' Ground water depth not encountered while drilling.

SAMPLE LOG

Boring/Well **RW-1**
GPS **N33.166708° W103.798764°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150'**
Date Installed **12/12/10**

Depth (Ft)	OVM	Sample Description
5-6'	--	Buff hard limestone with chert to 8 feet
10-11'	--	Hard buff limestone
15-16'	--	Hard buff limestone to 19 feet
20-21'	--	Tan well sorted fine grain calcareous sand
25-26'	--	Tan well sorted fine grain calcareous sand
30-31'	--	Tan well sorted fine grain calcareous sand
35-36'	--	Tan well sorted fine grain calcareous sand
40-41'	--	Tan well sorted fine grain calcareous sand
45-46'	--	Tan well sorted fine grain calcareous sand
50-51'	--	Tan well sorted fine grain calcareous sand
55-56'	--	Tan well sorted fine grain sand
60-61'	--	Tan well sorted fine grain sand
65-66'	--	Tan well sorted fine grain sand
70-71'	--	Tan well sorted fine grain sand
75-76'	--	Tan well sorted fine grain sand
80-81'	--	Tan well sorted fine grain sand
85-86'	--	Tan well sorted fine grain sand
90-91'	--	Tan well sorted fine grain sand
95-96'	--	Tan well sorted fine grain sand
100-101'	--	Tan well sorted fine grain sand
105-106'	--	Tan well sorted fine grain sand
110-111'	--	Tan well sorted fine grain sand
115-116'	--	Tan well sorted fine grain sand
120-121'	--	Tan well sorted fine grain sand
125-126'	--	Tan well sorted fine grain sand
130-131'	--	Tan well sorted fine grain sand
135-136'	--	Tan well sorted fine grain sand

SAMPLE LOG

Boring/Well **RW-1**
GPS **N33.166708° W103.798764°**
Project Number **115-6403134A**
Client **Celero Energy II, LP**
Site Name **Rock Queen Unit SWD Plant #1**
Site Location **Chaves, New Mexico**
Letter D, Section 26, Township 13 South, Range 31 East
Total Depth **150'**
Date Installed **12/12/10**

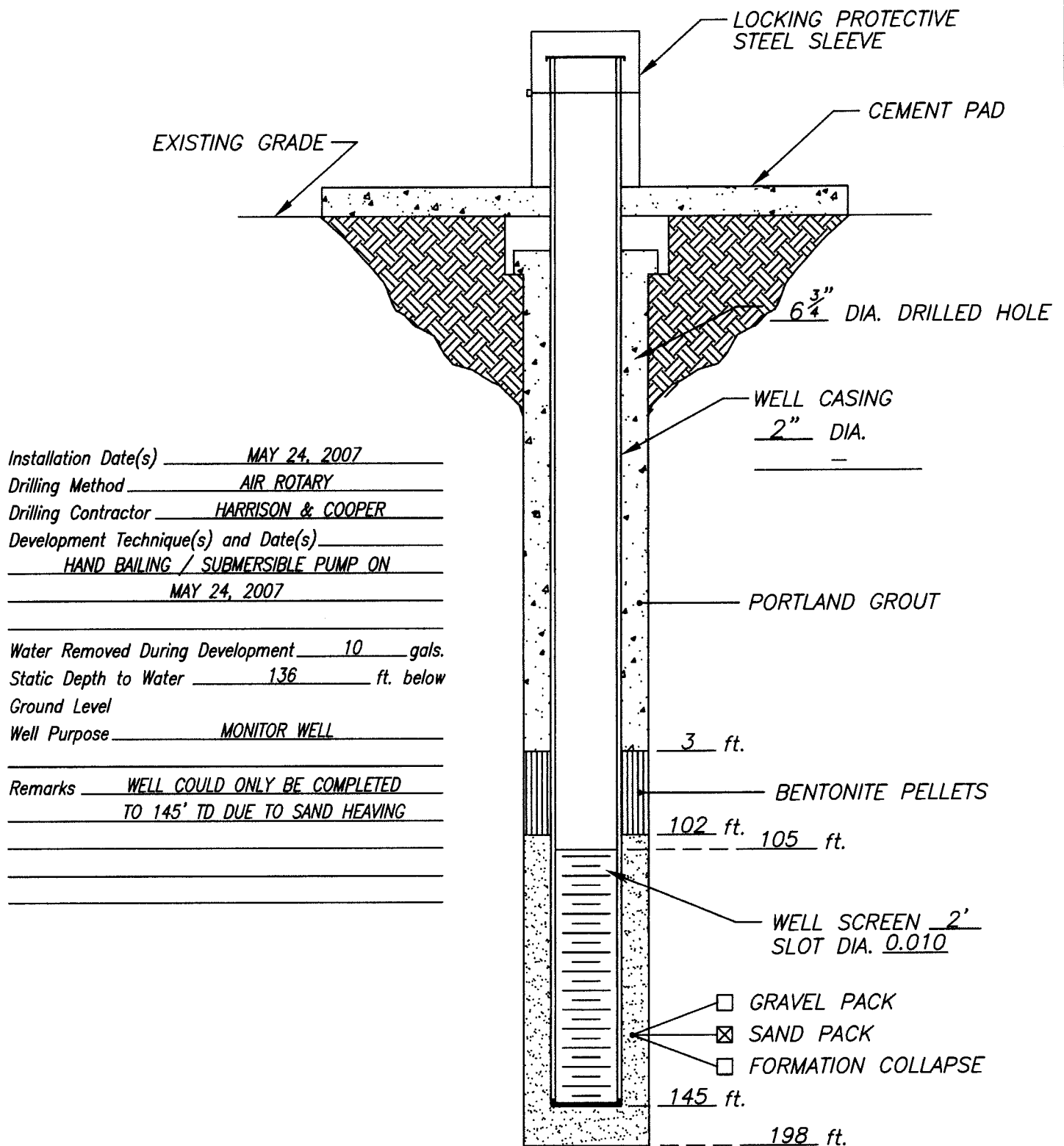
Depth (Ft)	OVM	Sample Description
140-141'	--	Tan well sorted fine grain sand
145-146'	--	Tan clay
150'	--	Tan clay

Total Depth: 150' Ground water depth not encountered while drilling.

APPENDIX B

MONITOR WELL INSTALLATION DIAGRAMS

WELL CONSTRUCTION LOG



DATE: 5/24/07

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LP

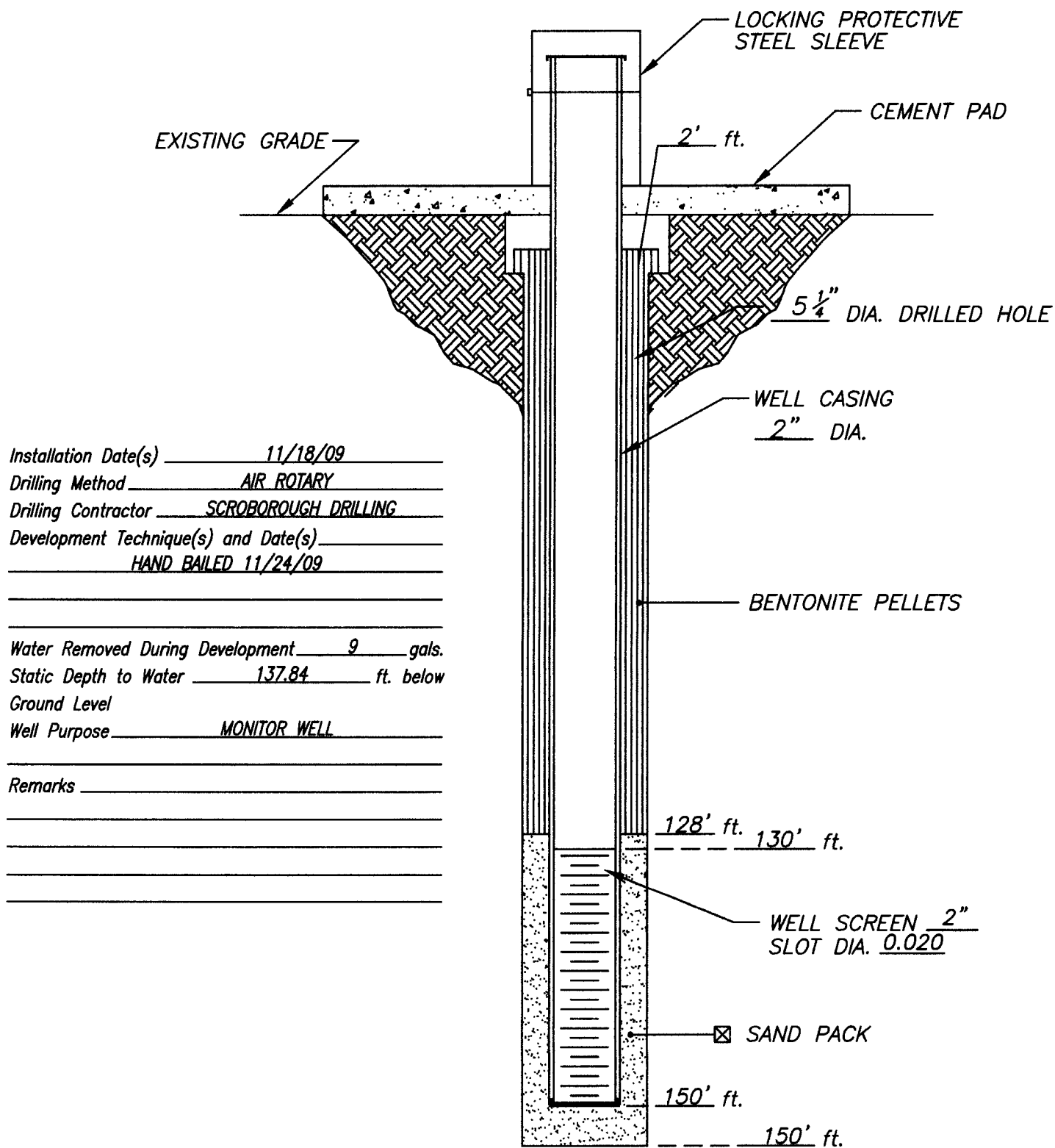
PROJECT: ROCK QUEEN INJ. PLANT #1 (115-6403134)

LOCATION: CHAVES COUNTY, NM

WELL NO.

MW-1

WELL CONSTRUCTION LOG



DATE: 11/20/09

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY

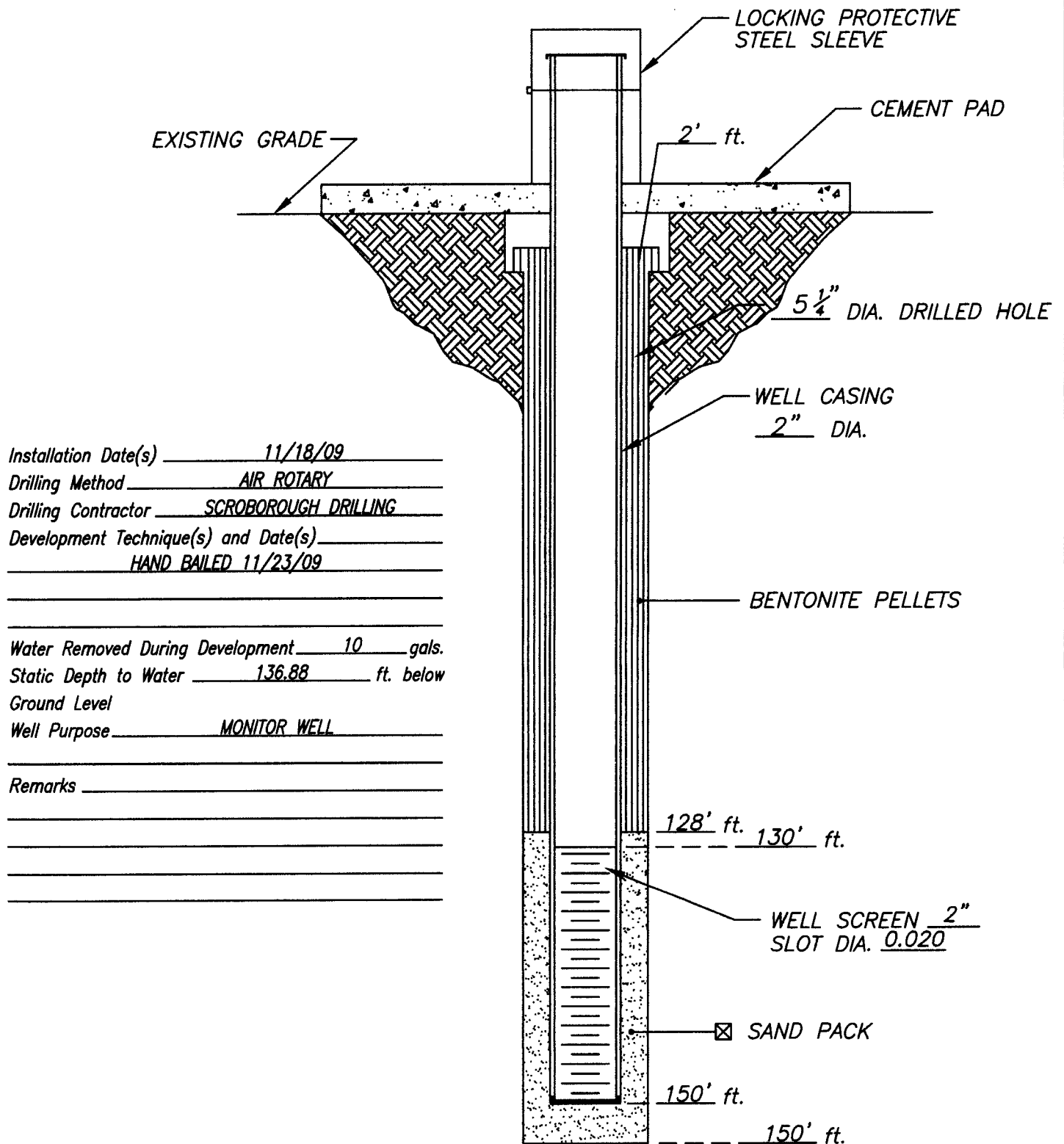
PROJECT: ROCK QUEEN INJ. PLANT #1 (115-6403134)

LOCATION: CHAVEZ COUNTY, NEW MEXICO

WELL NO.

MW-2

WELL CONSTRUCTION LOG



DATE: 11/20/09

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY

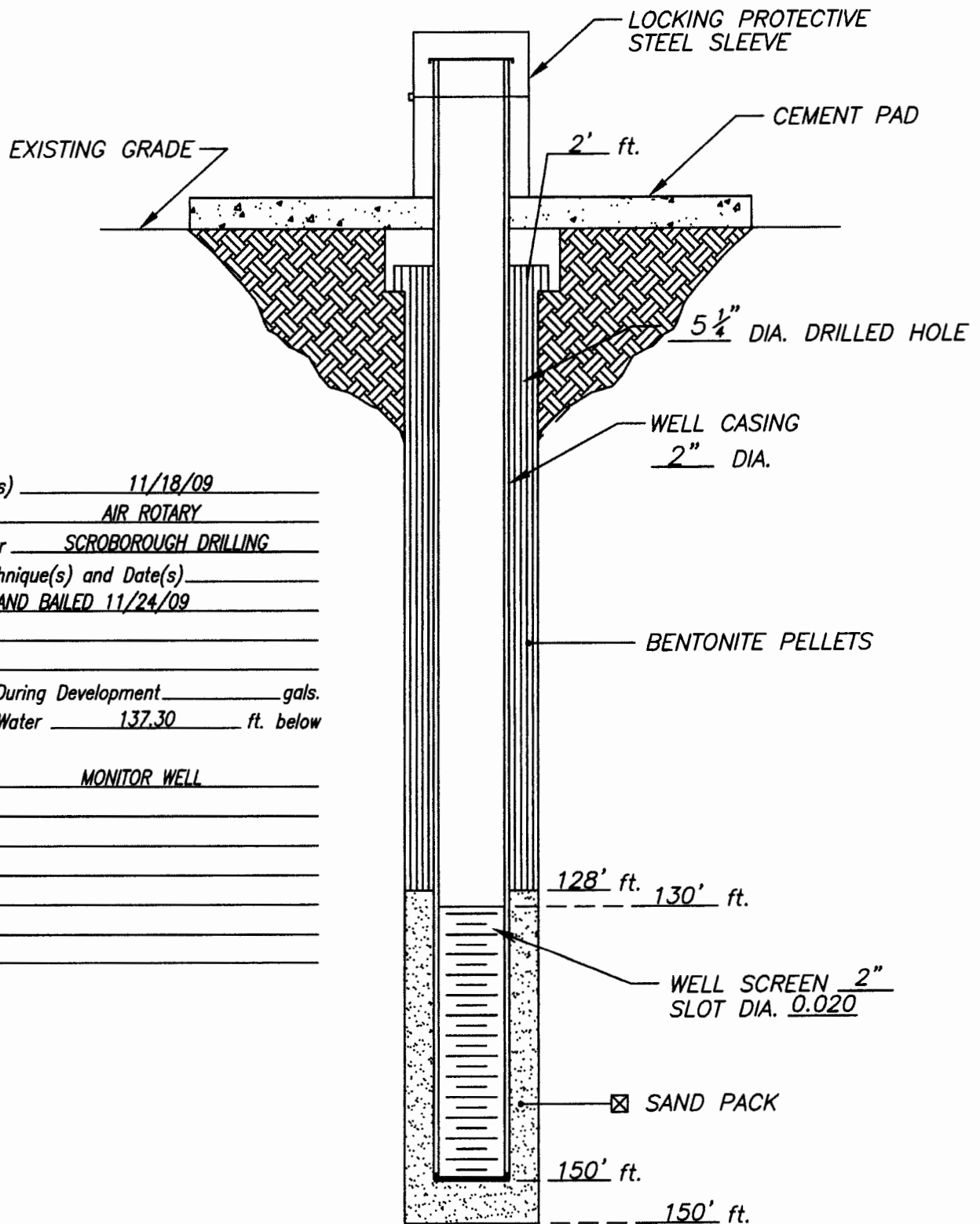
PROJECT: ROCK QUEEN INJ. PLANT #1 (115-6403134)

LOCATION: CHAVEZ COUNTY, NEW MEXICO

WELL NO.

MW-3

WELL CONSTRUCTION LOG



Installation Date(s) 11/18/09
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HAND BAILED 11/24/09

Water Removed During Development _____ gals.
 Static Depth to Water 137.30 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 11/20/09

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY

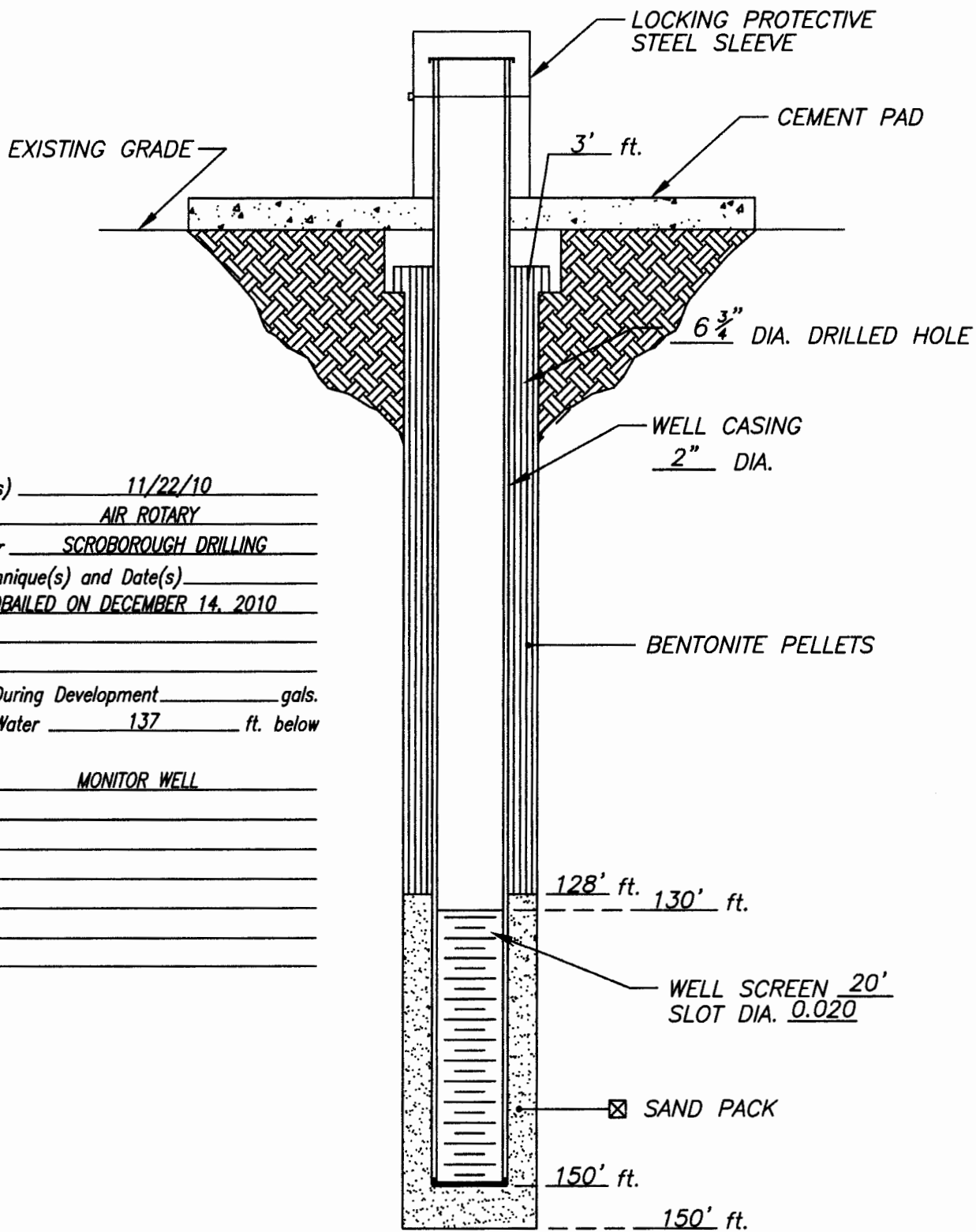
PROJECT: ROCK QUEEN INJ. PLANT #1 (115-6403134)

LOCATION: CHAVEZ COUNTY, NEW MEXICO

WELL NO.

MW-4

WELL CONSTRUCTION LOG



Installation Date(s) 11/22/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 137 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 11/18/10

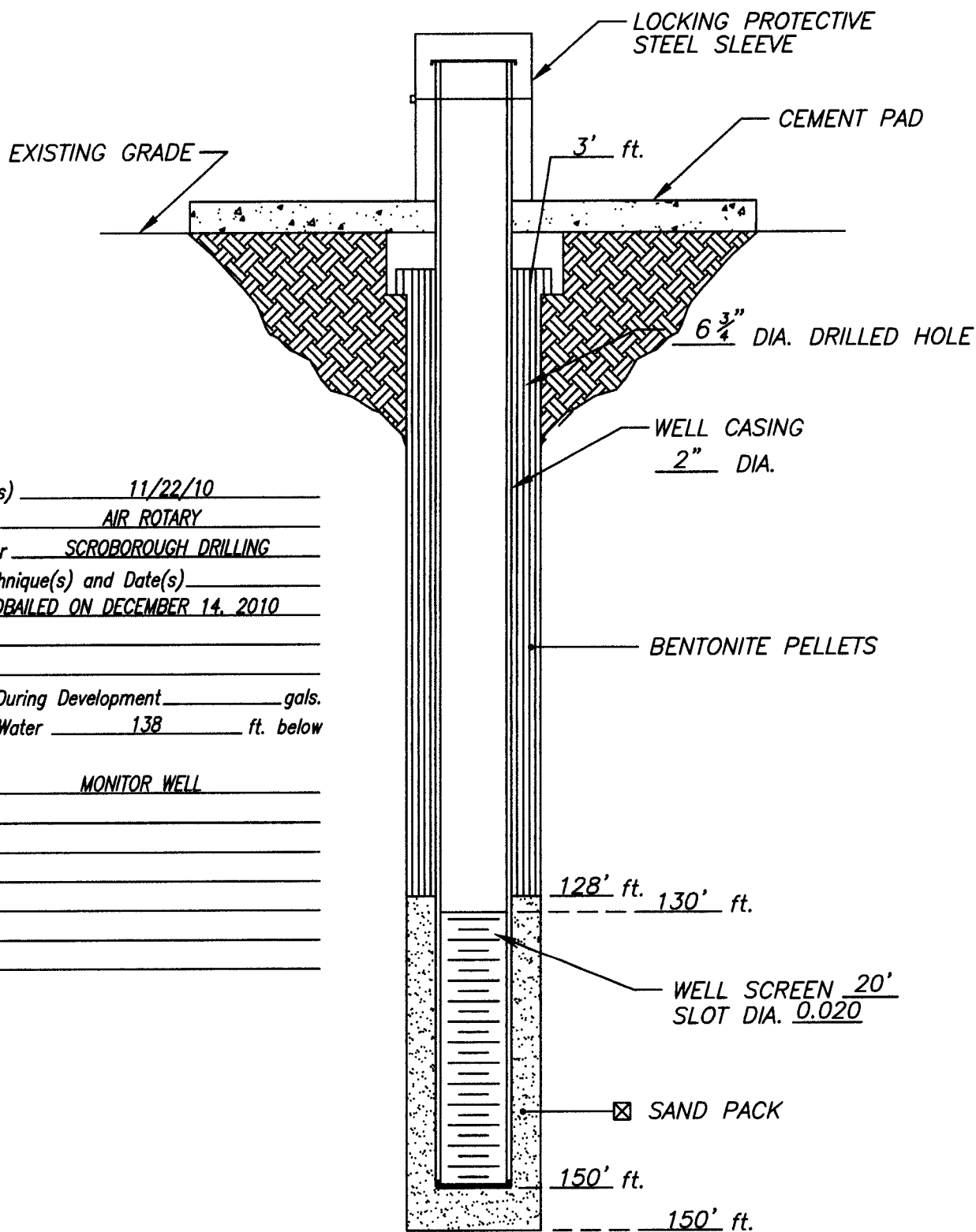
TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC
 PROJECT: ROCK QUEEN INJ. PLANT #1
 LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

MW-5

WELL CONSTRUCTION LOG



Installation Date(s) 11/22/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 138 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

DATE: 11/18/10

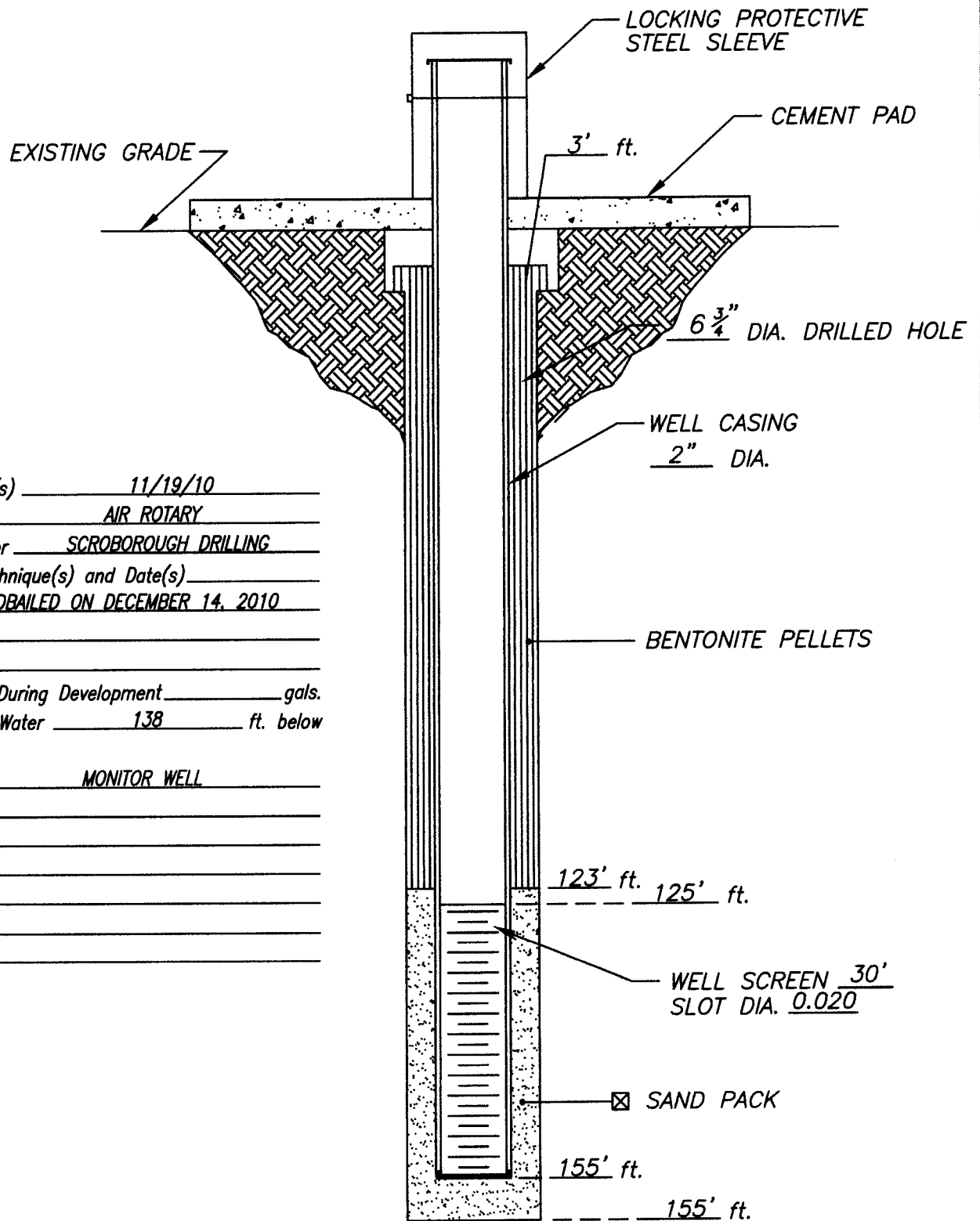
TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: *CELERO ENERGY II, LLC*
 PROJECT: *ROCK QUEEN INJ. PLANT #1*
 LOCATION: *CHAVES COUNTY, NEW MEXICO*

WELL NO.

MW-6

WELL CONSTRUCTION LOG



Installation Date(s) 11/19/10
 Drilling Method AIR ROTARY
 Drilling Contractor SCROBOROUGH DRILLING
 Development Technique(s) and Date(s) HANDBAILED ON DECEMBER 14, 2010

Water Removed During Development _____ gals.
 Static Depth to Water 138 ft. below
 Ground Level
 Well Purpose MONITOR WELL

Remarks _____

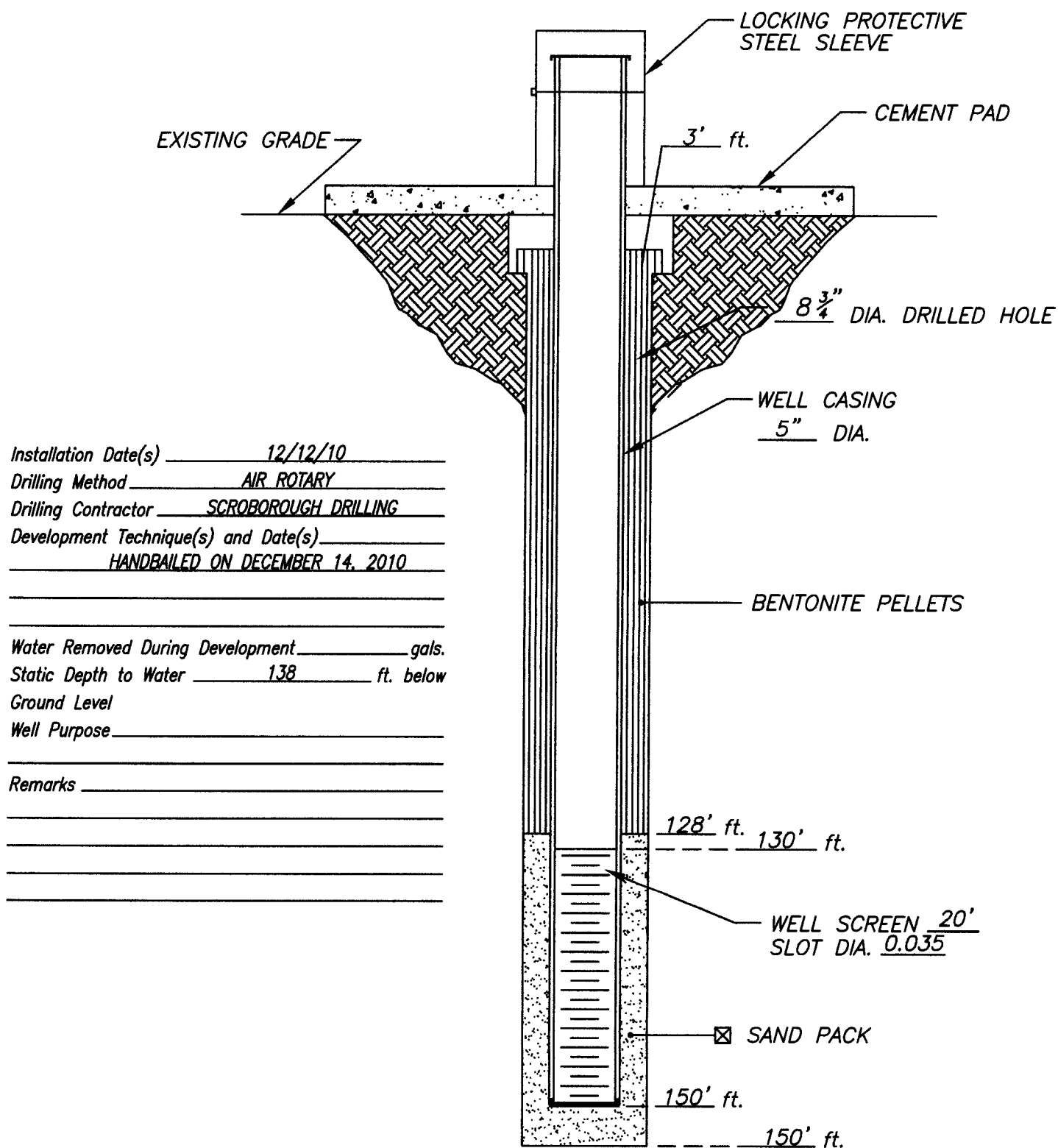
DATE: 11/19/10

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC
 PROJECT: ROCK QUEEN INJ. PLANT #1
 LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.
 MW-7

WELL CONSTRUCTION LOG



DATE: 12/13/10

TETRA TECH, INC.
MIDLAND, TEXAS

CLIENT: CELERO ENERGY II, LLC
PROJECT: ROCK QUEEN INJ. PLANT #1
LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

RW-1

APPENDIX C

LABORATORY ANALYSIS



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

Analytical and Quality Control Report

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

Report Date: June 14, 2007

Work Order: 7052924



Project Name: Rock Queen ESA
Project Number: 2972

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
125727	Water Station #1 MW-1	water	2007-05-24	17:25	2007-05-29

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

This report consists of a total of 18 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

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

Analytical Report

Sample: 125727 - Water Station #1 MW-1

Analysis: Alkalinity	Analytical Method: SM 2320B	Prep Method: N/A
QC Batch: 37938	Date Analyzed: 2007-06-07	Analyzed By: SM
Prep Batch: 32854	Sample Preparation: 2007-06-06	Prepared By: SM

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		154	mg/L as CaCo3	1	4.00
Total Alkalinity		154	mg/L as CaCo3	1	4.00

Sample: 125727 - Water Station #1 MW-1

Analysis: BTEX	Analytical Method: S 8021B	Prep Method: S 5030B
QC Batch: 37812	Date Analyzed: 2007-06-03	Analyzed By: AG
Prep Batch: 32729	Sample Preparation: 2007-06-02	Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00500	mg/L	5	0.00100
Toluene		<0.00500	mg/L	5	0.00100
Ethylbenzene		<0.00500	mg/L	5	0.00100
Xylene		<0.00500	mg/L	5	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.510	mg/L	5	0.500	102	23.9 - 107.4
4-Bromofluorobenzene (4-BFB)		0.449	mg/L	5	0.500	90	22.2 - 104.5

Sample: 125727 - Water Station #1 MW-1

Analysis: Ca, Total	Analytical Method: S 6010B	Prep Method: S 3010A
QC Batch: 38029	Date Analyzed: 2007-06-11	Analyzed By: TP
Prep Batch: 32755	Sample Preparation: 2007-06-04	Prepared By: TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Calcium		3040	mg/L	100	1.00

Sample: 125727 - Water Station #1 MW-1

Analysis: Hardness	Analytical Method: S 6010B	Prep Method: N/A
QC Batch: 38029	Date Analyzed: 2007-06-11	Analyzed By: TP
Prep Batch: 32755	Sample Preparation: 2007-06-04	Prepared By: TS

Parameter	Flag	RL Result	Units	Dilution	RL
Hardness (by ICP)		26600	mg eq CaCO3/L	1	0.00

Sample: 125727 - Water Station #1 MW-1

Analysis: Ion Chromatography Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 37610 Date Analyzed: 2007-05-29 Analyzed By: AR
Prep Batch: 32592 Sample Preparation: Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		154000	mg/L	5000	0.500
Sulfate		1800	mg/L	50	0.500

Sample: 125727 - Water Station #1 MW-1

Analysis: K, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 Sample Preparation: 2007-06-04 Prepared By: TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Potassium		1950	mg/L	100	1.00

Sample: 125727 - Water Station #1 MW-1

Analysis: Mg, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 Sample Preparation: 2007-06-04 Prepared By: TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Magnesium		4620	mg/L	100	1.00

Sample: 125727 - Water Station #1 MW-1

Analysis: Na, Total Analytical Method: S 6010B Prep Method: S 3010A
QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 Sample Preparation: 2007-06-04 Prepared By: TS

Parameter	Flag	RL Result	Units	Dilution	RL
Total Sodium		79100	mg/L	1000	1.00

Sample: 125727 - Water Station #1 MW-1

Analysis: pH	Analytical Method: SM 4500-H+	Prep Method: N/A
QC Batch: 37604	Date Analyzed: 2007-05-29	Analyzed By: AR
Prep Batch: 32588	Sample Preparation:	Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
pH		6.45	s.u.	1	0.00

Sample: 125727 - Water Station #1 MW-1

Analysis: Salts, Dissolved	Analytical Method: S 6010B	Prep Method: S 3005A
QC Batch: 38129	Date Analyzed: 2007-06-13	Analyzed By: TP
Prep Batch: 32980	Sample Preparation: 2007-06-12	Prepared By: TS

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		2790	mg/L	100	0.500
Dissolved Magnesium		4530	mg/L	100	0.500
Dissolved Potassium		2210	mg/L	100	0.500
Dissolved Sodium		88400	mg/L	1000	0.500

Sample: 125727 - Water Station #1 MW-1

Analysis: TDS	Analytical Method: SM 2540C	Prep Method: N/A
QC Batch: 37709	Date Analyzed: 2007-05-31	Analyzed By: AR
Prep Batch: 32678	Sample Preparation:	Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		231100	mg/L	100	10.00

Sample: 125727 - Water Station #1 MW-1

Analysis: TPH DRO	Analytical Method: Mod. 8015B	Prep Method: N/A
QC Batch: 37730	Date Analyzed: 2007-05-31	Analyzed By: AG
Prep Batch: 32692	Sample Preparation: 2007-05-31	Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<5.00	mg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		11.3	mg/L	1	15.0	75	70 - 130

Sample: 125727 - Water Station #1 MW-1

Analysis: TPH GRO	Analytical Method: S 8015B	Prep Method: S 5030B
QC Batch: 37813	Date Analyzed: 2007-06-03	Analyzed By: AG
Prep Batch: 32729	Sample Preparation: 2007-06-02	Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<0.500	mg/L	5	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.435	mg/L	5	0.500	87	70 - 130
4-Bromofluorobenzene (4-BFB)		0.390	mg/L	5	0.500	78	70 - 130

Method Blank (1) QC Batch: 37610

QC Batch: 37610	Date Analyzed: 2007-05-29	Analyzed By: AR
Prep Batch: 32592	QC Preparation: 2007-05-29	Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		2.14	mg/L	0.5
Sulfate		<0.0485	mg/L	0.5

Method Blank (1) QC Batch: 37709

QC Batch: 37709	Date Analyzed: 2007-05-31	Analyzed By: AR
Prep Batch: 32678	QC Preparation: 2007-05-31	Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		16.00	mg/L	10

Method Blank (1) QC Batch: 37730

QC Batch: 37730	Date Analyzed: 2007-05-31	Analyzed By: AG
Prep Batch: 32692	QC Preparation: 2007-05-31	Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
DRO		1.13	mg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		13.0	mg/L	1	15.0	87	70 - 130

Method Blank (1) QC Batch: 37812

QC Batch: 37812
Prep Batch: 32729

Date Analyzed: 2007-06-03
QC Preparation: 2007-06-02

Analyzed By: AG
Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.101	mg/L	1	0.100	101	60.1 - 116.8
4-Bromofluorobenzene (4-BFB)		0.0887	mg/L	1	0.100	89	54.4 - 112.5

Method Blank (1) QC Batch: 37813

QC Batch: 37813
Prep Batch: 32729

Date Analyzed: 2007-06-03
QC Preparation: 2007-06-02

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
GRO		0.0689	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0875	mg/L	1	0.100	88	70 - 130
4-Bromofluorobenzene (4-BFB)		0.0776	mg/L	1	0.100	78	70 - 130

Method Blank (1) QC Batch: 37938

QC Batch: 37938
Prep Batch: 32854

Date Analyzed: 2007-06-07
QC Preparation: 2007-06-06

Analyzed By: SM
Prepared By: JS

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

Method Blank (1) QC Batch: 38029

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Calcium		<0.517	mg/L	1

Method Blank (1) QC Batch: 38029

QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 QC Preparation: 2007-06-04 Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Potassium		<0.866	mg/L	1

Method Blank (1) QC Batch: 38029

QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 QC Preparation: 2007-06-04 Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Magnesium		<0.203	mg/L	1

Method Blank (1) QC Batch: 38029

QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 QC Preparation: 2007-06-04 Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Total Sodium		<0.668	mg/L	1

Method Blank (1) QC Batch: 38129

QC Batch: 38129 Date Analyzed: 2007-06-13 Analyzed By: TP
Prep Batch: 32980 QC Preparation: 2007-06-12 Prepared By: TS

Parameter	Flag	MDL Result	Units	RL
Dissolved Calcium		<0.0290	mg/L	0.5
Dissolved Magnesium		<0.0740	mg/L	0.5
Dissolved Potassium		0.451	mg/L	0.5
Dissolved Sodium		<0.529	mg/L	0.5

Duplicates (1)

QC Batch: 37604 Date Analyzed: 2007-05-29 Analyzed By: AR
Prep Batch: 32588 QC Preparation: 2007-05-29 Prepared By: AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	6.46	6.45	s.u.	1	0	1.5

Duplicates (1)

QC Batch: 37709 Date Analyzed: 2007-05-31 Analyzed By: AR
Prep Batch: 32678 QC Preparation: 2007-05-31 Prepared By: AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	230000	231100	mg/L	100	0	20

Duplicates (1)

QC Batch: 37938 Date Analyzed: 2007-06-07 Analyzed By: SM
Prep Batch: 32854 QC Preparation: 2007-06-06 Prepared By: JS

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	206	208	mg/L as CaCo3	1	1	20
Total Alkalinity	206	208	mg/L as CaCo3	1	1	20

Laboratory Control Spike (LCS-1)

QC Batch: 37610 Date Analyzed: 2007-05-29 Analyzed By: AR
Prep Batch: 32592 QC Preparation: 2007-05-29 Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	12.8	mg/L	1	12.5	<0.0181	102	90 - 110
Sulfate	13.0	mg/L	1	12.5	<0.0485	104	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	12.6	mg/L	1	12.5	<0.0181	101	90 - 110	2	
Sulfate	13.0	mg/L	1	12.5	<0.0485	104	90 - 110	0	

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

Laboratory Control Spike (LCS-1)

QC Batch: 37730 Date Analyzed: 2007-05-31 Analyzed By: AG
Prep Batch: 32692 QC Preparation: 2007-05-31 Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	26.6	mg/L	1	25.0	<0.711	106	70 - 130

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
DRO	27.2	mg/L	1	25.0	<0.711	109	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
n-Triacontane	13.0	13.1	mg/L	1	15.0	86	87	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 37812
Prep Batch: 32729

Date Analyzed: 2007-06-03
QC Preparation: 2007-06-02

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.103	mg/L	1	0.100	<0.000200	103	76.4 - 120.5
Toluene	0.103	mg/L	1	0.100	<0.000200	103	79.2 - 117.8
Ethylbenzene	0.0997	mg/L	1	0.100	<0.000200	100	78.8 - 117.9
Xylene	0.299	mg/L	1	0.300	<0.000300	100	80 - 120.1

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	0.103	mg/L	1	0.100	<0.000200	103	76.4 - 120.5	0	20
Toluene	0.104	mg/L	1	0.100	<0.000200	104	79.2 - 117.8	1	20
Ethylbenzene	0.100	mg/L	1	0.100	<0.000200	100	78.8 - 117.9	0	20
Xylene	0.301	mg/L	1	0.300	<0.000300	100	80 - 120.1	1	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)	0.0939	0.0915	mg/L	1	0.100	94	92	59.5 - 117.8
4-Bromofluorobenzene (4-BFB)	0.0981	0.0978	mg/L	1	0.100	98	98	63.2 - 122.4

Laboratory Control Spike (LCS-1)

QC Batch: 37813
Prep Batch: 32729

Date Analyzed: 2007-06-03
QC Preparation: 2007-06-02

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	0.841	mg/L	1	1.00	<0.0590	84	70 - 130

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
GRO	0.793	mg/L	1	1.00	<0.0590	79	70 - 130	6	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)	0.105	0.114	mg/L	1	0.100	105	114	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0949	0.0887	mg/L	1	0.100	95	89	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Calcium	51.7	mg/L	1	50.0	<0.517	103	85 - 115

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 Calcium	52.1	mg/L	1	50.0	<0.517	104	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Potassium	51.5	mg/L	1	50.0	<0.866	103	85 - 115

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 Potassium	52.0	mg/L	1	50.0	<0.866	104	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Magnesium	50.7	mg/L	1	50.0	<0.203	101	85 - 115

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 Magnesium	51.0	mg/L	1	50.0	<0.203	102	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Sodium	51.3	mg/L	1	50.0	<0.668	103	87.3 - 124

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 Sodium	52.0	mg/L	1	50.0	<0.668	104	87.3 - 124	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: 38129
Prep Batch: 32980

Date Analyzed: 2007-06-13
QC Preparation: 2007-06-12

Analyzed By: TP
Prepared By: TS

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium	51.4	mg/L	1	50.0	<0.0290	103	79.1 - 121
Dissolved Magnesium	51.4	mg/L	1	50.0	<0.0740	103	80.2 - 120
Dissolved Potassium	51.2	mg/L	1	50.0	<0.307	102	78.8 - 114
Dissolved Sodium	52.1	mg/L	1	50.0	<0.529	104	79.4 - 123

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
Dissolved Calcium	51.6	mg/L	1	50.0	<0.0290	103	79.1 - 121	0	20
Dissolved Magnesium	51.5	mg/L	1	50.0	<0.0740	103	80.2 - 120	0	20
Dissolved Potassium	51.3	mg/L	1	50.0	<0.307	103	78.8 - 114	0	20
Dissolved Sodium	51.6	mg/L	1	50.0	<0.529	103	79.4 - 123	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: 125727

QC Batch: 37610
Prep Batch: 32592

Date Analyzed: 2007-05-29
QC Preparation: 2007-05-29

Analyzed By: AR
Prepared By: AR

continued ...

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
Chloride	177000	mg/L	50	625	179679	-427	90 - 110
Sulfate	2390	mg/L	50	625	1796.67	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	178000	mg/L	50	625	179679	-267	90 - 110	1	
Sulfate	2420	mg/L	50	625	1796.67	100	90 - 110	1	

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

Matrix Spike (MS-1) Spiked Sample: 126001

QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 QC Preparation: 2007-06-04 Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Calcium	65.9	mg/L	1	50.0	14.2	103	75 - 125

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
Total Calcium	65.1	mg/L	1	50.0	14.2	102	75 - 125	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: 126001

QC Batch: 38029 Date Analyzed: 2007-06-11 Analyzed By: TP
Prep Batch: 32755 QC Preparation: 2007-06-04 Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Potassium	55.9	mg/L	1	50.0	3.6	105	75 - 125

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
Total Potassium	54.9	mg/L	1	50.0	3.6	103	75 - 125	2	20

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

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

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

Matrix Spike (MS-1) Spiked Sample: 126001

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Magnesium	55.1	mg/L	1	50.0	3.55	103	75 - 125

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
Total Magnesium	54.0	mg/L	1	50.0	3.55	101	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 126001

QC Batch: 38029
Prep Batch: 32755

Date Analyzed: 2007-06-11
QC Preparation: 2007-06-04

Analyzed By: TP
Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Sodium	³ 769	mg/L	1	50.0	705	128	75 - 125

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
Total Sodium	766	mg/L	1	50.0	705	122	75 - 125	0	20

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

Matrix Spike (MS-1) Spiked Sample: 127171

QC Batch: 38129
Prep Batch: 32980

Date Analyzed: 2007-06-13
QC Preparation: 2007-06-12

Analyzed By: TP
Prepared By: TS

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium	142	mg/L	1	50.0	92.3	99	69 - 130
Dissolved Magnesium	98.1	mg/L	1	50.0	49	98	77.9 - 122
Dissolved Potassium	61.9	mg/L	1	50.0	10.7	102	76.8 - 117
Dissolved Sodium	⁴ 244	mg/L	1	50.0	180	128	84.2 - 120

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
Dissolved Calcium	144	mg/L	1	50.0	92.3	103	69 - 130	1	20
Dissolved Magnesium	99.9	mg/L	1	50.0	49	102	77.9 - 122	2	20

continued ...

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.

matrix spikes continued ...

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Potassium	62.7	mg/L	1	50.0	10.7	104	76.8 - 117	1	20
Dissolved Sodium	239	mg/L	1	50.0	180	118	84.2 - 120	2	20

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

Standard (ICV-1)

QC Batch: 37604

Date Analyzed: 2007-05-29

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.06	101	98 - 102	2007-05-29

Standard (CCV-1)

QC Batch: 37604

Date Analyzed: 2007-05-29

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.18	102	98 - 102	2007-05-29

Standard (ICV-1)

QC Batch: 37610

Date Analyzed: 2007-05-29

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.6	101	90 - 110	2007-05-29
Sulfate		mg/L	12.5	12.7	102	90 - 110	2007-05-29

Standard (CCV-1)

QC Batch: 37610

Date Analyzed: 2007-05-29

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	12.6	101	90 - 110	2007-05-29
Sulfate		mg/L	12.5	12.7	102	90 - 110	2007-05-29

Standard (ICV-1)

QC Batch: 37709

Date Analyzed: 2007-05-31

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	1047	105	90 - 110	2007-05-31

Standard (CCV-1)

QC Batch: 37709

Date Analyzed: 2007-05-31

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	960.0	96	90 - 110	2007-05-31

Standard (ICV-1)

QC Batch: 37730

Date Analyzed: 2007-05-31

Analyzed By: AG

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	277	111	85 - 115	2007-05-31

Standard (CCV-1)

QC Batch: 37730

Date Analyzed: 2007-05-31

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	278	111	85 - 115	2007-05-31

Standard (ICV-1)

QC Batch: 37812

Date Analyzed: 2007-06-03

Analyzed By: AG

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.104	104	85 - 115	2007-06-03
Toluene		mg/L	0.100	0.103	103	85 - 115	2007-06-03
Ethylbenzene		mg/L	0.100	0.102	102	85 - 115	2007-06-03
Xylene		mg/L	0.300	0.304	101	85 - 115	2007-06-03

Standard (CCV-1)

QC Batch: 37812

Date Analyzed: 2007-06-03

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	0.102	102	85 - 115	2007-06-03
Toluene		mg/L	0.100	0.102	102	85 - 115	2007-06-03
Ethylbenzene		mg/L	0.100	0.0996	100	85 - 115	2007-06-03
Xylene		mg/L	0.300	0.299	100	85 - 115	2007-06-03

Standard (ICV-1)

QC Batch: 37813

Date Analyzed: 2007-06-03

Analyzed By: AG

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.872	87	85 - 115	2007-06-03

Standard (CCV-1)

QC Batch: 37813

Date Analyzed: 2007-06-03

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.981	98	85 - 115	2007-06-03

Standard (ICV-1)

QC Batch: 37938

Date Analyzed: 2007-06-07

Analyzed By: SM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	244	98	90 - 110	2007-06-07

Standard (CCV-1)

QC Batch: 37938

Date Analyzed: 2007-06-07

Analyzed By: SM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	244	98	90 - 110	2007-06-07

Standard (ICV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	50.0	51.7	103	90 - 110	2007-06-11

Standard (ICV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Potassium		mg/L	50.0	51.6	103	90 - 110	2007-06-11

Standard (ICV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Magnesium		mg/L	50.0	51.6	103	90 - 110	2007-06-11

Standard (ICV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Sodium		mg/L	50.0	50.6	101	90 - 110	2007-06-11

Standard (CCV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	50.0	50.8	102	90 - 110	2007-06-11

Standard (CCV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Potassium		mg/L	50.0	49.0	98	90 - 110	2007-06-11

Standard (CCV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Magnesium		mg/L	50.0	50.1	100	90 - 110	2007-06-11

Standard (CCV-1)

QC Batch: 38029

Date Analyzed: 2007-06-11

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Sodium		mg/L	50.0	47.4	95	90 - 110	2007-06-11

Standard (ICV-1)

QC Batch: 38129

Date Analyzed: 2007-06-13

Analyzed By: TP

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	50.0	51.7	103	90 - 110	2007-06-13
Dissolved Magnesium		mg/L	50.0	52.0	104	90 - 110	2007-06-13
Dissolved Potassium		mg/L	50.0	51.5	103	90 - 110	2007-06-13
Dissolved Sodium		mg/L	50.0	50.4	101	90 - 110	2007-06-13

Standard (CCV-1)

QC Batch: 38129

Date Analyzed: 2007-06-13

Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	50.0	49.0	98	90 - 110	2007-06-13
Dissolved Magnesium		mg/L	50.0	50.2	100	90 - 110	2007-06-13
Dissolved Potassium		mg/L	50.0	49.6	99	90 - 110	2007-06-13
Dissolved Sodium		mg/L	50.0	51.8	104	90 - 110	2007-06-13



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Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: December 7, 2009

Work Order: 9112515



Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen
Project Number: 115-6403134A

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
215835	MW-1	water	2009-11-24	14:25	2009-11-25
215836	MW-2	water	2009-11-24	14:10	2009-11-25
215837	MW-3	water	2009-11-24	14:00	2009-11-25
215838	MW-4	water	2009-11-24	15:00	2009-11-25

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

This report consists of a total of 25 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



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

Standard Flags

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

Case Narrative

Samples for project Celero/Rock Queen were received by TraceAnalysis, Inc. on 2009-11-25 and assigned to work order 9112515. Samples for work order 9112515 were received intact without headspace and at a temperature of 3.2 deg. C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Alkalinity	SM 2320B	56132	2009-12-01 at 10:04	65677	2009-12-01 at 16:04
BTEX	S 8021B	56178	2009-12-02 at 10:28	65725	2009-12-02 at 10:28
BTEX	S 8021B	56235	2009-12-06 at 20:57	65798	2009-12-06 at 20:57
Ca, Dissolved	S 6010B	56137	2009-12-02 at 09:55	65745	2009-12-03 at 14:57
Chloride (IC)	E 300.0	56093	2009-11-30 at 12:22	65660	2009-12-01 at 08:59
Hardness	S 6010B	56137	2009-12-02 at 09:55	65745	2009-12-03 at 14:57
K, Dissolved	S 6010B	56137	2009-12-02 at 09:55	65745	2009-12-03 at 14:57
Mg, Dissolved	S 6010B	56137	2009-12-02 at 09:55	65745	2009-12-03 at 14:57
Na, Dissolved	S 6010B	56137	2009-12-02 at 09:55	65745	2009-12-03 at 14:57
pH	SM 4500-H+	56049	2009-11-25 at 11:09	65589	2009-11-25 at 12:09
SO4 (IC)	E 300.0	56093	2009-11-30 at 12:22	65660	2009-12-01 at 08:59
TDS	SM 2540C	56115	2009-12-01 at 10:13	65808	2009-12-07 at 14:46

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 9112515 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: December 7, 2009
115-6403134A

Work Order: 9112515
Celero/Rock Queen

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Chavez Co., NM

Analytical Report

Sample: 215835 - MW-1

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 65677
Prep Batch: 56132

Analytical Method: SM 2320B
Date Analyzed: 2009-12-01
Sample Preparation: 2009-12-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		97.0	mg/L as CaCo3	1	4.00
Total Alkalinity		97.0	mg/L as CaCo3	1	4.00

Sample: 215835 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 65798
Prep Batch: 56235

Analytical Method: S 8021B
Date Analyzed: 2009-12-06
Sample Preparation: 2009-12-06

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00160	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)		0.0736	mg/L	1	0.100	74	70.9 - 119.8
4-Bromofluorobenzene (4-BFB)	¹	0.0530	mg/L	1	0.100	53	68.1 - 118.8

Sample: 215835 - MW-1

Laboratory: Lubbock
Analysis: Cations
QC Batch: 65745
Prep Batch: 56137

Analytical Method: S 6010B
Date Analyzed: 2009-12-03
Sample Preparation: 2009-12-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		2060	mg/L	100	1.00

¹ Surrogate 4-BFB out due to matrix interference. Sample was reran on 12-06-2009 to confirm matrix interference results. *continued . . .*

Report Date: December 7, 2009
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Work Order: 9112515
Celero/Rock Queen

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sample 215835 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Potassium		1840	mg/L	100	1.00
Dissolved Magnesium		3630	mg/L	100	1.00
Dissolved Sodium		70000	mg/L	100	1.00

Sample: 215835 - MW-1

Laboratory: Midland			
Analysis: Chloride (IC)	Analytical Method: E 300.0	Prep Method: N/A	
QC Batch: 65660	Date Analyzed: 2009-12-01	Analyzed By: AR	
Prep Batch: 56093	Sample Preparation: 2009-11-30	Prepared By: AR	

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		139000	mg/L	5000	0.500

Sample: 215835 - MW-1

Laboratory: Lubbock			
Analysis: Hardness	Analytical Method: S 6010B	Prep Method: N/A	
QC Batch: 65745	Date Analyzed: 2009-12-03	Analyzed By: RR	
Prep Batch: 56137	Sample Preparation: 2009-12-02	Prepared By: KV	

Parameter	Flag	RL Result	Units	Dilution	RL
Hardness (by ICP)		20100	mg eq CaCO3/L	1	0.00

Sample: 215835 - MW-1

Laboratory: Midland			
Analysis: pH	Analytical Method: SM 4500-H+	Prep Method: N/A	
QC Batch: 65589	Date Analyzed: 2009-11-25	Analyzed By: AR	
Prep Batch: 56049	Sample Preparation: 2009-11-25	Prepared By: AR	

Parameter	Flag	RL Result	Units	Dilution	RL
pH		5.15	s.u.	1	0.00

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Sample: 215835 - MW-1

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2009-12-01	Analyzed By:	AR
QC Batch:	65660	Sample Preparation:	2009-11-30	Prepared By:	AR
Prep Batch:	56093				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1600	mg/L	50	0.500

Sample: 215835 - MW-1

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2009-12-07	Analyzed By:	AR
QC Batch:	65808	Sample Preparation:	2009-12-01	Prepared By:	AR
Prep Batch:	56115				

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		220000	mg/L	10	10.0

Sample: 215836 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2320B	Prep Method:	N/A
Analysis:	Alkalinity	Date Analyzed:	2009-12-01	Analyzed By:	AR
QC Batch:	65677	Sample Preparation:	2009-12-01	Prepared By:	AR
Prep Batch:	56132				

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		127	mg/L as CaCo3	1	4.00
Total Alkalinity		127	mg/L as CaCo3	1	4.00

Sample: 215836 - MW-2

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2009-12-02	Analyzed By:	tn
QC Batch:	65725	Sample Preparation:	2009-12-02	Prepared By:	tn
Prep Batch:	56178				

Report Date: December 7, 2009
115-6403134A

Work Order: 9112515
Celero/Rock Queen

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Chavez Co., NM

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)		0.105	mg/L	1	0.100	105	70.9 - 119.8
4-Bromofluorobenzene (4-BFB)		0.0895	mg/L	1	0.100	90	68.1 - 118.8

Sample: 215836 - MW-2

Laboratory: Lubbock
Analysis: Cations
QC Batch: 65745
Prep Batch: 56137

Analytical Method: S 6010B
Date Analyzed: 2009-12-03
Sample Preparation: 2009-12-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		1010	mg/L	10	1.00
Dissolved Potassium		270	mg/L	10	1.00
Dissolved Magnesium		633	mg/L	10	1.00
Dissolved Sodium		10800	mg/L	100	1.00

Sample: 215836 - MW-2

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 65660
Prep Batch: 56093

Analytical Method: E 300.0
Date Analyzed: 2009-12-01
Sample Preparation: 2009-11-30

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		19900	mg/L	500	0.500

Sample: 215836 - MW-2

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 65745
Prep Batch: 56137

Analytical Method: S 6010B
Date Analyzed: 2009-12-03
Sample Preparation: 2009-12-02

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

Report Date: December 7, 2009
115-6403134A

Work Order: 9112515
Celero/Rock Queen

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Parameter	Flag	RL Result	Units	Dilution	RL
Hardness (by ICP)		5130	mg eq CaCO ₃ /L	1	0.00

Sample: 215836 - MW-2

Laboratory: Midland

Analysis: pH

QC Batch: 65589

Prep Batch: 56049

Analytical Method: SM 4500-H+

Date Analyzed: 2009-11-25

Sample Preparation: 2009-11-25

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
pH		6.97	s.u.	1	0.00

Sample: 215836 - MW-2

Laboratory: Midland

Analysis: SO₄ (IC)

QC Batch: 65660

Prep Batch: 56093

Analytical Method: E 300.0

Date Analyzed: 2009-12-01

Sample Preparation: 2009-11-30

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		413	mg/L	50	0.500

Sample: 215836 - MW-2

Laboratory: Midland

Analysis: TDS

QC Batch: 65808

Prep Batch: 56115

Analytical Method: SM 2540C

Date Analyzed: 2009-12-07

Sample Preparation: 2009-12-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		146000	mg/L	100	10.0

Sample: 215837 - MW-3

Laboratory: Midland

Analysis: Alkalinity

QC Batch: 65677

Prep Batch: 56132

Analytical Method: SM 2320B

Date Analyzed: 2009-12-01

Sample Preparation: 2009-12-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		92.0	mg/L as CaCo3	1	4.00
Total Alkalinity		92.0	mg/L as CaCo3	1	4.00

Sample: 215837 - MW-3

Laboratory: Midland

Analysis: BTEX

QC Batch: 65725

Prep Batch: 56178

Analytical Method: S 8021B

Date Analyzed: 2009-12-02

Sample Preparation: 2009-12-02

Prep Method: S 5030B

Analyzed By: tn

Prepared By: tn

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)		0.0967	mg/L	1	0.100	97	70.9 - 119.8
4-Bromofluorobenzene (4-BFB)		0.0812	mg/L	1	0.100	81	68.1 - 118.8

Sample: 215837 - MW-3

Laboratory: Lubbock

Analysis: Cations

QC Batch: 65745

Prep Batch: 56137

Analytical Method: S 6010B

Date Analyzed: 2009-12-03

Sample Preparation: 2009-12-02

Prep Method: S 3005A

Analyzed By: RR

Prepared By: KV

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		6030	mg/L	100	1.00
Dissolved Potassium		323	mg/L	10	1.00
Dissolved Magnesium		2150	mg/L	10	1.00
Dissolved Sodium		29900	mg/L	100	1.00

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Sample: 215837 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2009-12-01	Analyzed By:	AR
QC Batch:	65660	Sample Preparation:	2009-11-30	Prepared By:	AR
Prep Batch:	56093				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		59500	mg/L	5000	0.500

Sample: 215837 - MW-3

Laboratory:	Lubbock	Analytical Method:	S 6010B	Prep Method:	N/A
Analysis:	Hardness	Date Analyzed:	2009-12-03	Analyzed By:	RR
QC Batch:	65745	Sample Preparation:	2009-12-02	Prepared By:	KV
Prep Batch:	56137				

Parameter	Flag	RL Result	Units	Dilution	RL
Hardness (by ICP)		23900	mg eq CaCO3/L	1	0.00

Sample: 215837 - MW-3

Laboratory:	Midland	Analytical Method:	SM 4500-H+	Prep Method:	N/A
Analysis:	pH	Date Analyzed:	2009-11-25	Analyzed By:	AR
QC Batch:	65589	Sample Preparation:	2009-11-25	Prepared By:	AR
Prep Batch:	56049				

Parameter	Flag	RL Result	Units	Dilution	RL
pH		6.02	s.u.	1	0.00

Sample: 215837 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2009-12-01	Analyzed By:	AR
QC Batch:	65660	Sample Preparation:	2009-11-30	Prepared By:	AR
Prep Batch:	56093				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		908	mg/L	50	0.500

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Sample: 215837 - MW-3

Laboratory: Midland
Analysis: TDS
QC Batch: 65808
Prep Batch: 56115

Analytical Method: SM 2540C
Date Analyzed: 2009-12-07
Sample Preparation: 2009-12-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		108000	mg/L	100	10.0

Sample: 215838 - MW-4

Laboratory: Midland
Analysis: Alkalinity
QC Batch: 65677
Prep Batch: 56132

Analytical Method: SM 2320B
Date Analyzed: 2009-12-01
Sample Preparation: 2009-12-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		118	mg/L as CaCo3	1	4.00
Total Alkalinity		118	mg/L as CaCo3	1	4.00

Sample: 215838 - MW-4

Laboratory: Midland
Analysis: BTEX
QC Batch: 65725
Prep Batch: 56178

Analytical Method: S 8021B
Date Analyzed: 2009-12-02
Sample Preparation: 2009-12-02

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

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)		0.106	mg/L	1	0.100	106	70.9 - 119.8
4-Bromofluorobenzene (4-BFB)		0.0896	mg/L	1	0.100	90	68.1 - 118.8

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Sample: 215838 - MW-4

Laboratory: Lubbock
Analysis: Cations
QC Batch: 65745
Prep Batch: 56137

Analytical Method: S 6010B
Date Analyzed: 2009-12-03
Sample Preparation: 2009-12-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
Dissolved Calcium		791	mg/L	10	1.00
Dissolved Potassium		76.7	mg/L	1	1.00
Dissolved Magnesium		253	mg/L	1	1.00
Dissolved Sodium		4880	mg/L	100	1.00

Sample: 215838 - MW-4

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 65660
Prep Batch: 56093

Analytical Method: E 300.0
Date Analyzed: 2009-12-01
Sample Preparation: 2009-11-30

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9360	mg/L	1000	0.500

Sample: 215838 - MW-4

Laboratory: Lubbock
Analysis: Hardness
QC Batch: 65745
Prep Batch: 56137

Analytical Method: S 6010B
Date Analyzed: 2009-12-03
Sample Preparation: 2009-12-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
Hardness (by ICP)		3020	mg eq CaCO3/L	1	0.00

Sample: 215838 - MW-4

Laboratory: Midland
Analysis: pH
QC Batch: 65589
Prep Batch: 56049

Analytical Method: SM 4500-H+
Date Analyzed: 2009-11-25
Sample Preparation: 2009-11-25

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

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Parameter	Flag	RL Result	Units	Dilution	RL
pH		7.35	s.u.	1	0.00

Sample: 215838 - MW-4

Laboratory: Midland
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 65660 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56093 Sample Preparation: 2009-11-30 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		286	mg/L	5	0.500

Sample: 215838 - MW-4

Laboratory: Midland
Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A
QC Batch: 65808 Date Analyzed: 2009-12-07 Analyzed By: AR
Prep Batch: 56115 Sample Preparation: 2009-12-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		22600	mg/L	100	10.0

Method Blank (1) QC Batch: 65660

QC Batch: 65660 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56093 QC Preparation: 2009-11-30 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.475	mg/L	0.5

Method Blank (1) QC Batch: 65660

QC Batch: 65660 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56093 QC Preparation: 2009-11-30 Prepared By: AR

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

Method Blank (1) QC Batch: 65677

QC Batch: 65677 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56132 QC Preparation: 2009-12-01 Prepared By: AR

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

Method Blank (1) QC Batch: 65725

QC Batch: 65725 Date Analyzed: 2009-12-02 Analyzed By: tn
Prep Batch: 56178 QC Preparation: 2009-12-02 Prepared By: tn

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000300	mg/L	0.001
Toluene		<0.000200	mg/L	0.001
Ethylbenzene		<0.000200	mg/L	0.001
Xylene		<0.000900	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.108	mg/L	1	0.100	108	73.6 - 116.6
4-Bromofluorobenzene (4-BFB)		0.0928	mg/L	1	0.100	93	70.6 - 107.5

Method Blank (1) QC Batch: 65745

QC Batch: 65745 Date Analyzed: 2009-12-03 Analyzed By: RR
Prep Batch: 56137 QC Preparation: 2009-12-02 Prepared By: KV

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

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

Method Blank (1) QC Batch: 65798

QC Batch: 65798
Prep Batch: 56235

Date Analyzed: 2009-12-06
QC Preparation: 2009-12-06

Analyzed By: tn
Prepared By: tn

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000300	mg/L	0.001
Toluene		<0.000200	mg/L	0.001
Ethylbenzene		<0.000200	mg/L	0.001
Xylene		<0.000900	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0997	mg/L	1	0.100	100	73.6 - 116.6
4-Bromofluorobenzene (4-BFB)		0.0860	mg/L	1	0.100	86	70.6 - 107.5

Method Blank (1) QC Batch: 65808

QC Batch: 65808
Prep Batch: 56115

Date Analyzed: 2009-12-07
QC Preparation: 2009-12-01

Analyzed By: AR
Prepared By: AR

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

Duplicates (1) Duplicated Sample: 215843

QC Batch: 65589
Prep Batch: 56049

Date Analyzed: 2009-11-25
QC Preparation: 2009-11-25

Analyzed By: AR
Prepared By: AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	7.61	7.55	s.u.	1	1	1.5

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Duplicates (1) Duplicated Sample: 215843

QC Batch: 65677 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56132 QC Preparation: 2009-12-01 Prepared By: AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	95.0	114	mg/L as CaCo3	1	18	20
Total Alkalinity	95.0	114	mg/L as CaCo3	1	18	20

Duplicates (1) Duplicated Sample: 215843

QC Batch: 65808 Date Analyzed: 2009-12-07 Analyzed By: AR
Prep Batch: 56115 QC Preparation: 2009-12-01 Prepared By: AR

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	9500	9100	mg/L	100	4	10

Laboratory Control Spike (LCS-1)

QC Batch: 65660 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56093 QC Preparation: 2009-11-30 Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	26.1	mg/L	1	25.0	<0.475	104	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	26.0	mg/L	1	25.0	<0.475	104	90 - 110	0	

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

Laboratory Control Spike (LCS-1)

QC Batch: 65660 Date Analyzed: 2009-12-01 Analyzed By: AR
Prep Batch: 56093 QC Preparation: 2009-11-30 Prepared By: AR

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	24.3	mg/L	1	25.0	<0.217	97	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	24.8	mg/L	1	25.0	<0.217	99	90 - 110	2	

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: 65725
Prep Batch: 56178

Date Analyzed: 2009-12-02
QC Preparation: 2009-12-02

Analyzed By: tn
Prepared By: tn

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0980	mg/L	1	0.100	<0.000300	98	79.4 - 111.8
Toluene	0.0973	mg/L	1	0.100	<0.000200	97	79.3 - 110
Ethylbenzene	0.0977	mg/L	1	0.100	<0.000200	98	73.8 - 113.1
Xylene	0.290	mg/L	1	0.300	<0.000900	97	73.9 - 113.6

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.100	mg/L	1	0.100	<0.000300	100	79.4 - 111.8	2	20
Toluene	0.100	mg/L	1	0.100	<0.000200	100	79.3 - 110	3	20
Ethylbenzene	0.0994	mg/L	1	0.100	<0.000200	99	73.8 - 113.1	2	20
Xylene	0.296	mg/L	1	0.300	<0.000900	99	73.9 - 113.6	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)	0.104	0.102	mg/L	1	0.100	104	102	76.2 - 119.6
4-Bromofluorobenzene (4-BFB)	0.0938	0.0926	mg/L	1	0.100	94	93	77.9 - 109.8

Laboratory Control Spike (LCS-1)

QC Batch: 65745
Prep Batch: 56137

Date Analyzed: 2009-12-03
QC Preparation: 2009-12-02

Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium	51.9	mg/L	1	50.0	<0.117	104	85 - 115

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Potassium	50.7	mg/L	1	50.0	<0.172	101	85 - 115
Dissolved Magnesium	50.5	mg/L	1	50.0	<0.160	101	85 - 115
Dissolved Sodium	51.1	mg/L	1	50.0	<0.0500	102	85 - 115

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
Dissolved Calcium	50.8	mg/L	1	50.0	<0.117	102	85 - 115	2	20
Dissolved Potassium	50.0	mg/L	1	50.0	<0.172	100	85 - 115	1	20
Dissolved Magnesium	49.7	mg/L	1	50.0	<0.160	99	85 - 115	2	20
Dissolved Sodium	49.7	mg/L	1	50.0	<0.0500	99	85 - 115	3	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 65798
Prep Batch: 56235

Date Analyzed: 2009-12-06
QC Preparation: 2009-12-06

Analyzed By: tn
Prepared By: tn

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.101	mg/L	1	0.100	<0.000300	101	79.4 - 111.8
Toluene	0.101	mg/L	1	0.100	<0.000200	101	79.3 - 110
Ethylbenzene	0.100	mg/L	1	0.100	<0.000200	100	73.8 - 113.1
Xylene	0.300	mg/L	1	0.300	<0.000900	100	73.9 - 113.6

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.103	mg/L	1	0.100	<0.000300	103	79.4 - 111.8	2	20
Toluene	0.102	mg/L	1	0.100	<0.000200	102	79.3 - 110	1	20
Ethylbenzene	0.102	mg/L	1	0.100	<0.000200	102	73.8 - 113.1	2	20
Xylene	0.304	mg/L	1	0.300	<0.000900	101	73.9 - 113.6	1	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)	0.101	0.0995	mg/L	1	0.100	101	100	76.2 - 119.6
4-Bromofluorobenzene (4-BFB)	0.0939	0.0925	mg/L	1	0.100	94	92	77.9 - 109.8

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Laboratory Control Spike (LCS-1)

QC Batch: 65808
Prep Batch: 56115

Date Analyzed: 2009-12-07
QC Preparation: 2009-12-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids	972	mg/L	1	1000	<9.75	97	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	1010	mg/L	1	1000	<9.75	101	90 - 110	4	10

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

Matrix Spike (MS-1) Spiked Sample: 215843

QC Batch: 65660
Prep Batch: 56093

Date Analyzed: 2009-12-01
QC Preparation: 2009-11-30

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	² 5330	mg/L	5	27.5	4690	2327	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	³ 5320	mg/L	5	27.5	4690	2291	90 - 110	0	

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

Matrix Spike (MS-1) Spiked Sample: 215843

QC Batch: 65660
Prep Batch: 56093

Date Analyzed: 2009-12-01
QC Preparation: 2009-11-30

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	⁴ 254	mg/L	5	27.5	150	378	90 - 110

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

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

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

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

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	⁵ 256	mg/L	5	27.5	150	385	90 - 110	1	

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

Matrix Spike (MS-1) Spiked Sample: 215919

QC Batch: 65725
Prep Batch: 56178

Date Analyzed: 2009-12-02
QC Preparation: 2009-12-02

Analyzed By: tn
Prepared By: tn

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	13.9	mg/L	50	5.00	8.779	102	77.3 - 117.4
Toluene	4.88	mg/L	50	5.00	<0.0100	98	75 - 111.8
Ethylbenzene	5.23	mg/L	50	5.00	0.2906	99	78.8 - 106.6
Xylene	14.5	mg/L	50	15.0	<0.0450	97	68.9 - 114

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	13.6	mg/L	50	5.00	8.779	96	77.3 - 117.4	2	20
Toluene	4.72	mg/L	50	5.00	<0.0100	94	75 - 111.8	3	20
Ethylbenzene	5.08	mg/L	50	5.00	0.2906	96	78.8 - 106.6	3	20
Xylene	14.1	mg/L	50	15.0	<0.0450	94	68.9 - 114	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	5.43	5.26	mg/L	50	5	109	105	76.3 - 109.8
4-Bromofluorobenzene (4-BFB)	4.74	4.63	mg/L	50	5	95	93	75.2 - 112.8

Matrix Spike (MS-1) Spiked Sample: 215149

QC Batch: 65745
Prep Batch: 56137

Date Analyzed: 2009-12-03
QC Preparation: 2009-12-02

Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium	104	mg/L	1	50.0	54.7	99	75 - 125
Dissolved Potassium	53.0	mg/L	1	50.0	2.85	100	75 - 125
Dissolved Magnesium	88.0	mg/L	1	50.0	40	96	75 - 125
Dissolved Sodium	199	mg/L	1	50.0	150	98	75 - 125

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

⁵MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

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115-6403134A

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Celero/Rock Queen

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Calcium	102	mg/L	1	50.0	54.7	95	75 - 125	2	20
Dissolved Potassium	53.3	mg/L	1	50.0	2.85	101	75 - 125	1	20
Dissolved Magnesium	86.5	mg/L	1	50.0	40	93	75 - 125	2	20
Dissolved Sodium	194	mg/L	1	50.0	150	88	75 - 125	2	20

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

Matrix Spike (MS-1) Spiked Sample: 216231

QC Batch: 65798
Prep Batch: 56235

Date Analyzed: 2009-12-06
QC Preparation: 2009-12-06

Analyzed By: tn
Prepared By: tn

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.104	mg/L	1	0.100	<0.000300	104	77.3 - 117.4
Toluene	0.103	mg/L	1	0.100	<0.000200	103	75 - 111.8
Ethylbenzene	0.102	mg/L	1	0.100	<0.000200	102	78.8 - 106.6
Xylene	0.305	mg/L	1	0.300	<0.000900	102	68.9 - 114

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.103	mg/L	1	0.100	<0.000300	103	77.3 - 117.4	1	20
Toluene	0.103	mg/L	1	0.100	<0.000200	103	75 - 111.8	0	20
Ethylbenzene	0.103	mg/L	1	0.100	<0.000200	103	78.8 - 106.6	1	20
Xylene	0.306	mg/L	1	0.300	<0.000900	102	68.9 - 114	0	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.101	0.101	mg/L	1	0.1	101	101	76.3 - 109.8
4-Bromofluorobenzene (4-BFB)	0.0936	0.0933	mg/L	1	0.1	94	93	75.2 - 112.8

Standard (ICV-1)

QC Batch: 65589

Date Analyzed: 2009-11-25

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	6.85	98	98 - 102	2009-11-25

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Standard (CCV-1)

QC Batch: 65589

Date Analyzed: 2009-11-25

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.15	102	98 - 102	2009-11-25

Standard (ICV-1)

QC Batch: 65660

Date Analyzed: 2009-12-01

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	25.0	100	90 - 110	2009-12-01

Standard (ICV-1)

QC Batch: 65660

Date Analyzed: 2009-12-01

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	24.4	98	90 - 110	2009-12-01

Standard (CCV-1)

QC Batch: 65660

Date Analyzed: 2009-12-01

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.9	100	90 - 110	2009-12-01

Standard (CCV-1)

QC Batch: 65660

Date Analyzed: 2009-12-01

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	24.0	96	90 - 110	2009-12-01

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Standard (ICV-1)

QC Batch: 65677

Date Analyzed: 2009-12-01

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2009-12-01
Carbonate Alkalinity		mg/L as CaCo3	0.00	224		0 - 200	2009-12-01
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	25.0		0 - 200	2009-12-01
Total Alkalinity		mg/L as CaCo3	250	249	100	90 - 110	2009-12-01

Standard (CCV-1)

QC Batch: 65677

Date Analyzed: 2009-12-01

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 200	2009-12-01
Carbonate Alkalinity		mg/L as CaCo3	0.00	224		0 - 200	2009-12-01
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	26.0		0 - 200	2009-12-01
Total Alkalinity		mg/L as CaCo3	250	250	100	90 - 110	2009-12-01

Standard (CCV-2)

QC Batch: 65725

Date Analyzed: 2009-12-02

Analyzed By: tn

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0896	90	80 - 120	2009-12-02
Toluene		mg/L	0.100	0.0895	90	80 - 120	2009-12-02
Ethylbenzene		mg/L	0.100	0.0883	88	80 - 120	2009-12-02
Xylene		mg/L	0.300	0.263	88	80 - 120	2009-12-02

Standard (CCV-3)

QC Batch: 65725

Date Analyzed: 2009-12-02

Analyzed By: tn

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0977	98	80 - 120	2009-12-02
Toluene		mg/L	0.100	0.0975	98	80 - 120	2009-12-02
Ethylbenzene		mg/L	0.100	0.0962	96	80 - 120	2009-12-02

continued ...

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Celero/Rock Queen

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standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Xylene		mg/L	0.300	0.286	95	80 - 120	2009-12-02

Standard (ICV-1)

QC Batch: 65745

Date Analyzed: 2009-12-03

Analyzed By: RR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	50.0	52.2	104	90 - 110	2009-12-03
Dissolved Potassium		mg/L	50.0	51.2	102	90 - 110	2009-12-03
Dissolved Magnesium		mg/L	50.0	52.4	105	90 - 110	2009-12-03
Dissolved Sodium		mg/L	50.0	50.5	101	90 - 110	2009-12-03

Standard (CCV-1)

QC Batch: 65745

Date Analyzed: 2009-12-03

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	50.0	52.4	105	90 - 110	2009-12-03
Dissolved Potassium		mg/L	50.0	49.7	99	90 - 110	2009-12-03
Dissolved Magnesium		mg/L	50.0	52.4	105	90 - 110	2009-12-03
Dissolved Sodium		mg/L	50.0	50.5	101	90 - 110	2009-12-03

Standard (CCV-1)

QC Batch: 65798

Date Analyzed: 2009-12-06

Analyzed By: tn

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.101	101	80 - 120	2009-12-06
Toluene		mg/L	0.100	0.0993	99	80 - 120	2009-12-06
Ethylbenzene		mg/L	0.100	0.0981	98	80 - 120	2009-12-06
Xylene		mg/L	0.300	0.291	97	80 - 120	2009-12-06

Standard (CCV-2)

QC Batch: 65798

Date Analyzed: 2009-12-06

Analyzed By: tn

Report Date: December 7, 2009
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Celero/Rock Queen

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.102	102	80 - 120	2009-12-06
Toluene		mg/L	0.100	0.101	101	80 - 120	2009-12-06
Ethylbenzene		mg/L	0.100	0.0995	100	80 - 120	2009-12-06
Xylene		mg/L	0.300	0.297	99	80 - 120	2009-12-06

Order #: 9112515

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: Celestus SITE MANAGER: Tyler Keadley

PROJECT NO.: 115-6500234P

PROJECT NAME: Celestus Rock Canyon, Arizona, AZ

SAMPLE IDENTIFICATION

LAB I.D. NUMBER

DATE

TIME

MATRIX

COMP

GRAB

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE 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

RELINQUISHED BY: (Signature) <u>Tyler Keadley</u>	Date: <u>11/15/12</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	Date: <u>11/23/12</u>
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:
RELINQUISHED BY: (Signature)	Date:	RECEIVED BY: (Signature)	Date:
RECEIVING LABORATORY: ADDRESS: <u>Midland, TX</u>	STATE: <u>TX</u>	ZIP: <u>79705</u>	TIME: <u>9:00 AM</u>
CITY: <u>Midland</u>	PHONE: <u>(432) 682-4559</u>	DATE: <u>11-30-09</u>	TIME: <u>9:00 AM</u>
REMARKS: <u>3.2 c intact</u>			
SAMPLE CONDITION WHEN RECEIVED:			
RECEIVED BY: (Signature) <u>[Signature]</u>			
TETRA TECH CONTACT PERSON: <u>[Signature]</u>			
FEDER: <u>BUS</u>			
AIRBILL #:			
OTHER:			
Results by:			
RUSH Charges Authorized:			
Yes No			

Subcontractors hard nose

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

LS 25325351



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5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: July 27, 2010

Work Order: 10071407



Project Location: Chavez County, NM
Project Name: Celero/Rock Queen SWD #1
Project Number: 115-6403134

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
237430	MW-1	water	2010-07-13	14:40	2010-07-14
237431	MW-2	water	2010-07-13	14:45	2010-07-14
237432	MW-3	water	2010-07-13	14:50	2010-07-14
237433	MW-4	water	2010-07-13	14:55	2010-07-14

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

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



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

Standard Flags

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

Case Narrative

Samples for project Celero/Rock Queen SWD #1 were received by TraceAnalysis, Inc. on 2010-07-14 and assigned to work order 10071407. Samples for work order 10071407 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	61451	2010-07-14 at 16:00	71724	2010-07-14 at 16:42
Chloride (IC)	E 300.0	61480	2010-07-15 at 08:52	71927	2010-07-15 at 14:25
SO4 (IC)	E 300.0	61480	2010-07-15 at 08:52	71927	2010-07-15 at 14:25
TDS	SM 2540C	61516	2010-07-15 at 10:29	72039	2010-07-26 at 12:30

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10071407 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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Chavez County, NM

Analytical Report

Sample: 237430 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 71724
Prep Batch: 61451

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00310	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)		0.0837	mg/L	1	0.100	84	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0769	mg/L	1	0.100	77	51.1 - 128

Sample: 237430 - MW-1

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 71927
Prep Batch: 61480

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		155000	mg/L	500	2.50

Sample: 237430 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 71927
Prep Batch: 61480

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1530	mg/L	50	2.50

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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Chavez County, NM

Sample: 237430 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 72039
Prep Batch: 61516

Analytical Method: SM 2540C
Date Analyzed: 2010-07-26
Sample Preparation: 2010-07-16

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		225000	mg/L	100	10.0

Sample: 237431 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 71724
Prep Batch: 61451

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

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

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)		0.0877	mg/L	1	0.100	88	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0758	mg/L	1	0.100	76	51.1 - 128

Sample: 237431 - MW-2

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 71927
Prep Batch: 61480

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		43200	mg/L	5000	2.50

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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Sample: 237431 - MW-2

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2010-07-15	Analyzed By:	AR
QC Batch:	71927	Sample Preparation:	2010-07-15	Prepared By:	AR
Prep Batch:	61480				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		652	mg/L	50	2.50

Sample: 237431 - MW-2

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		72700	mg/L	100	10.0

Sample: 237432 - MW-3

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

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)	¹	0.0651	mg/L	1	0.100	65	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0568	mg/L	1	0.100	57	51.1 - 128

¹ SPECIAL-TFT is out of control limits due to an unknown anomaly. However, 4-BFB is within control limits and shows the method to be in control. •

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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Chavez County, NM

Sample: 237432 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2010-07-15	Analyzed By:	AR
QC Batch:	71927	Sample Preparation:	2010-07-15	Prepared By:	AR
Prep Batch:	61480				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		73200	mg/L	5000	2.50

Sample: 237432 - MW-3

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2010-07-15	Analyzed By:	AR
QC Batch:	71927	Sample Preparation:	2010-07-15	Prepared By:	AR
Prep Batch:	61480				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		931	mg/L	50	2.50

Sample: 237432 - MW-3

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		150000	mg/L	100	10.0

Sample: 237433 - MW-4

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

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

continued ...

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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sample 237433 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)		0.0828	mg/L	1	0.100	83	67.8 - 126
4-Bromofluorobenzene (4-BFB)		0.0723	mg/L	1	0.100	72	51.1 - 128

Sample: 237433 - MW-4

Laboratory: Midland
Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 71927 Date Analyzed: 2010-07-15 Analyzed By: AR
Prep Batch: 61480 Sample Preparation: 2010-07-15 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		85800	mg/L	5000	2.50

Sample: 237433 - MW-4

Laboratory: Midland
Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
QC Batch: 71927 Date Analyzed: 2010-07-15 Analyzed By: AR
Prep Batch: 61480 Sample Preparation: 2010-07-15 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1540	mg/L	50	2.50

Sample: 237433 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		159000	mg/L	100	10.0

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Celero/Rock Queen SWD #1

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Method Blank (1) QC Batch: 71724

QC Batch: 71724
Prep Batch: 61451

Date Analyzed: 2010-07-14
QC Preparation: 2010-07-14

Analyzed By: AG
Prepared By: AG

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

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

Method Blank (1) QC Batch: 71927

QC Batch: 71927
Prep Batch: 61480

Date Analyzed: 2010-07-15
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 71927

QC Batch: 71927
Prep Batch: 61480

Date Analyzed: 2010-07-15
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 72039

QC Batch: 72039
Prep Batch: 61516

Date Analyzed: 2010-07-26
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

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

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115-6403134

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Celero/Rock Queen SWD #1

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Duplicates (2) Duplicated Sample: 237468

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

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

Laboratory Control Spike (LCS-1)

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

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

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 71927 Date Analyzed: 2010-07-15 Analyzed By: AR
Prep Batch: 61480 QC Preparation: 2010-07-15 Prepared By: AR

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

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115-6403134

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Celero/Rock Queen SWD #1

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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	25.3	mg/L	1	25.0	<0.265	101	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: 71927
Prep Batch: 61480

Date Analyzed: 2010-07-15
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	22.5	mg/L	1	25.0	<0.177	90	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	22.5	mg/L	1	25.0	<0.177	90	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: 72039
Prep Batch: 61516

Date Analyzed: 2010-07-26
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids	1040	mg/L	1	1000	<9.75	104	90 - 110	1	10

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

Matrix Spike (MS-1) Spiked Sample: 237430

QC Batch: 71724
Prep Batch: 61451

Date Analyzed: 2010-07-14
QC Preparation: 2010-07-14

Analyzed By: AG
Prepared By: AG

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		0.100	mg/L	1	0.100	0.0031	97	77.9 - 114
Toluene		0.0800	mg/L	1	0.100	<0.000600	80	78.3 - 111
Ethylbenzene	²	0.0695	mg/L	1	0.100	<0.000800	70	75.3 - 110
Xylene	³	0.211	mg/L	1	0.300	<0.000767	70	75.7 - 109

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

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		0.0908	mg/L	1	0.100	0.0031	88	77.9 - 114	10	20
Toluene	⁴	0.0719	mg/L	1	0.100	<0.000600	72	78.3 - 111	11	20
Ethylbenzene	⁵	0.0623	mg/L	1	0.100	<0.000800	62	75.3 - 110	11	20
Xylene	⁶	0.189	mg/L	1	0.300	<0.000767	63	75.7 - 109	11	20

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

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	^{7 8}	0.0434	0.0551	mg/L	1	0.1	43	55	68.3 - 107
4-Bromofluorobenzene (4-BFB)	^{9 10}	0.0418	0.0525	mg/L	1	0.1	42	52	60.1 - 135

Matrix Spike (MS-1) Spiked Sample: 237433

QC Batch: 71927
Prep Batch: 61480

Date Analyzed: 2010-07-15
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	¹¹	106000	mg/L	50	1380	<13.2	7709	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	¹²	106000	mg/L	50	1380	<13.2	7709	90 - 110	0	20

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

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.

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

⁵MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

⁶MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

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

⁸Surrogate TFT out due to matrix interference. Sample was not reran due to lack of sample.

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

¹⁰Surrogate 4-BFB out due to matrix interference. Sample was not reran due to lack of sample.

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

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

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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Chavez County, NM

Matrix Spike (MS-1) Spiked Sample: 237433

QC Batch: 71927
Prep Batch: 61480

Date Analyzed: 2010-07-15
QC Preparation: 2010-07-15

Analyzed By: AR
Prepared By: AR

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	¹³	2640	mg/L	50	1380	1540	80	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	¹⁴	2620	mg/L	50	1380	1540	78	90 - 110	1	20

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

Standard (CCV-1)

QC Batch: 71724

Date Analyzed: 2010-07-14

Analyzed By: AG

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

Standard (CCV-2)

QC Batch: 71724

Date Analyzed: 2010-07-14

Analyzed By: AG

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

Standard (ICV-1)

QC Batch: 71927

Date Analyzed: 2010-07-15

Analyzed By: AR

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

¹⁴MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

Report Date: July 27, 2010
115-6403134

Work Order: 10071407
Celero/Rock Queen SWD #1

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Chavez County, NM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	26.8	107	90 - 110	2010-07-15

Standard (ICV-1)

QC Batch: 71927

Date Analyzed: 2010-07-15

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	26.8	107	90 - 110	2010-07-15

Standard (CCV-1)

QC Batch: 71927

Date Analyzed: 2010-07-15

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	26.8	107	90 - 110	2010-07-15

Standard (CCV-1)

QC Batch: 71927

Date Analyzed: 2010-07-15

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	26.2	105	90 - 110	2010-07-15

Analysis Request of Chain of Custody Record



TETRA TECH

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

(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: Celtro							SITE MANAGER: Jeff Kinley						PRESERVATIVE METHOD															
PROJECT NO.: 115-2403134									PROJECT NAME: Celero / Rock Queen SWD #1 Chavez G, RM																			
LAB I.D. NUMBER			DATE 2012		TIME		MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION										NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE			
223T430 431			7/13		1440		X			MW-1										h	n	x	x					
432					1445					MW-2																		
433					1450					MW-3																		
433					1455					MW-4																		

RELINQUISHED BY: (Signature) <u>DA-716</u>	Date: <u>7-11-73</u> Time: <u>10:40</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	Date: <u>7/12/73</u> Time: <u>9:25</u>	SAMPLED BY: (Print & Initial) <u>JH/GP</u>	Date: <u>7/13/73</u> Time: _____
RELINQUISHED BY: (Signature) _____	Date: _____ Time: _____	RECEIVED BY: (Signature) _____	Date: _____ Time: _____	SAMPLE SHIPPED BY: (Circle) FEDEX <u> </u> BUS <u> </u>	AIRBILL # _____
RELINQUISHED BY: (Signature) _____	Date: _____ Time: _____	RECEIVED BY: (Signature) _____	Date: _____ Time: _____	<u>(HAND DELIVERED)</u> UPS <u> </u>	OTHER: _____
RECEIVING LABORATORY: <u>LAU</u>	ADDRESS: _____	RECEIVED BY: (Signature) _____	DATE: _____	TETRATECH CONTACT PERSON: <u>Jeff Kindley</u>	
CITY: <u>Midland</u>	STATE: <u>TX</u>	ZIP: _____	TIME: _____	Results by: _____	
CONTACT: _____	PHONE: _____	DATE: _____	TIME: _____	RUSH Charges Authorized: _____ Yes _____ No _____	

REMARKS:

test3 Midday

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

TABLE 3b
Groundwater Inorganic Analyses - June 2010
 ConocoPhillips - South Cowden Unit
 Ector County, Texas

Sample Location	Date Sampled	Results reported in milligrams per liter (mg/L)										
		Total Metals by EPA Method 6010B				General Chemistry by EPA Method E300.0				EPA Method E310.1		EPA Method 2540 C
		Ca	Mg	K	Na	Bromide	Chloride	Sulfate	Nitrate as N	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Dissolved Solids
MW-1	06/22/10						531					1,680
MW-2	06/21/10						177					754
MW-4	06/22/10	694	127	55.1	3,640	17.2	7,040	547	18.5	39	ND	15,800
MW-5	06/22/10	241	45.2	23.1	1,110	5.57	1,960	257	9.74	49	ND	4,690
MW-6	06/21/10	72.2	13.8	4.29	43.2	ND	30.8	107	8.89	48	ND	499
MW-7	06/23/10						10,100					17,000
MW-7 D	06/23/10						7,570					17,100
MW-10a	06/22/10						991.0					4,080
MW-10b	06/22/10						477					4,390
MW-11	06/22/10						797					2,890
MW-11 D	06/22/10						789					2,220
MW-12	06/23/10						5,740					11,800
MW-13	06/22/10						2,330					4,360
MW-15	06/22/10	160	29.6	15.5	745	3.35	1,430	243	9.48	58	ND	3,420
MW-16	06/21/10						402					1,510
MW-17	06/22/10	68.2	14.4	4.69	55.0	ND	35.7	140	9.22	52	ND	528
MW-18	06/21/10	82.1	16.4	6.16	59.1	ND	37.6	133	8.63	51	ND	540
MW-H1	06/24/10	420	97.1	49.5	2,860	52.4	6,140	494	10.4	138	ND	11,000
MW-H2	06/24/10	1,090	246	105	6,920	165	16,800	1,210	18.8	127	ND	26,800
MW-H2 D	06/24/10	1,080	235	101	6,840	124	17,600	959	15.8	129	ND	26,000
MW-H3	06/23/10	226	31.8	6.6	158	1.72	160	498	6.32	203	ND	1,710
MW-H4	06/24/10	148	21.9	5.95	95.4	3.25	181	197	7.08	200	ND	928
MW-H5	06/23/10	237	24.9	13.1	92	1.16	111	293	ND	135	ND	1,130
MW-H6	06/23/10	107	12.3	4.86	50.0	2.68	46.6	129	7.1	139	ND	671
MW-H7	06/23/10	79.5	11.5	5.22	49	0.833	37.5	134	4.81	137	ND	718
MW-H8	06/23/10	101	12.6	4.7	51.0	ND	48.2	141	4.76	152	ND	675
EW-1	06/22/10	246	38.4	15.6	702	3.9	1,690	162	9.46	47	ND	4,320
EW-2	06/21/10	76.7	15.1	4.47	48.9	ND	31.9	121	8.71	59	ND	493
EW-3	06/22/10	132	23.2	7.68	315	1.65	629	169	9.23	45	ND	1,420
EW-4	06/22/10	178	34.1	13.8	626	3.22	1,120	196	9.97	163	ND	3,340
EW-4 D	06/22/10	172	33.1	13.6	610	3.08	1,160	195	9.86	51	ND	2,830
EW-M	06/23/10	963	213	95	6,120	5.06	15,000	984	5.91	96	ND	24,100
RW-M	06/23/10	119	22.7	7.43	232	ND	472	172	5.1	149	ND	1,590
TCEQ Standards used for Groundwater Quality Analysis		NE	NE	NE	NE	NE	300*	300*	10	NE	NE	1,000*

Notes:

* = Secondary Standard
 EPA = Environmental Protection Agency
 TCEQ = Texas Commission on Environmental Quality
 NE = Not Established by TCEQ
 ND = Not detected at or above Laboratory Reporting Limit

Ca = Calcium
 Mg = Magnesium
 K = Potassium
 Na = Sodium
 N = Nitrogen

D = Duplicate Sample
 Blank fields indicate no data.



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

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: November 15, 2010

Work Order: 10101404



Project Location: Chavez County, NM
Project Name: Celero/Rock Queen SWD #1
Project Number: 115-6403134

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
247497	MW-1	water	2010-10-13	10:15	2010-10-13
247498	MW-2	water	2010-10-13	09:45	2010-10-13
247499	MW-3	water	2010-10-13	09:55	2010-10-13
247500	MW-4	water	2010-10-13	10:05	2010-10-13

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

This report consists of a total of 14 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



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

Standard Flags

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

Case Narrative

Samples for project Celero/Rock Queen SWD #1 were received by TraceAnalysis, Inc. on 2010-10-13 and assigned to work order 10101404. Samples for work order 10101404 were received intact without headspace and at a temperature of 3.5 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	63840	2010-10-14 at 13:40	74557	2010-10-14 at 18:04
Chloride (IC)	E 300.0	64180	2010-10-26 at 14:38	74818	2010-10-26 at 17:25
SO4 (IC)	E 300.0	64638	2010-11-12 at 12:49	75341	2010-11-12 at 17:36
TDS	SM 2540C	63873	2010-10-15 at 10:25	74622	2010-10-21 at 14:52

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10101404 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 247497 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 74557
Prep Batch: 63840

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00380	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)	¹	0.0618	mg/L	1	0.100	62	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0392	mg/L	1	0.100	39	39 - 138

Sample: 247497 - MW-1

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 74818
Prep Batch: 64180

Analytical Method: E 300.0
Date Analyzed: 2010-10-26
Sample Preparation: 2010-10-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		130000	mg/L	10000	2.50

Sample: 247497 - MW-1

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 75341
Prep Batch: 64638

Analytical Method: E 300.0
Date Analyzed: 2010-11-12
Sample Preparation: 2010-11-12

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1500	mg/L	50	2.50

¹SPECIAL - TFT is out of control limits due to an unknown anomaly. However, 4-BFB is within control limits and shows the method to be in control. •

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Sample: 247497 - MW-1

Laboratory: Midland
Analysis: TDS
QC Batch: 74622
Prep Batch: 63873

Analytical Method: SM 2540C
Date Analyzed: 2010-10-21
Sample Preparation: 2010-10-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		235000	mg/L	100	10.0

Sample: 247498 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 74557
Prep Batch: 63840

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00170	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)	²	0.0428	mg/L	1	0.100	43	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0401	mg/L	1	0.100	40	39 - 138

Sample: 247498 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 74818
Prep Batch: 64180

Analytical Method: E 300.0
Date Analyzed: 2010-10-26
Sample Preparation: 2010-10-26

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		51800	mg/L	5000	2.50

²SPECIAL - TFT is out of control limits due to an unknown anomaly. However, 4-BFB is within control limits and shows the method to be in control. •

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Sample: 247498 - MW-2

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2010-11-12	Analyzed By:	PG
QC Batch:	75341	Sample Preparation:	2010-11-12	Prepared By:	PG
Prep Batch:	64638				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		945	mg/L	50	2.50

Sample: 247498 - MW-2

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		108000	mg/L	100	10.0

Sample: 247499 - MW-3

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

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)		0.107	mg/L	1	0.100	107	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0507	mg/L	1	0.100	51	39 - 138

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Sample: 247499 - MW-3

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		85500	mg/L	10000	2.50

Sample: 247499 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2010-11-12	Analyzed By:	PG
QC Batch:	75341	Sample Preparation:	2010-11-12	Prepared By:	PG
Prep Batch:	64638				

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		934	mg/L	50	2.50

Sample: 247499 - MW-3

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		167000	mg/L	100	10.0

Sample: 247500 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00150	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100

continued ...

sample 247500 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)	³	0.0444	mg/L	1	0.100	44	66.2 - 107
4-Bromofluorobenzene (4-BFB)		0.0422	mg/L	1	0.100	42	39 - 138

Sample: 247500 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		93200	mg/L	10000	2.50

Sample: 247500 - MW-4

Laboratory: Lubbock
 Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A
 QC Batch: 75341 Date Analyzed: 2010-11-12 Analyzed By: PG
 Prep Batch: 64638 Sample Preparation: 2010-11-12 Prepared By: PG

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1640	mg/L	50	2.50

Sample: 247500 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		175000	mg/L	100	10.0

³SPECIAL - TFT is out of control limits due to an unknown anomaly. However, 4-BFB is within control limits and shows the method to be in control. •

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Method Blank (1) QC Batch: 74557

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

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000400	mg/L	0.001
Toluene		<0.000800	mg/L	0.001
Ethylbenzene		<0.000400	mg/L	0.001
Xylene		<0.000400	mg/L	0.001

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

Method Blank (1) QC Batch: 74622

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

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		11.0	mg/L	10

Method Blank (1) QC Batch: 74818

QC Batch: 74818 Date Analyzed: 2010-10-26 Analyzed By: PG
Prep Batch: 64180 QC Preparation: 2010-10-26 Prepared By: PG

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

Method Blank (1) QC Batch: 75341

QC Batch: 75341 Date Analyzed: 2010-11-12 Analyzed By: PG
Prep Batch: 64638 QC Preparation: 2010-11-12 Prepared By: PG

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

Duplicates (2) Duplicated Sample: 247533

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

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

Laboratory Control Spike (LCS-1)

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

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

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

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

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)	0.0875	0.0904	mg/L	1	0.100	88	90	72.5 - 126
4-Bromofluorobenzene (4-BFB)	0.0805	0.0847	mg/L	1	0.100	80	85	48.3 - 135

Laboratory Control Spike (LCS-1)

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

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids	979	mg/L	1	1000	<9.75	98	90 - 110

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids	994	mg/L	1	1000	<9.75	99	90 - 110	2	10

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

Laboratory Control Spike (LCS-1)

QC Batch: 74818
Prep Batch: 64180

Date Analyzed: 2010-10-26
QC Preparation: 2010-10-26

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	<0.0350	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	<0.0350	96	90 - 110	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 75341
Prep Batch: 64638

Date Analyzed: 2010-11-12
QC Preparation: 2010-11-12

Analyzed By: PG
Prepared By: PG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	24.8	mg/L	1	25.0	<0.596	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	25.8	mg/L	1	25.0	<0.596	103	90 - 110	4	20

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

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Matrix Spike (MS-1) Spiked Sample: 247532

QC Batch: 74557
Prep Batch: 63840

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

Analyzed By: AG
Prepared By: AG

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

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

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	⁴	0.0817	mg/L	1	0.100	0.0048	77	60.9 - 132	27	20
Toluene	⁵	0.0712	mg/L	1	0.100	<0.000800	71	65.7 - 129	26	20
Ethylbenzene	⁶	0.0645	mg/L	1	0.100	<0.000400	64	51.5 - 134	31	20
Xylene		0.283	mg/L	1	0.300	<0.000400	94	62.6 - 124	16	20

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

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	^{7 8}	0.317	0.331	mg/L	1	0.1	317	331	75.1 - 117
4-Bromofluorobenzene (4-BFB)		0.0577	0.0585	mg/L	1	0.1	58	58	31.3 - 143

Matrix Spike (MS-1) Spiked Sample: 247502

QC Batch: 74818
Prep Batch: 64180

Date Analyzed: 2010-10-26
QC Preparation: 2010-10-26

Analyzed By: PG
Prepared By: PG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	244000	mg/L	10000	250000	16700	91	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	248000	mg/L	10000	250000	16700	92	90 - 110	2	20

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

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

⁵MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁶MS/MSD RPD out of RPD Limits. Use LCS/LCSD to demonstrate analysis is under control.

⁷High surrogate recovery due to peak interference.

⁸High surrogate recovery due to peak interference.

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Matrix Spike (MS-1) Spiked Sample: 250076

QC Batch: 75341
Prep Batch: 64638

Date Analyzed: 2010-11-12
QC Preparation: 2010-11-12

Analyzed By: PG
Prepared By: PG

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	⁹	274	mg/L	5	125	<2.98	219	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	¹⁰	278	mg/L	5	125	<2.98	222	90 - 110	1	20

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

Standard (CCV-1)

QC Batch: 74557

Date Analyzed: 2010-10-14

Analyzed By: AG

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

Standard (CCV-2)

QC Batch: 74557

Date Analyzed: 2010-10-14

Analyzed By: AG

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

Standard (CCV-1)

QC Batch: 74818

Date Analyzed: 2010-10-26

Analyzed By: PG

⁹matrix spikes run with batch but spiked sample was reported in another run •

¹⁰matrix spikes run with batch but spiked sample was reported in another run •

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

Standard (CCV-2)

QC Batch: 74818

Date Analyzed: 2010-10-26

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	23.6	94	90 - 110	2010-10-26

Standard (CCV-1)

QC Batch: 75341

Date Analyzed: 2010-11-12

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	24.3	97	90 - 110	2010-11-12

Standard (CCV-2)

QC Batch: 75341

Date Analyzed: 2010-11-12

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	25.8	103	90 - 110	2010-11-12

Analysis Request of Chain of Custody Record



TETRA TECH

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CLIENT NAME:		PROJECT NO.:		PROJECT NAME:		SITE MANAGER:																																																																																																																																											
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Please fill out all copies - Laboratory retains Yellow copy - Return Original copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

157K56164



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200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: February 7, 2011

Work Order: 11012135



Project Name: Celero/Rock Queen Saltwater Plant #1
Project Number: 115-6403134

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
255925	MW-1	water	2011-01-19	17:58	2011-01-21
255926	MW-2	water	2011-01-19	17:50	2011-01-21
255927	MW-3	water	2011-01-19	17:30	2011-01-21
255928	MW-4	water	2011-01-19	18:10	2011-01-21
255929	MW-5	water	2011-01-19	18:05	2011-01-21
255930	MW-6	water	2011-01-19	17:43	2011-01-21
255931	MW-7	water	2011-01-19	17:35	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 Saltwater Plant #1 were received by TraceAnalysis, Inc. on 2011-01-21 and assigned to work order 11012135. Samples for work order 11012135 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	66196	2011-01-25 at 10:00	77170	2011-01-25 at 14:57
BTEX	S 8021B	66223	2011-01-27 at 10:00	77205	2011-01-27 at 11:06
Chloride (IC)	E 300.0	66402	2011-02-04 at 11:18	77415	2011-02-04 at 15:32
SO4 (IC)	E 300.0	66402	2011-02-04 at 11:18	77415	2011-02-04 at 15:32
SO4 (IC)	E 300.0	66413	2011-02-06 at 10:00	77426	2011-02-06 at 12:17
TDS	SM 2540C	66164	2011-01-25 at 12:00	77317	2011-02-01 at 15:04

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11012135 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: February 7, 2011
115-6403134

Work Order: 11012135
Celero/Rock Queen Saltwater Plant #1

Page Number: 4 of 21

Analytical Report

Sample: 255925 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 77205
Prep Batch: 66223

Analytical Method: S 8021B
Date Analyzed: 2011-01-27
Sample Preparation: 2011-01-27

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.0116	mg/L	1	0.00100
Toluene		0.00590	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)	¹	0.0447	mg/L	1	0.100	45	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)	²	0.0396	mg/L	1	0.100	40	78.6 - 122.8

Sample: 255925 - MW-1

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 77415
Prep Batch: 66402

Analytical Method: E 300.0
Date Analyzed: 2011-02-04
Sample Preparation: 2011-02-04

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		132000	mg/L	10000	2.50

Sample: 255925 - MW-1

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1940	mg/L	100	2.50

¹Surrogate TFT out due to matrix interference. Sample was reran on 01-27-2011 to confirm matrix interference results.

²Surrogate 4-BFB out due to matrix interference. Sample was reran on 01-27-2011 to confirm matrix interference results.

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Sample: 255925 - MW-1

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		234000	mg/L	100	10.0

Sample: 255926 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 77170
Prep Batch: 66196

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

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0720	mg/L	1	0.100	72	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0673	mg/L	1	0.100	67	78.6 - 122.8

Sample: 255926 - MW-2

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 77415
Prep Batch: 66402

Analytical Method: E 300.0
Date Analyzed: 2011-02-04
Sample Preparation: 2011-02-04

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		66600	mg/L	10000	2.50

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Sample: 255926 - MW-2

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1640	mg/L	100	2.50

Sample: 255926 - MW-2

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		133000	mg/L	100	10.0

Sample: 255927 - MW-3

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.00100	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100
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)	³	0.0666	mg/L	1	0.100	67	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0648	mg/L	1	0.100	65	78.6 - 122.8

³SPECIAL - TFT is out of control limits due to an unknown anomaly. However, 4-BFB shows the method to be in control. •

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Sample: 255927 - MW-3

Laboratory:	Lubbock	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2011-02-04	Analyzed By:	PG
QC Batch:	77415	Sample Preparation:	2011-02-04	Prepared By:	PG
Prep Batch:	66402				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		85200	mg/L	10000	2.50

Sample: 255927 - MW-3

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		1230	mg/L	100	2.50

Sample: 255927 - MW-3

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		154000	mg/L	100	10.0

Sample: 255928 - MW-4

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-01-27	Analyzed By:	AG
QC Batch:	77205	Sample Preparation:	2011-01-27	Prepared By:	AG
Prep Batch:	66223				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.00950	mg/L	1	0.00100
Toluene		<0.00100	mg/L	1	0.00100

continued ...

sample 255928 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)	⁴	0.0458	mg/L	1	0.100	46	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)	⁵	0.0434	mg/L	1	0.100	43	78.6 - 122.8

Sample: 255928 - MW-4

Laboratory: Lubbock			
Analysis: Chloride (IC)	Analytical Method: E 300.0	Prep Method: N/A	
QC Batch: 77415	Date Analyzed: 2011-02-04	Analyzed By: PG	
Prep Batch: 66402	Sample Preparation: 2011-02-04	Prepared By: PG	

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		93200	mg/L	10000	2.50

Sample: 255928 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		2360	mg/L	100	2.50

Sample: 255928 - MW-4

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		173000	mg/L	100	10.0

⁴Surrogate TFT out due to matrix interference. Sample was reran on 01-27-2011 to confirm matrix interference results.

⁵Surrogate 4-BFB out due to matrix interference. Sample was reran on 01-27-2011 to confirm matrix interference results.

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Sample: 255929 - MW-5

Laboratory: Midland
Analysis: BTEX
QC Batch: 77170
Prep Batch: 66196

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

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.104	mg/L	1	0.100	104	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0933	mg/L	1	0.100	93	78.6 - 122.8

Sample: 255929 - MW-5

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 77415
Prep Batch: 66402

Analytical Method: E 300.0
Date Analyzed: 2011-02-04
Sample Preparation: 2011-02-04

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		32400	mg/L	5000	2.50

Sample: 255929 - MW-5

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		822	mg/L	50	2.50

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Sample: 255929 - MW-5

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		69700	mg/L	100	10.0

Sample: 255930 - MW-6

Laboratory: Midland
Analysis: BTEX
QC Batch: 77170
Prep Batch: 66196

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

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

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

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

Sample: 255930 - MW-6

Laboratory: Lubbock
Analysis: Chloride (IC)
QC Batch: 77415
Prep Batch: 66402

Analytical Method: E 300.0
Date Analyzed: 2011-02-04
Sample Preparation: 2011-02-04

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3010	mg/L	100	2.50

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Sample: 255930 - MW-6

Laboratory: Lubbock
Analysis: SO4 (IC)
QC Batch: 77415
Prep Batch: 66402

Analytical Method: E 300.0
Date Analyzed: 2011-02-04
Sample Preparation: 2011-02-04

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

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

Sample: 255930 - MW-6

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

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

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		16500	mg/L	10	10.0

Sample: 255931 - MW-7

Laboratory: Midland
Analysis: BTEX
QC Batch: 77170
Prep Batch: 66196

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

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0863	mg/L	1	0.100	86	75.4 - 119.4
4-Bromofluorobenzene (4-BFB)		0.0789	mg/L	1	0.100	79	78.6 - 122.8

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Sample: 255931 - MW-7

Laboratory:	Lubbock		
Analysis:	Chloride (IC)	Analytical Method:	E 300.0
QC Batch:	77415	Date Analyzed:	2011-02-04
Prep Batch:	66402	Sample Preparation:	2011-02-04
		Prep Method:	N/A
		Analyzed By:	PG
		Prepared By:	PG

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		35700	mg/L	5000	2.50

Sample: 255931 - MW-7

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

Parameter	Flag	RL Result	Units	Dilution	RL
Sulfate		478	mg/L	50	2.50

Sample: 255931 - MW-7

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

Parameter	Flag	RL Result	Units	Dilution	RL
Total Dissolved Solids		75700	mg/L	100	10.0

Method Blank (1) QC Batch: 77170

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

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

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method blank continued ...

Parameter	Flag	MDL Result	Units	RL
Xylene		<0.000333	mg/L	0.001

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

Method Blank (1) QC Batch: 77205

QC Batch: 77205
Prep Batch: 66223

Date Analyzed: 2011-01-27
QC Preparation: 2011-01-27

Analyzed By: AG
Prepared By: AG

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.117	mg/L	1	0.100	117	70.8 - 117.4
4-Bromofluorobenzene (4-BFB)		0.0998	mg/L	1	0.100	100	79 - 113.4

Method Blank (1) QC Batch: 77317

QC Batch: 77317
Prep Batch: 66164

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

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 77415

QC Batch: 77415
Prep Batch: 66402

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

Analyzed By: PG
Prepared By: PG

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

Method Blank (1) QC Batch: 77415

QC Batch: 77415 Date Analyzed: 2011-02-04 Analyzed By: PG
Prep Batch: 66402 QC Preparation: 2011-02-04 Prepared By: PG

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

Method Blank (1) QC Batch: 77426

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

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

Duplicates (1) Duplicated Sample: 255931

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

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

Laboratory Control Spike (LCS-1)

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

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0891	mg/L	1	0.100	<0.000400	89	76.8 - 110.3
Toluene	0.103	mg/L	1	0.100	<0.000300	103	81 - 108.2
Ethylbenzene	0.108	mg/L	1	0.100	<0.000300	108	78.8 - 111

continued ...

control spikes continued . . .

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene	0.328	mg/L	1	0.300	<0.000333	109	80.3 - 111.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0843	mg/L	1	0.100	<0.000400	84	76.8 - 110.3	6	20
Toluene	0.0988	mg/L	1	0.100	<0.000300	99	81 - 108.2	4	20
Ethylbenzene	0.103	mg/L	1	0.100	<0.000300	103	78.8 - 111	5	20
Xylene	0.312	mg/L	1	0.300	<0.000333	104	80.3 - 111.4	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.112	0.111	mg/L	1	0.100	112	111	66.6 - 114.5
4-Bromofluorobenzene (4-BFB)	0.108	0.106	mg/L	1	0.100	108	106	77.1 - 114.4

Laboratory Control Spike (LCS-1)

QC Batch: 77205
Prep Batch: 66223

Date Analyzed: 2011-01-27
QC Preparation: 2011-01-27

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0939	mg/L	1	0.100	<0.000400	94	76.8 - 110.3
Toluene	0.102	mg/L	1	0.100	<0.000300	102	81 - 108.2
Ethylbenzene	0.108	mg/L	1	0.100	<0.000300	108	78.8 - 111
Xylene	0.326	mg/L	1	0.300	<0.000333	109	80.3 - 111.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0896	mg/L	1	0.100	<0.000400	90	76.8 - 110.3	5	20
Toluene	0.0970	mg/L	1	0.100	<0.000300	97	81 - 108.2	5	20
Ethylbenzene	0.105	mg/L	1	0.100	<0.000300	105	78.8 - 111	3	20
Xylene	0.317	mg/L	1	0.300	<0.000333	106	80.3 - 111.4	3	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)	0.115	0.108	mg/L	1	0.100	115	108	66.6 - 114.5
4-Bromofluorobenzene (4-BFB)	0.105	0.100	mg/L	1	0.100	105	100	77.1 - 114.4

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Laboratory Control Spike (LCS-1)

QC Batch: 77317
Prep Batch: 66164

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

Analyzed By: AR
Prepared By: AR

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 77415
Prep Batch: 66402

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

Analyzed By: PG
Prepared By: PG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	23.6	mg/L	1	25.0	<0.0142	94	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	23.7	mg/L	1	25.0	<0.0142	95	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: 77415
Prep Batch: 66402

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

Analyzed By: PG
Prepared By: PG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	24.1	mg/L	1	25.0	<0.126	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
Sulfate	24.2	mg/L	1	25.0	<0.126	97	90 - 110	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 77426
Prep Batch: 66413

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

Analyzed By: PG
Prepared By: PG

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate	24.7	mg/L	1	25.0	<0.126	99	90 - 110	0	20

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

Matrix Spike (MS-1) Spiked Sample: 256101

QC Batch: 77170
Prep Batch: 66196

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

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0827	mg/L	1	0.100	<0.000400	83	68.2 - 119.3
Toluene	0.0851	mg/L	1	0.100	<0.000300	85	74.6 - 110.8
Ethylbenzene	0.0786	mg/L	1	0.100	<0.000300	79	71.6 - 111.9
Xylene	⁶ 0.204	mg/L	1	0.300	<0.000333	68	71.3 - 113.4

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0777	mg/L	1	0.100	<0.000400	78	68.2 - 119.3	6	20
Toluene	0.0814	mg/L	1	0.100	<0.000300	81	74.6 - 110.8	4	20
Ethylbenzene	⁷ 0.0750	mg/L	1	0.100	<0.000300	75	71.6 - 111.9	5	20
Xylene	⁸ 0.193	mg/L	1	0.300	<0.000333	64	71.3 - 113.4	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0829	0.0831	mg/L	1	0.1	83	83	68.2 - 110.1
4-Bromofluorobenzene (4-BFB)	0.0830	0.0816	mg/L	1	0.1	83	82	78.7 - 116.2

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

⁷MSD analyte out of range. MS/MSD has a RPD within limits. Therefore, MS shows extraction occurred properly.

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

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Matrix Spike (MS-1) Spiked Sample: 256097

QC Batch: 77415
Prep Batch: 66402

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

Analyzed By: PG
Prepared By: PG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	300000	mg/L	10000	250000	51900	99	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	299000	mg/L	10000	250000	51900	99	90 - 110	0	20

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

Matrix Spike (MS-1) Spiked Sample: 256097

QC Batch: 77415
Prep Batch: 66402

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

Analyzed By: PG
Prepared By: PG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	241000	mg/L	10000	250000	1900	96	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	240000	mg/L	10000	250000	1900	95	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: 255931

QC Batch: 77426
Prep Batch: 66413

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

Analyzed By: PG
Prepared By: PG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	1780	mg/L	50	1250	478	104	90 - 110

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

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

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

Standard (CCV-1)

QC Batch: 77170

Date Analyzed: 2011-01-25

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0857	86	80 - 120	2011-01-25
Toluene		mg/L	0.100	0.100	100	80 - 120	2011-01-25
Ethylbenzene		mg/L	0.100	0.104	104	80 - 120	2011-01-25
Xylene		mg/L	0.300	0.314	105	80 - 120	2011-01-25

Standard (CCV-2)

QC Batch: 77170

Date Analyzed: 2011-01-25

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0873	87	80 - 120	2011-01-25
Toluene		mg/L	0.100	0.101	101	80 - 120	2011-01-25
Ethylbenzene		mg/L	0.100	0.105	105	80 - 120	2011-01-25
Xylene		mg/L	0.300	0.315	105	80 - 120	2011-01-25

Standard (CCV-3)

QC Batch: 77170

Date Analyzed: 2011-01-25

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0844	84	80 - 120	2011-01-25
Toluene		mg/L	0.100	0.0988	99	80 - 120	2011-01-25
Ethylbenzene		mg/L	0.100	0.103	103	80 - 120	2011-01-25
Xylene		mg/L	0.300	0.310	103	80 - 120	2011-01-25

Standard (CCV-1)

QC Batch: 77205

Date Analyzed: 2011-01-27

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	0.0921	92	80 - 120	2011-01-27
Toluene		mg/L	0.100	0.0994	99	80 - 120	2011-01-27
Ethylbenzene		mg/L	0.100	0.108	108	80 - 120	2011-01-27

continued ...

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standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Xylene		mg/L	0.300	0.326	109	80 - 120	2011-01-27

Standard (CCV-2)

QC Batch: 77205

Date Analyzed: 2011-01-27

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	0.0887	89	80 - 120	2011-01-27
Toluene		mg/L	0.100	0.0969	97	80 - 120	2011-01-27
Ethylbenzene		mg/L	0.100	0.101	101	80 - 120	2011-01-27
Xylene		mg/L	0.300	0.304	101	80 - 120	2011-01-27

Standard (CCV-1)

QC Batch: 77415

Date Analyzed: 2011-02-04

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	25.0	24.0	96	90 - 110	2011-02-04

Standard (CCV-1)

QC Batch: 77415

Date Analyzed: 2011-02-04

Analyzed By: PG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		mg/L	25.0	24.5	98	90 - 110	2011-02-04

Standard (CCV-2)

QC Batch: 77415

Date Analyzed: 2011-02-04

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	23.5	94	90 - 110	2011-02-04

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Standard (CCV-2)

QC Batch: 77415

Date Analyzed: 2011-02-04

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	24.0	96	90 - 110	2011-02-04

Standard (CCV-1)

QC Batch: 77426

Date Analyzed: 2011-02-06

Analyzed By: PG

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

Standard (CCV-2)

QC Batch: 77426

Date Analyzed: 2011-02-06

Analyzed By: PG

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



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: April 27, 2011

Work Order: 11041523

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen SWD #1
Project Number: 115-6403134A

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
263877	MW-1	water	2011-04-14	11:00	2011-04-15
263878	MW-2	water	2011-04-14	10:55	2011-04-15
263879	MW-3	water	2011-04-14	11:15	2011-04-15
263880	MW-4	water	2011-04-14	11:55	2011-04-15
263881	MW-5	water	2011-04-14	11:30	2011-04-15
263882	MW-6	water	2011-04-14	11:15	2011-04-15
263883	MW-7	water	2011-04-14	11:35	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 28 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 SWD #1 were received by TraceAnalysis, Inc. on 2011-04-15 and assigned to work order 11041523. Samples for work order 11041523 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	68257	2011-04-18 at 08:51	80419	2011-04-18 at 08:51
Chloride (IC)	E 300.0	68352	2011-04-19 at 15:05	80544	2011-04-21 at 15:08
Chloride (IC)	E 300.0	68353	2011-04-19 at 15:06	80545	2011-04-21 at 15:09
Chloride (IC)	E 300.0	68437	2011-04-25 at 09:23	80664	2011-04-26 at 15:31
SO4 (IC)	E 300.0	68352	2011-04-19 at 15:05	80544	2011-04-21 at 15:08
SO4 (IC)	E 300.0	68353	2011-04-19 at 15:06	80545	2011-04-21 at 15:09
TDS	SM 2540C	68386	2011-04-19 at 11:50	80661	2011-04-25 at 15:08

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 11041523 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: 263877 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 80419
Prep Batch: 68257

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	0.00880	mg/L	1	0.00100
Toluene		1	0.00550	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	0.0684	mg/L	1	0.100	68	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0722	mg/L	1	0.100	72	51.1 - 128

Sample: 263877 - 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	174000	mg/L	5000	2.50

Sample: 263877 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 80544
Prep Batch: 68352

Analytical Method: E 300.0
Date Analyzed: 2011-04-21
Sample Preparation: 2011-04-19

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1830	mg/L	100	2.50

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Sample: 263877 - MW-1

Laboratory: Midland

Analysis: TDS

QC Batch: 80661

Prep Batch: 68386

Analytical Method: SM 2540C

Date Analyzed: 2011-04-25

Sample Preparation: 2011-04-19

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	237000	mg/L	100	10.0

Sample: 263878 - MW-2

Laboratory: Midland

Analysis: BTEX

QC Batch: 80419

Prep Batch: 68257

Analytical Method: S 8021B

Date Analyzed: 2011-04-18

Sample Preparation: 2011-04-18

Prep Method: S 5030B

Analyzed By: ME

Prepared By: ME

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1	0.0708	mg/L	1	0.100	71	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0783	mg/L	1	0.100	78	51.1 - 128

Sample: 263878 - MW-2

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 80544

Prep Batch: 68352

Analytical Method: E 300.0

Date Analyzed: 2011-04-21

Sample Preparation: 2011-04-19

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	99700	mg/L	5000	2.50

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Sample: 263878 - MW-2

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-04-21	Analyzed By:	AR
QC Batch:	80544	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68352				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1820	mg/L	50	2.50

Sample: 263878 - MW-2

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-04-25	Analyzed By:	AR
QC Batch:	80661	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68386				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	159000	mg/L	100	10.0

Sample: 263879 - MW-3

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-04-18	Analyzed By:	ME
QC Batch:	80419	Sample Preparation:	2011-04-18	Prepared By:	ME
Prep Batch:	68257				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.00590	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	0.0717	mg/L	1	0.100	72	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0830	mg/L	1	0.100	83	51.1 - 128

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Celero/Rock Queen SWD #1

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Sample: 263879 - MW-3

Laboratory:	Midland		
Analysis:	Chloride (IC)	Analytical Method:	E 300.0
QC Batch:	80544	Date Analyzed:	2011-04-21
Prep Batch:	68352	Sample Preparation:	2011-04-19
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	118000	mg/L	5000	2.50

Sample: 263879 - MW-3

Laboratory:	Midland		
Analysis:	SO4 (IC)	Analytical Method:	E 300.0
QC Batch:	80544	Date Analyzed:	2011-04-21
Prep Batch:	68352	Sample Preparation:	2011-04-19
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1250	mg/L	50	2.50

Sample: 263879 - MW-3

Laboratory:	Midland		
Analysis:	TDS	Analytical Method:	SM 2540C
QC Batch:	80661	Date Analyzed:	2011-04-25
Prep Batch:	68386	Sample Preparation:	2011-04-19
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	188000	mg/L	100	10.0

Sample: 263880 - MW-4

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	80419	Date Analyzed:	2011-04-18
Prep Batch:	68257	Sample Preparation:	2011-04-18
		Prep Method:	S 5030B
		Analyzed By:	ME
		Prepared By:	ME

continued ...

Report Date: April 27, 2011
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Work Order: 11041523
Celero/Rock Queen SWD #1

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sample 263880 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	0.00640	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	0.0720	mg/L	1	0.100	72	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.0776	mg/L	1	0.100	78	51.1 - 128

Sample: 263880 - MW-4

Laboratory: Midland	Analytical Method: E 300.0	Prep Method: N/A
Analysis: Chloride (IC)	Date Analyzed: 2011-04-21	Analyzed By: AR
QC Batch: 80545	Sample Preparation: 2011-04-19	Prepared By: AR
Prep Batch: 68353		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	102000	mg/L	5000	2.50

Sample: 263880 - MW-4

Laboratory: Midland	Analytical Method: E 300.0	Prep Method: N/A
Analysis: SO4 (IC)	Date Analyzed: 2011-04-21	Analyzed By: AR
QC Batch: 80545	Sample Preparation: 2011-04-19	Prepared By: AR
Prep Batch: 68353		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1950	mg/L	50	2.50

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Sample: 263880 - MW-4

Laboratory: Midland

Analysis: TDS

QC Batch: 80661

Prep Batch: 68386

Analytical Method: SM 2540C

Date Analyzed: 2011-04-25

Sample Preparation: 2011-04-19

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	159000	mg/L	100	10.0

Sample: 263881 - MW-5

Laboratory: Midland

Analysis: BTEX

QC Batch: 80419

Prep Batch: 68257

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	0.0965	mg/L	1	0.100	96	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.102	mg/L	1	0.100	102	51.1 - 128

Sample: 263881 - MW-5

Laboratory: Midland

Analysis: Chloride (IC)

QC Batch: 80545

Prep Batch: 68353

Analytical Method: E 300.0

Date Analyzed: 2011-04-21

Sample Preparation: 2011-04-19

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	20000	mg/L	1000	2.50

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Sample: 263881 - MW-5

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-04-21	Analyzed By:	AR
QC Batch:	80545	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68353				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	1070	mg/L	100	2.50

Sample: 263881 - MW-5

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-04-25	Analyzed By:	AR
QC Batch:	80661	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68386				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	39400	mg/L	100	10.0

Sample: 263882 - MW-6

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-04-18	Analyzed By:	ME
QC Batch:	80419	Sample Preparation:	2011-04-18	Prepared By:	ME
Prep Batch:	68257				

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	0.101	mg/L	1	0.100	101	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.103	mg/L	1	0.100	103	51.1 - 128

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Sample: 263882 - MW-6

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	Chloride (IC)	Date Analyzed:	2011-04-21	Analyzed By:	AR
QC Batch:	80545	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68353				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	1320	mg/L	100	2.50

Sample: 263882 - MW-6

Laboratory:	Midland	Analytical Method:	E 300.0	Prep Method:	N/A
Analysis:	SO4 (IC)	Date Analyzed:	2011-04-21	Analyzed By:	AR
QC Batch:	80545	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68353				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	188	mg/L	5	2.50

Sample: 263882 - MW-6

Laboratory:	Midland	Analytical Method:	SM 2540C	Prep Method:	N/A
Analysis:	TDS	Date Analyzed:	2011-04-25	Analyzed By:	AR
QC Batch:	80661	Sample Preparation:	2011-04-19	Prepared By:	AR
Prep Batch:	68386				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	2100	mg/L	5	10.0

Sample: 263883 - MW-7

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5030B
Analysis:	BTEX	Date Analyzed:	2011-04-18	Analyzed By:	ME
QC Batch:	80419	Sample Preparation:	2011-04-18	Prepared By:	ME
Prep Batch:	68257				

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sample 263883 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	0.0875	mg/L	1	0.100	88	67.8 - 129
4-Bromofluorobenzene (4-BFB)		1	0.101	mg/L	1	0.100	101	51.1 - 128

Sample: 263883 - MW-7

Laboratory: Midland	Analytical Method: E 300.0	Prep Method: N/A
Analysis: Chloride (IC)	Date Analyzed: 2011-04-21	Analyzed By: AR
QC Batch: 80545	Sample Preparation: 2011-04-19	Prepared By: AR
Prep Batch: 68353		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	61500	mg/L	5000	2.50

Sample: 263883 - MW-7

Laboratory: Midland	Analytical Method: E 300.0	Prep Method: N/A
Analysis: SO4 (IC)	Date Analyzed: 2011-04-21	Analyzed By: AR
QC Batch: 80545	Sample Preparation: 2011-04-19	Prepared By: AR
Prep Batch: 68353		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	657	mg/L	50	2.50

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Sample: 263883 - MW-7

Laboratory: Midland

Analysis: TDS

QC Batch: 80661

Prep Batch: 68386

Analytical Method: SM 2540C

Date Analyzed: 2011-04-25

Sample Preparation: 2011-04-19

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	91000	mg/L	100	10.0

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Method Blanks

Method Blank (1) QC Batch: 80419

QC Batch: 80419
Prep Batch: 68257

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	0.0911	mg/L	1	0.100	91	70.2 - 118
4-Bromofluorobenzene (4-BFB)		1	0.104	mg/L	1	0.100	104	47.3 - 116

Method Blank (1) QC Batch: 80544

QC Batch: 80544
Prep Batch: 68352

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.511	mg/L	2.5

Method Blank (1) QC Batch: 80544

QC Batch: 80544
Prep Batch: 68352

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

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: 80545

QC Batch: 80545
Prep Batch: 68353

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	1.10	mg/L	2.5

Method Blank (1) QC Batch: 80545

QC Batch: 80545
Prep Batch: 68353

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

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: 80661

QC Batch: 80661
Prep Batch: 68386

Date Analyzed: 2011-04-25
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

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

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

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Duplicates (1) Duplicated Sample: 263885

QC Batch: 80661
Prep Batch: 68386

Date Analyzed: 2011-04-25
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	90500	84500	mg/L	100	7	10

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 80419
Prep Batch: 68257

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	0.0882	mg/L	1	0.100	<0.000400	88	76.8 - 110
Toluene		1	0.0944	mg/L	1	0.100	<0.000300	94	81 - 108
Ethylbenzene		1	0.0965	mg/L	1	0.100	<0.000300	96	78.8 - 118
Xylene		1	0.291	mg/L	1	0.300	<0.000333	97	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	0.0948	mg/L	1	0.100	<0.000400	95	76.8 - 110	7	20
Toluene		1	0.102	mg/L	1	0.100	<0.000300	102	81 - 108	8	20
Ethylbenzene		1	0.104	mg/L	1	0.100	<0.000300	104	78.8 - 118	8	20
Xylene		1	0.314	mg/L	1	0.300	<0.000333	105	80.3 - 119	8	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	0.0994	0.0964	mg/L	1	0.100	99	96	66.6 - 114
4-Bromofluorobenzene (4-BFB)		1	0.119	0.116	mg/L	1	0.100	119	116	68.2 - 124

Laboratory Control Spike (LCS-1)

QC Batch: 80544
Prep Batch: 68352

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

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	25.2	mg/L	1	25.0	<0.265	101	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: 80544
Prep Batch: 68352

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	24.8	mg/L	1	25.0	<0.177	99	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	24.7	mg/L	1	25.0	<0.177	99	90 - 110	0	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 80545
Prep Batch: 68353

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.4	mg/L	1	25.0	<0.265	102	90 - 110

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.5	mg/L	1	25.0	<0.265	102	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: 80545
Prep Batch: 68353

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	24.6	mg/L	1	25.0	<0.177	98	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	24.6	mg/L	1	25.0	<0.177	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: 80661
Prep Batch: 68386

Date Analyzed: 2011-04-25
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	997	mg/L	1	1000	<9.75	100	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1	988	mg/L	1	1000	<9.75	99	90 - 110	1	10

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

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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Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.5	mg/L	1	25.0	<0.265	102	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: 263879

QC Batch: 80544
Prep Batch: 68352

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	115000	mg/L	50	1380	115000	0	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	116000	mg/L	50	1380	115000	0	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: 263879

QC Batch: 80544
Prep Batch: 68352

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2360	mg/L	50	1380	1250	81	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	2370	mg/L	50	1380	1250	81	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: 263882

QC Batch: 80545
Prep Batch: 68353

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	3920	mg/L	100	2750	1320	94	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	3900	mg/L	100	2750	1320	94	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: 263882

QC Batch: 80545
Prep Batch: 68353

Date Analyzed: 2011-04-21
QC Preparation: 2011-04-19

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	2890	mg/L	100	2750	438	89	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	2890	mg/L	100	2750	438	89	90 - 110	30	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
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.

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.

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Calibration Standards

Standard (CCV-1)

QC Batch: 80419

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	0.0932	93	80 - 120	2011-04-18
Toluene		1	mg/L	0.100	0.0973	97	80 - 120	2011-04-18
Ethylbenzene		1	mg/L	0.100	0.0962	96	80 - 120	2011-04-18
Xylene		1	mg/L	0.300	0.292	97	80 - 120	2011-04-18

Standard (CCV-2)

QC Batch: 80419

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	0.0964	96	80 - 120	2011-04-18
Toluene		1	mg/L	0.100	0.100	100	80 - 120	2011-04-18
Ethylbenzene		1	mg/L	0.100	0.0997	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: 80544

Date Analyzed: 2011-04-21

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.1	96	90 - 110	2011-04-21

Standard (ICV-1)

QC Batch: 80544

Date Analyzed: 2011-04-21

Analyzed By: AR

Report Date: April 27, 2011
115-6403134A

Work Order: 11041523
Celero/Rock Queen SWD #1

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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	24.8	99	90 - 110	2011-04-21

Standard (CCV-1)

QC Batch: 80544

Date Analyzed: 2011-04-21

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.4	98	90 - 110	2011-04-21

Standard (CCV-1)

QC Batch: 80544

Date Analyzed: 2011-04-21

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	25.0	100	90 - 110	2011-04-21

Standard (ICV-1)

QC Batch: 80545

Date Analyzed: 2011-04-21

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.4	98	90 - 110	2011-04-21

Standard (ICV-1)

QC Batch: 80545

Date Analyzed: 2011-04-21

Analyzed By: AR

Report Date: April 27, 2011
115-6403134A

Work Order: 11041523
Celero/Rock Queen SWD #1

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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	25.0	100	90 - 110	2011-04-21

Standard (CCV-1)

QC Batch: 80545

Date Analyzed: 2011-04-21

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.2	97	90 - 110	2011-04-21

Standard (CCV-1)

QC Batch: 80545

Date Analyzed: 2011-04-21

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	25.1	100	90 - 110	2011-04-21

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 (CCV-1)

QC Batch: 80664

Date Analyzed: 2011-04-26

Analyzed By: AR

Report Date: April 27, 2011
115-6403134A

Work Order: 11041523
Celero/Rock Queen SWD #1

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	23.3	93	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.

26877-11041523

Analysis Request of Chain of Custody Record



TETRA TECH

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

CLIENT NAME: <u>Celero</u>		SITE MANAGER: <u>Jeff Kindley</u>	
PROJECT NO.: <u>115-6403134</u>		PROJECT NAME: <u>Rock Queen SWD #1</u>	
LAB I.D. NUMBER	DATE	TIME	SAMPLE IDENTIFICATION
26877	4/14	1100	MW-1
878		1055	MW-2
879		1115	MW-3
880		1155	MW-4
881		1130	MW-5
882		1115	MW-6
883	4/14	1135	MW-7
RELINQUISHED BY: (Signature) <u>Jeff Kindley</u>		RECEIVED BY: (Signature) <u>Jeff Kindley</u>	
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)	
RECEIVING LABORATORY: <u>Rock</u>		RECEIVED BY: (Signature)	
CITY: <u>Midland</u> STATE: <u>TX</u> ZIP: <u>79701</u>		DATE: <u>4-15-11</u> TIME: <u>13:50</u>	
CONTACT: <u>26877-11041523</u>		DATE: <u>4-15-11</u> TIME: <u>13:50</u>	

ANALYSIS REQUEST (Circle or Specify Method No.)		PAGE: <u>1</u> OF: <u>1</u>
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. 8240/8260/824	GC/MS Semi. Vol. 8270/826
PCB's 8060/808	Pest. 808/808	Chloride
Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
Major Anions/Cations, pH, TDS	Sulfates	

SAMPLED BY: (Print & Initial) <u>James Kennedy</u>		DATE: <u>4-14-11</u>
SAMPLE SHIPPED BY: (Circle) <u>FEDEX</u>		TIME: <u>9PM</u>
HAND DELIVERED <u>BUS</u>		OTHER: <u>None</u>
TETRA TECH CONTACT PERSON: <u>Jeff Kindley</u>		RESULTS BY: <u>None</u>
RUSH CHARGES AUTHORIZED: <u>Yes</u>		NO: <u>None</u>

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