1R – 1645

2012 AGWMR

03 / 25 / 2013

TETRA TECH

March 25, 2013

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: 2012 Groundwater Sampling Report for the Celero Energy II, LP, Rock Queen Unit Tract 7 Tank Battery, Located in Unit Letter I, Section 22, Township 13 South, Range 31 East, Chaves County, New Mexico (NMOCD 1RP#1645).

Mr. Von Gonten:

This report details the results of the quarterly groundwater sampling events performed at the Celero Energy II, LP (Celero), Rock Queen Unit Tract 7 Tank Battery (Site) in 2012. The Site is located approximately 22 miles north of Maljamar, New Mexico. The Site location is shown on Figures 1 and 2.

FACILITY BACKGROUND

Pit Closure

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

The Tract 7 Tank Battery pit was dewatered and the residual sludge, tank bottom materials, and liner were removed in October 2007. Removed fluids were placed into an existing SWD system or taken for disposal, while the sludge, tank bottom materials, and liner were disposed of at Gandy-Marley, Inc.'s landfill site in Lovington, New Mexico. Upon completion of the removal of the fluids, sludge, and liner, the underlying soils were visually inspected for signs of impact. Approximately 440 cubic yards of soil were excavated and transported to Gandy-Marley, Inc. for disposal. The pit was excavated to a point where the subsoil would support a soil boring rig.

On October 12, 2009, a report entitled *Assessment and Closure Report for*

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the Pit located at the Rock Queen Unit Track 7 Tank Battery was submitted to the NMOCD. The report detailed the closure of the former pit at the facility.

Groundwater Investigation

Between November 2009 and December 2010, Celero installed four 2-inch monitor wells (MW-1 through MW-4) and one 5-inch recovery well (RW-1) to assess the groundwater quality at the Site. The lithology at the Site was relatively consistent with limestone encountered to approximately 15 feet below ground surface (bgs) and very fine grain sands extending to approximately 150 to 160 feet bgs. From approximately 150 to 160 feet to the terminus of the borings (approximately 155 to 180 feet) the soils consisted of gray to red clay.

During the investigation, groundwater was encountered at depths of approximately 149 to 155 feet bgs. Monitor Well MW-1 was drilled into the surrounding underlying clay to 170 feet bgs and installed with 60 feet of 0.02 inch slotted screen. The remaining monitor wells were drilled to depths of 175 to 180 feet bgs and installed with 40 feet of 0.02 inch slotted screen. Recovery well RW-1 was drilled to a depth of 155 feet and installed with 20 feet of 0.035 inch slotted screen. From the top of the screens to the surface of the boring, the wells were completed with blank schedule 40 PVC casing.

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

Historic Gauging and Monitor Well Sampling

On November 24, 2009, initial sampling began at the site. During 2010, additional monitor wells were installed and quarterly sampling initiated. During the sampling events, all monitor wells were gauged, purged and sampled with no PSH measured. Utilizing the water level elevation calculations, groundwater gradient maps were generated for the sampling events with a hydraulic gradient consistently to the west.

Historically, each of the wells has been 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+. All water samples collected and analyzed were below the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. Chlorides for the sampling period ranged from <125 mg/L in up

gradient monitor well MW-4 on January 19, 2011 to 47,500 mg/L in down gradient monitor well MW-3 on January 19, 2011. With the exception of MW-4 all additional monitor wells exceeded the NMWQCC standard of 250 mg/L chlorides.

2012 GROUNDWATER SAMPLING RESULTS

Tetra Tech, Inc. (Tetra Tech) was onsite January 3, April 9, July 23, and October 23, 2012 to gauge all monitor/recovery wells. No PSH was measured in any of the monitor/recovery wells. Utilizing the water level elevation calculations, groundwater gradient maps were generated for each of the sampling events with a hydraulic gradient consistently to the west. Groundwater gradient maps for the sampling events are included as Figures 4 through 7. Gauging data is summarized in Table 1.

On January 6, April 12, July 25, and October 25, 2012, each of the wells was sampled for BTEX utilizing method SW8021B, chlorides and sulfates utilizing method E 300.0, total dissolved solids (TDS) utilizing method SM2540C. The samples were collected and submitted to Trace Analysis Inc. (Trace) of Lubbock, Texas. All samples collected and analyzed were below the detection limit and hence below the NMWQCC standard of 0.01 milligrams per liter (mg/L) of benzene. Chlorides for the sampling period ranged from 87.5 mg/L in monitor well MW-4 on April 12, 2012 to 45,300 mg/L in monitor well MW-3 on January 6, 2012. With the exception of MW-4, all additional monitor wells exceeded the NMWQCC standard of 250 mg/L chlorides. The general chemistry and BTEX analyses are shown in Tables 2 and 3, respectively. Chloride concentration maps for the sampling events are included as Figures 8 through 11. Copies of the laboratory analyses are enclosed in Appendix A.

During the purging activities, it was noted that all four monitor wells and one recovery well did not pump dry.

CONCLUSIONS

1. Sampling occurred on January 6, April 12, July 25, and October 25, 2012. During the sampling events all monitor wells were gauged, purged and sampled. The samples were preserved, delivered to Trace 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.

2. The hydraulic gradient indicates a westerly direction.

3. All wells tested below the NMQQCC standards of 0.01 mg/L for benzene

throughout 2012

4. Chloride concentrations exceed the NMWQCC standards of 250 mg/L in all monitor wells with the exception of up gradient MW-4. The chloride concentrations at the site range from 87.5 mg/L in up gradient MW-4 on April 12, 2012 to 45,300 mg/L in monitor well MW-3 on January 6, 2012.

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. Perform pump test on the underlying groundwater to determine if it meets the criteria of an aquifer system. Determination of either pursuing closure or additional remediation on the site will be based on the results of the testing of the underlying groundwater.

4. If the pump test verifies that the underlying water is an aquifer system, a remediation system consisting of a windmill will be installed in recovery well RW-1. The recovered fluids will be collected in an above ground tank and utilized for possible water flooding purposes in the surrounding oilfield.

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

Respectfully submitted,
Tetra Tech, Inc.

Jeffrey Kindley, P.G.
Senior Environmental Geologist

cc: Bruce Woodard – Celero Energy II, LP

FIGURES

DeLORME

Topo USA® 8

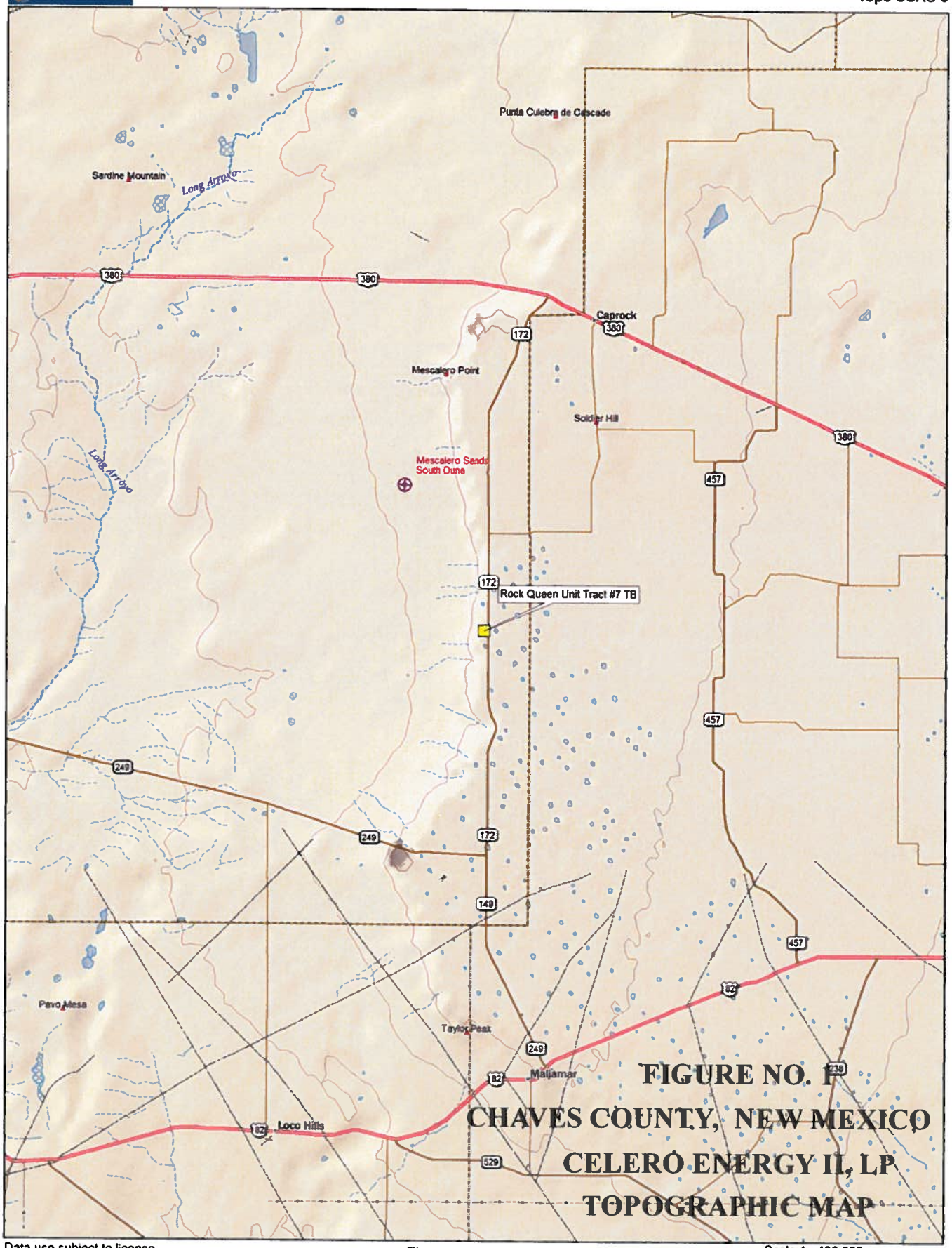


FIGURE NO. 1
CHAVES COUNTY, NEW MEXICO
CELERO ENERGY II, LP
TOPOGRAPHIC MAP

TN
MN (7.8°E)

Scale 1 : 400,000

1" = 6.31 mi

Data Zoom 9-2

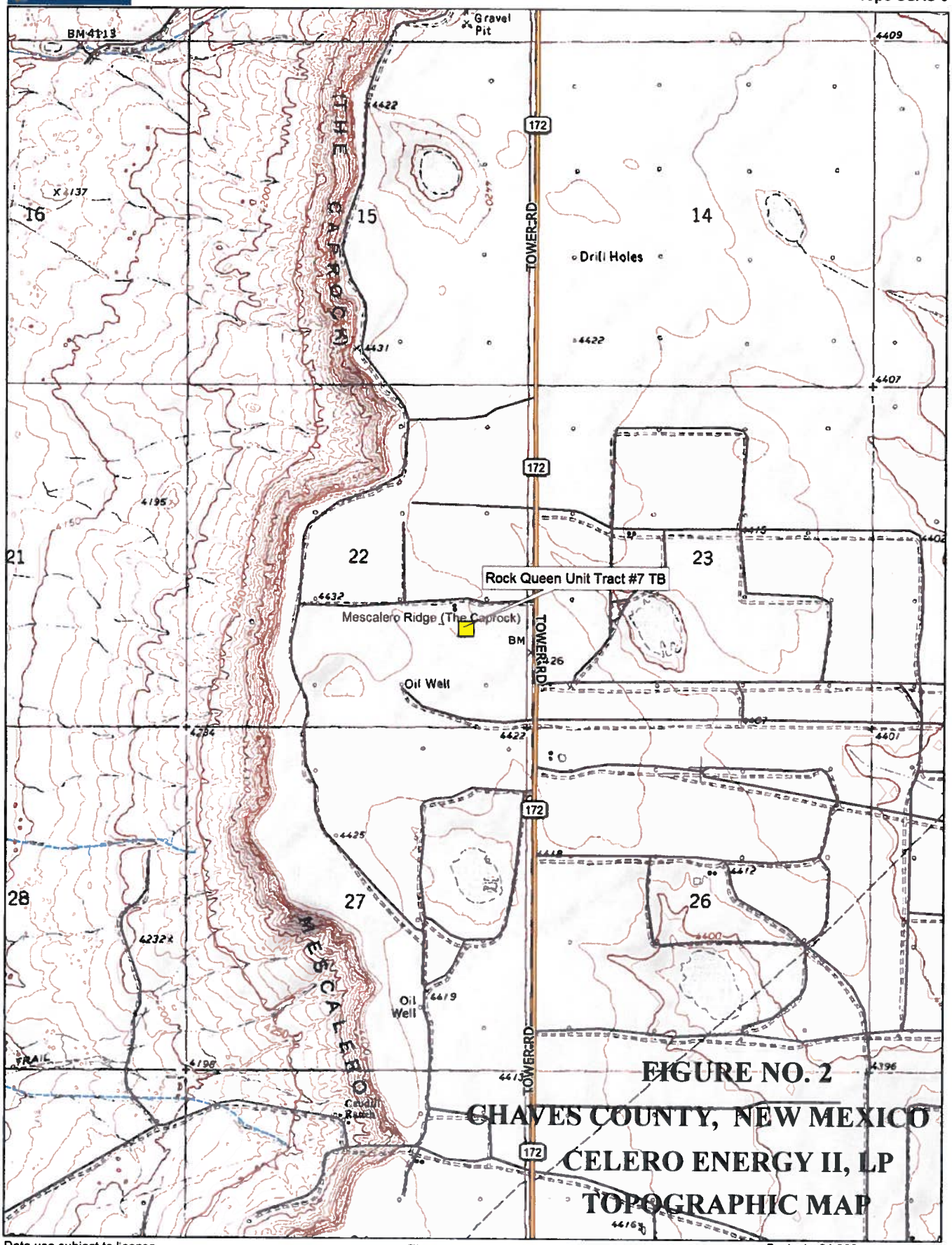


FIGURE NO. 2

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY II, LP

TOPOGRAPHIC MAP

TN

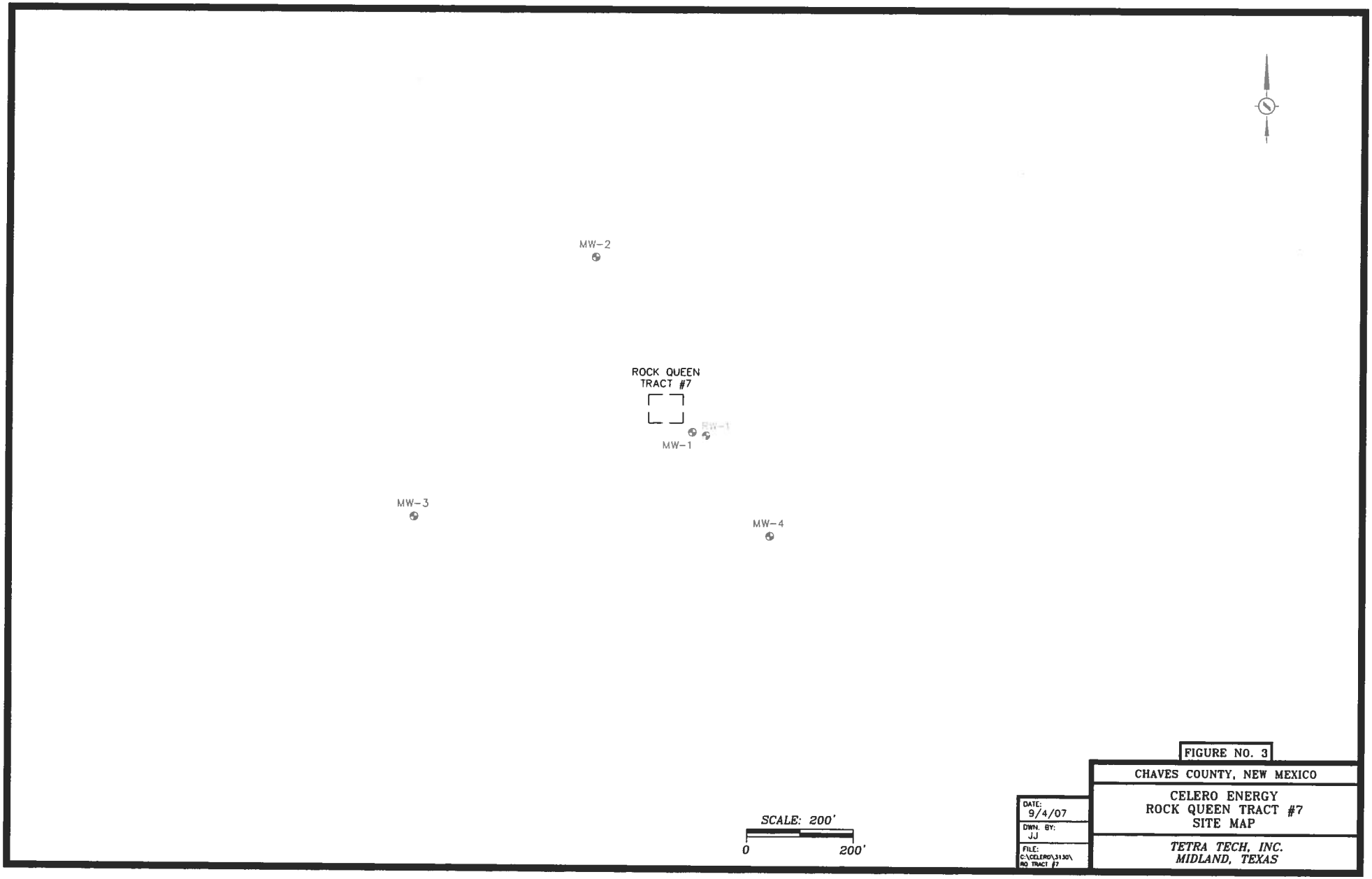
MN (7.7°E)

Scale 1 : 24,000

1" = 2,000.0 ft

Data Zoom 12-7

TABLES


MW-2
ROCK QUEEN
TRACT #7
RW-1
MW-1
MW-3
MW-4
SCALE: 200'
0
200'
FIGURE NO. 3
CHAVES COUNTY, NEW MEXICO
CELERO ENERGY
ROCK QUEEN TRACT #7
SITE MAP
DATE: 9/4/07
DWN. BY: JJ
FILE: C:\CELERO\31301\RQ TRACT #7
TETRA TECH, INC.
MIDLAND, TEXAS

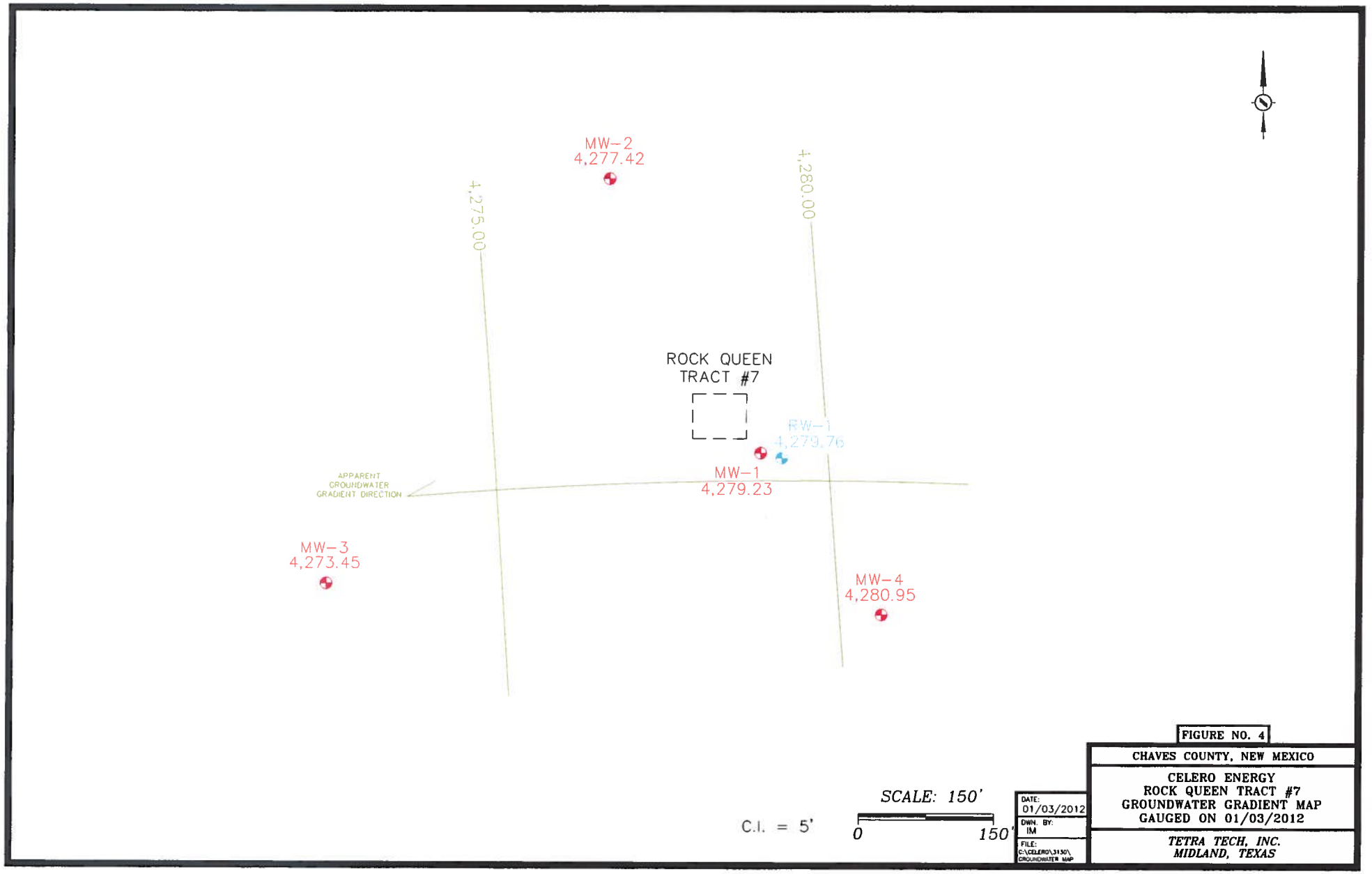


FIGURE NO. 4

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
GROUNDWATER GRADIENT MAP
GAUGED ON 01/03/2012

TETRA TECH, INC.
MIDLAND, TEXAS

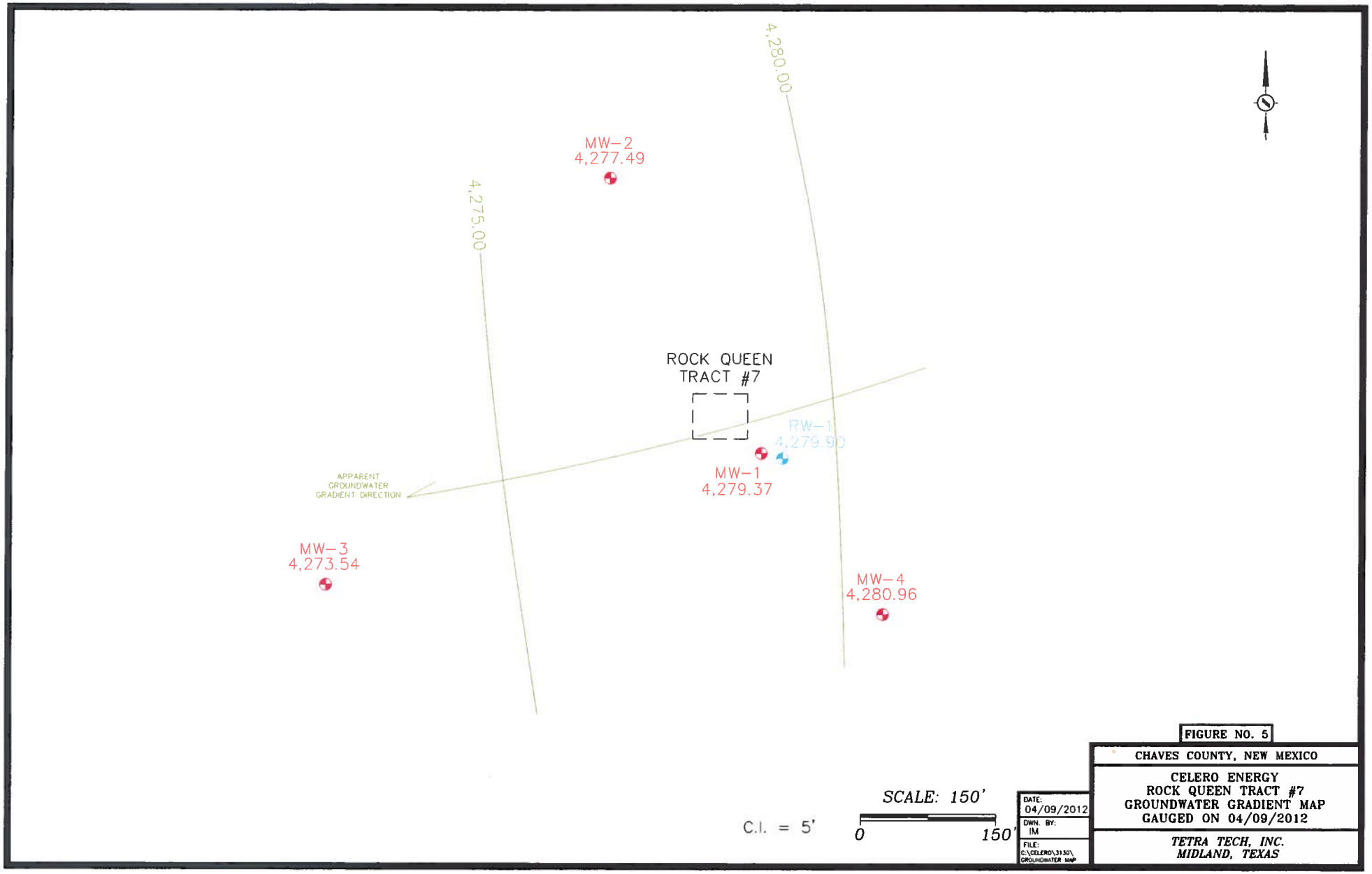


FIGURE NO. 5

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
GROUNDWATER GRADIENT MAP
GAUGED ON 04/09/2012

TETRA TECH, INC.
MIDLAND, TEXAS

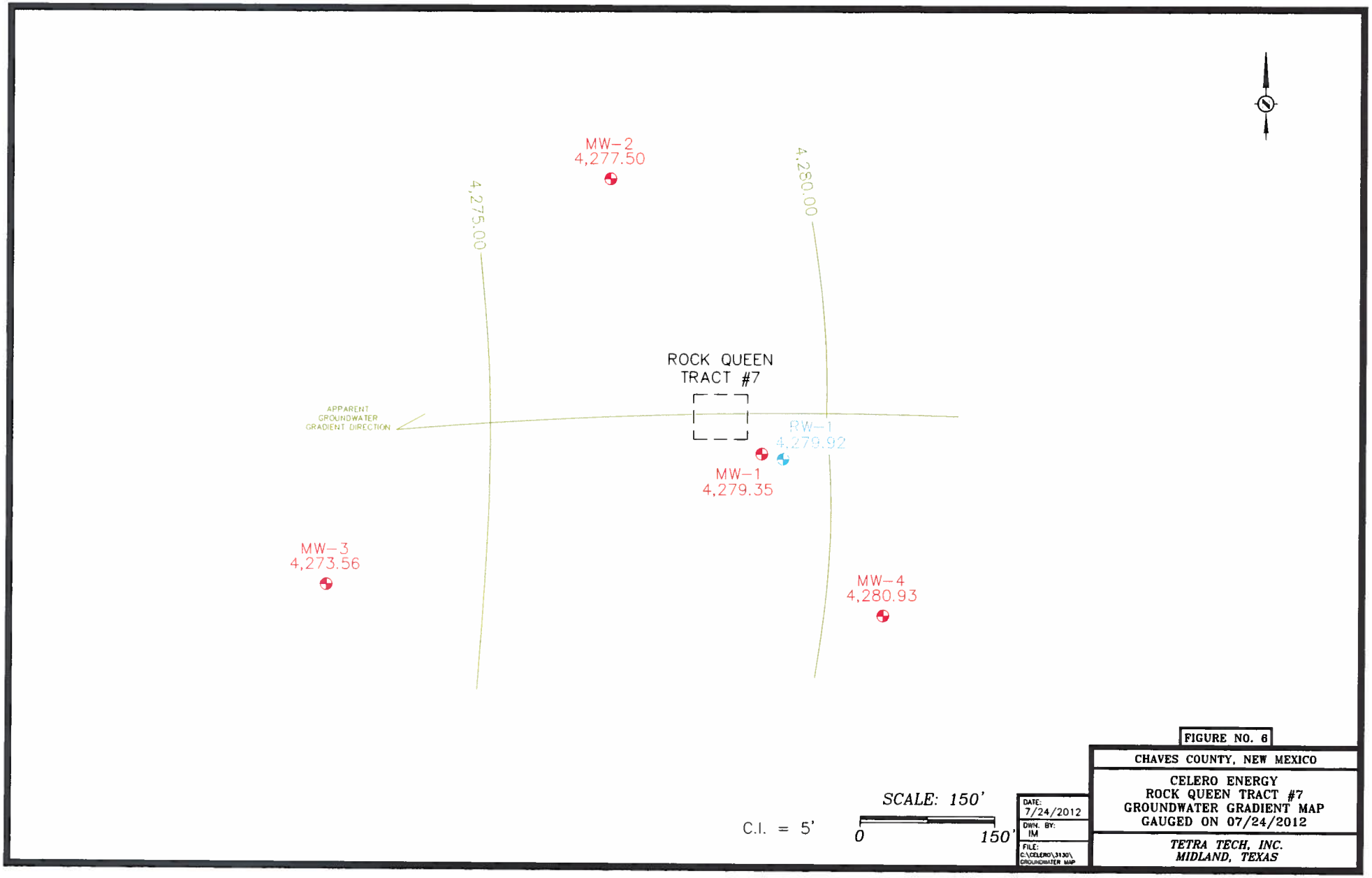


FIGURE NO. 6

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
GROUNDWATER GRADIENT MAP
GAUGED ON 07/24/2012

TETRA TECH, INC.
MIDLAND, TEXAS

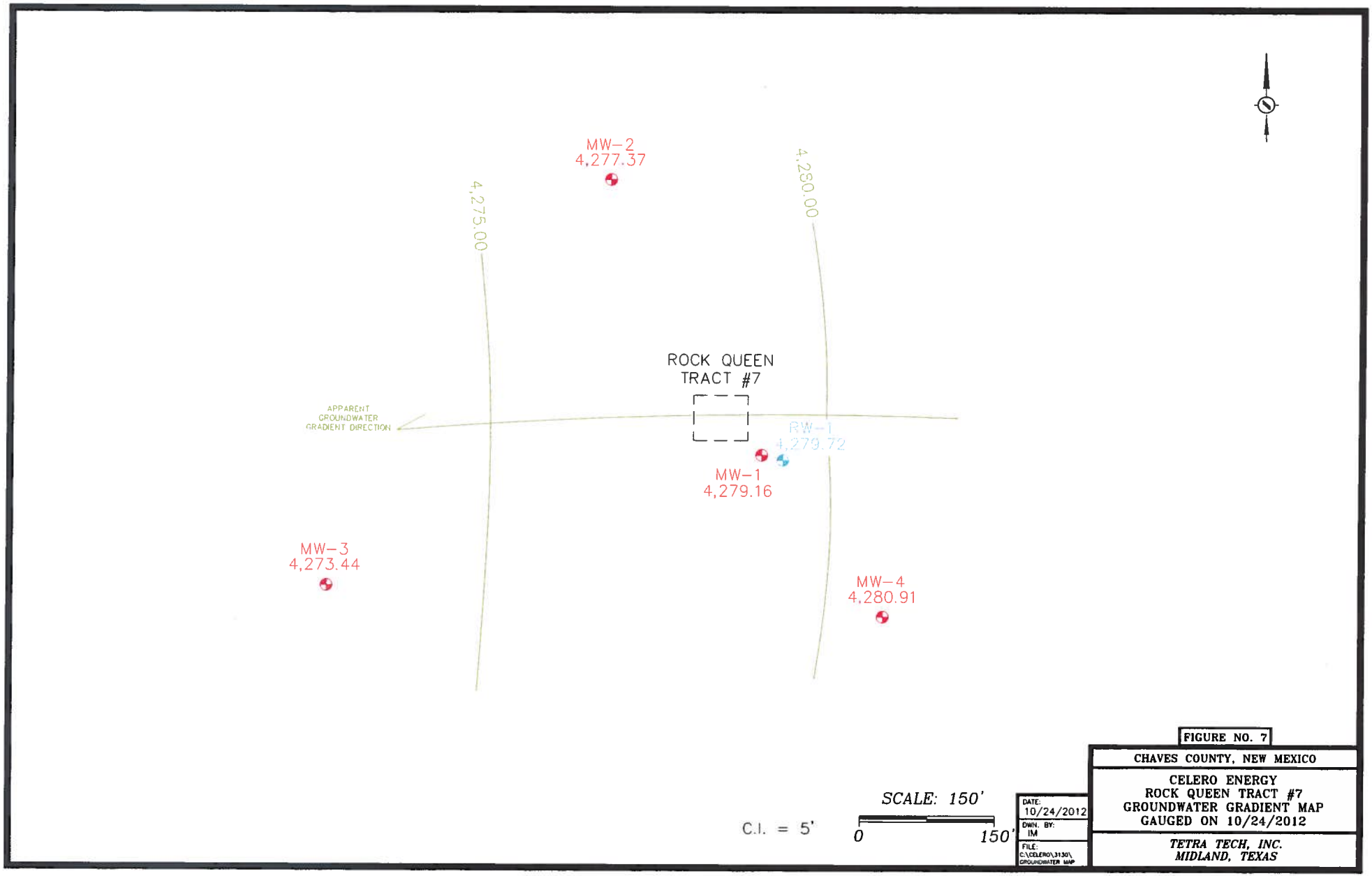


FIGURE NO. 7

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
GROUNDWATER GRADIENT MAP
GAUGED ON 10/24/2012

TETRA TECH, INC.
MIDLAND, TEXAS

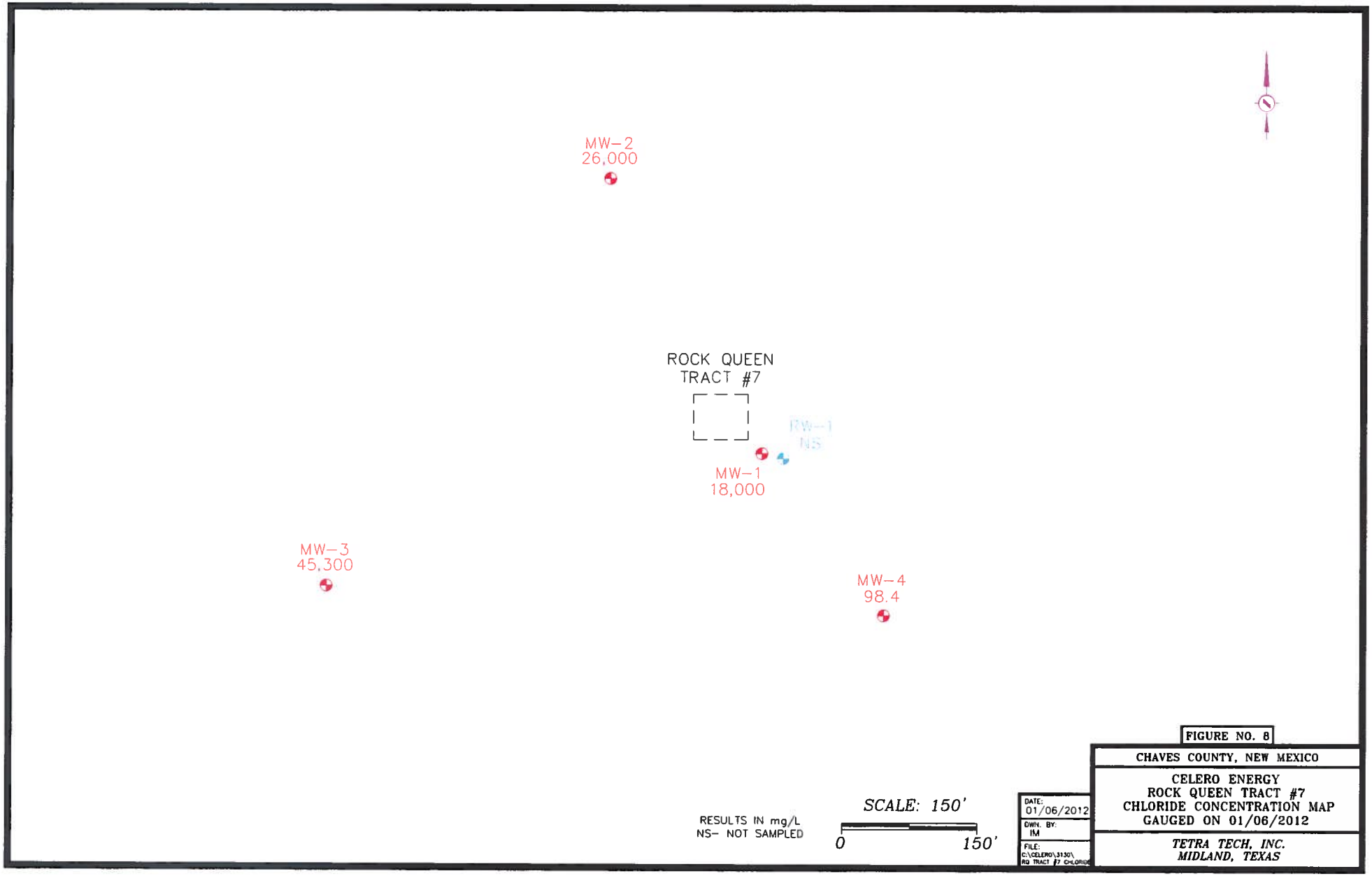


FIGURE NO. 8

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
CHLORIDE CONCENTRATION MAP
GAUGED ON 01/06/2012

TETRA TECH, INC.
MIDLAND, TEXAS

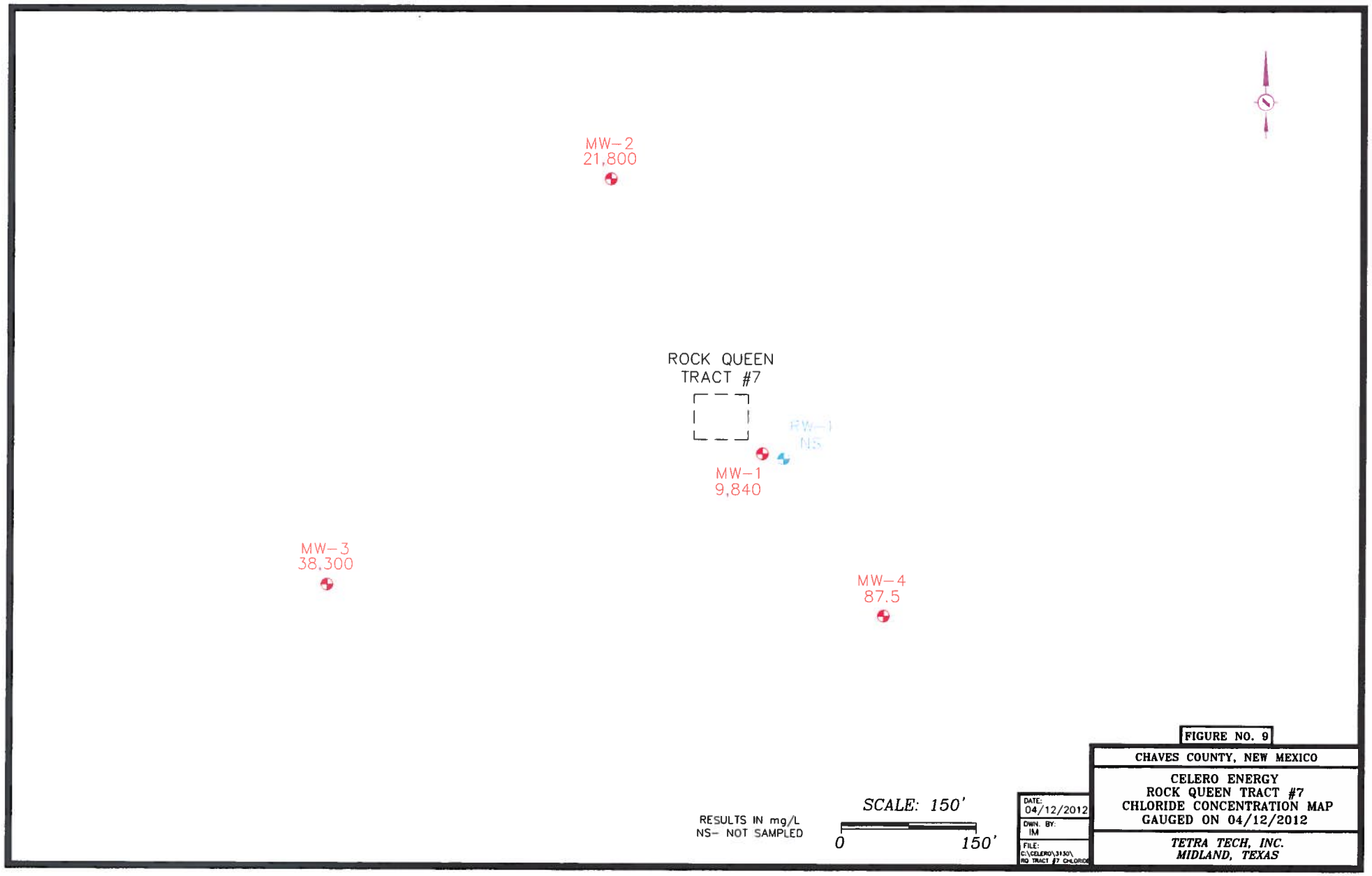


FIGURE NO. 9

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
CHLORIDE CONCENTRATION MAP
GAUGED ON 04/12/2012

TETRA TECH, INC.
MIDLAND, TEXAS

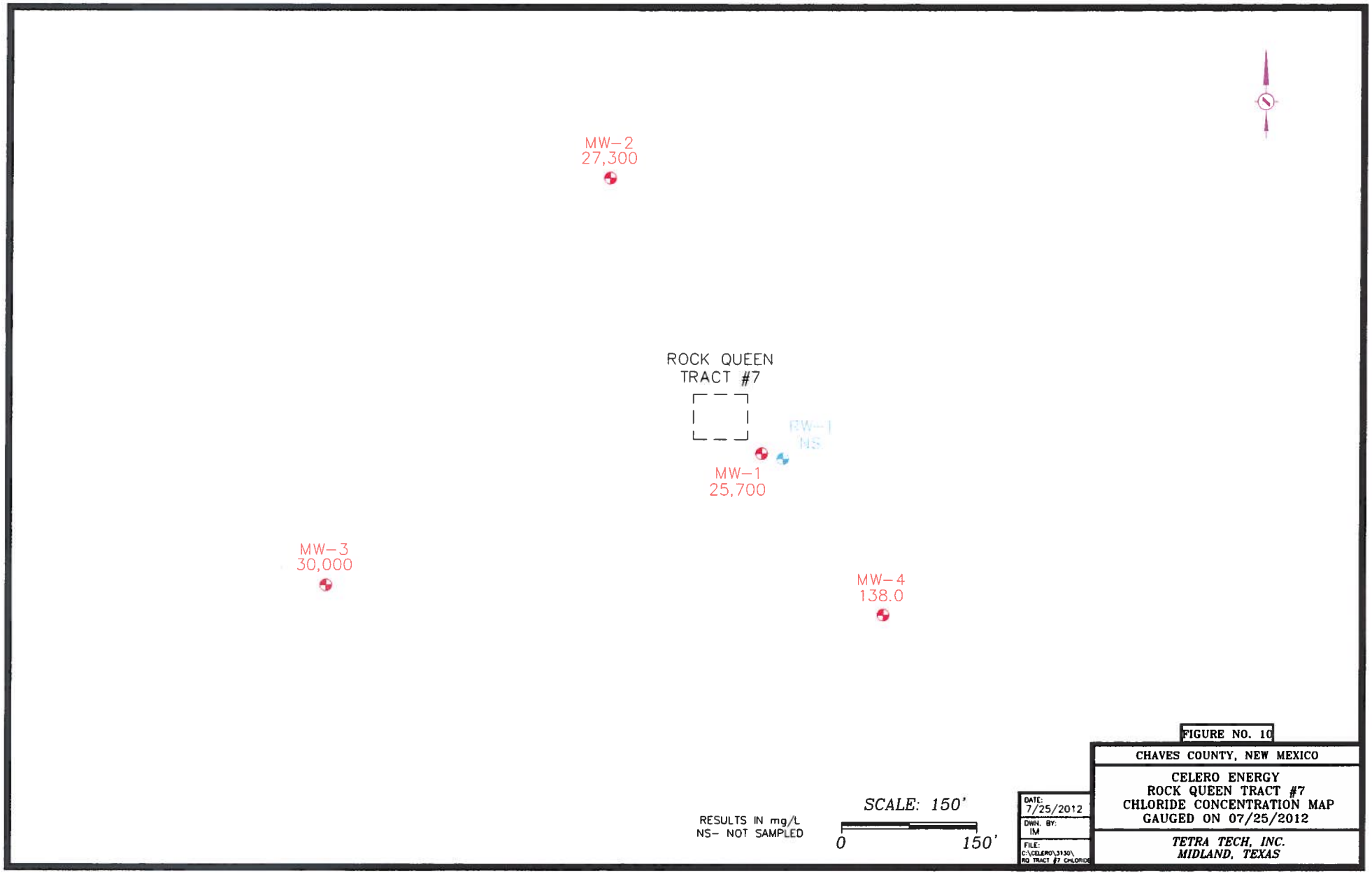


FIGURE NO. 10

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
CHLORIDE CONCENTRATION MAP
GAUGED ON 07/25/2012

TETRA TECH, INC.
MIDLAND, TEXAS

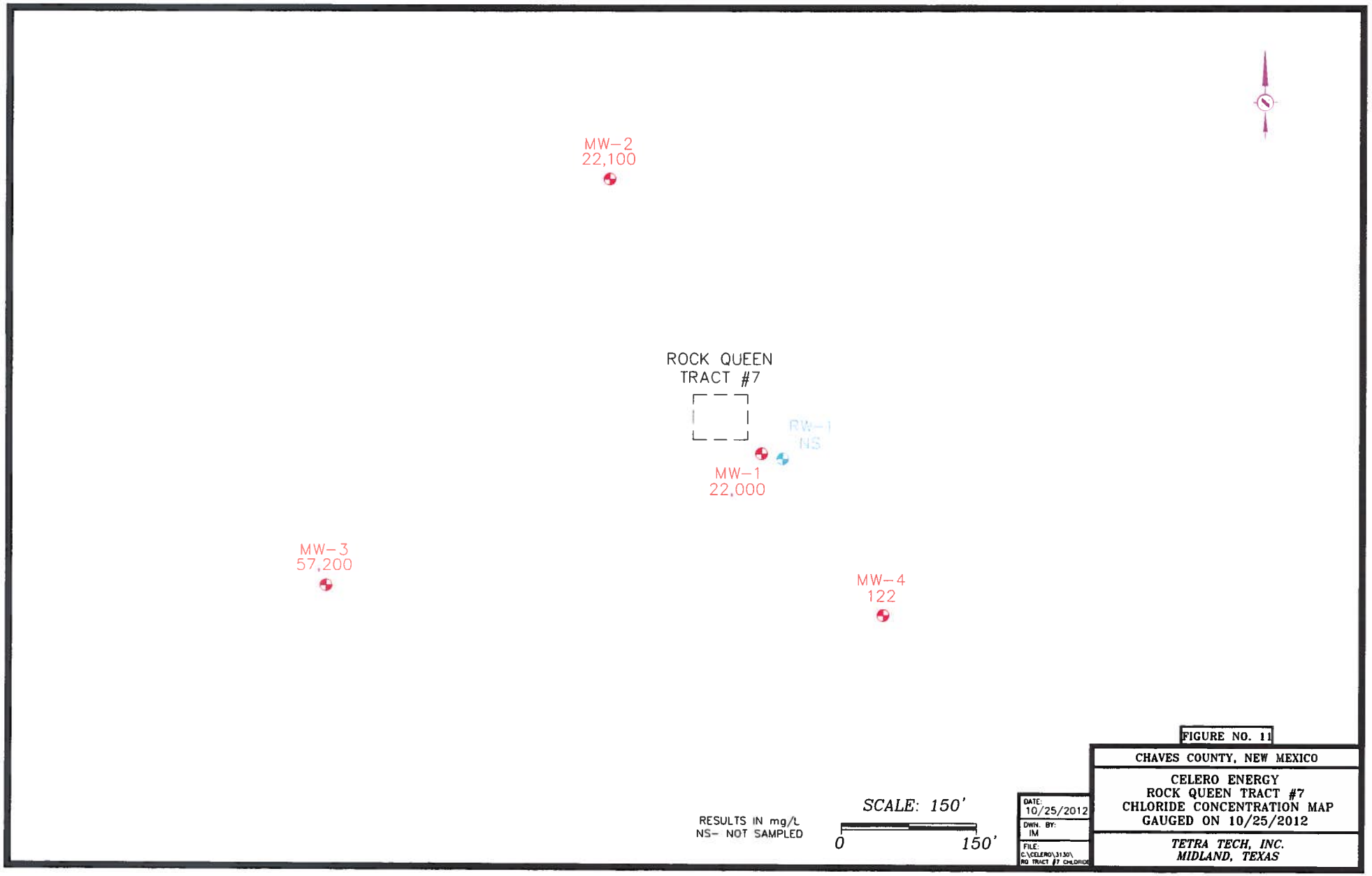


FIGURE NO. 11

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY
ROCK QUEEN TRACT #7
CHLORIDE CONCENTRATION MAP
GAUGED ON 10/25/2012

TETRA TECH, INC.
MIDLAND, TEXAS

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract #7
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	11/24/09	11/17/09	4,428.76	170.00	149.66	4,279.10
	02/25/10				149.43	4,279.33
	07/12/10				149.46	4,279.30
	10/11/10				149.44	4,279.32
	01/17/11				149.43	4,279.33
	04/11/11				149.51	4,279.25
	07/29/11				150.47	4,278.29
	10/27/11				149.40	4,279.36
	01/03/12				149.53	4,279.23
	04/09/12				149.39	4,279.37
	07/24/12				149.41	4,279.35
	10/24/12				149.60	4,279.16
MW-2	01/17/11	11/18/10	4,432.58	178.60	155.17	4,277.41
	04/11/11				155.20	4,277.38
	07/29/11				155.97	4,276.61
	10/27/11				155.11	4,277.47
	01/03/12				155.16	4,277.42
	04/09/12				155.09	4,277.49
	07/24/12				155.08	4,277.50
	10/24/12				155.21	4,277.37
MW-3	01/17/11	11/17/10	4,428.37	183.50	154.89	4,273.48
	04/11/11				154.97	4,273.40
	07/29/11				155.76	4,272.61
	10/27/11				154.86	4,273.51
	01/03/12				154.92	4,273.45
	04/09/12				154.83	4,273.54
	07/24/12				154.81	4,273.56
	10/24/12				154.93	4,273.44
MW-4	01/17/11	11/16/10	4,427.28	179.60	146.22	4,281.06
	04/11/11				146.30	4,280.98
	07/29/11				147.26	4,280.02

Table 1
Celero Energy II, LP
Groundwater Gauging Data
Rock Queen Unit Tract #7
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-4	10/27/11				146.40	4,280.88
	01/03/12				146.33	4,280.95
	04/09/12				146.32	4,280.96
	07/24/12				146.35	4,280.93
	10/24/12				146.37	4,280.91
RW-1	01/17/11	12/07/10	4,428.04	159.45	148.10	4,279.94
	04/11/11				148.29	4,279.75
	07/29/11				149.07	4,278.97
	10/27/11				148.14	4,279.90
	01/03/12				148.28	4,279.76
	04/09/12				148.14	4,279.90
	07/24/12				148.12	4,279.92
	10/24/12				148.32	4,279.72

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #7
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	11/24/09	1,730	430	585	15.3	<1.00	<1.00	114	114	150	4,690	9,100	6,100	7.55
	02/25/10	8,010	2,250	2,860	80.0	<1.00	<1.00	93	93	463	24,000	38,300	29,300	7.11
	07/12/10	-	-	-	-	-	-	-	-	316	3,060	3,060	-	-
	10/11/10	-	-	-	-	-	-	-	-	960	20,000	48,400	-	-
	01/19/11	-	-	-	-	-	-	-	-	<2500	18,200	38,600	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,020	20,500	32,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,170	20,500	33,700	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,270	13,100	23,200	-	-
	01/06/12	-	-	-	-	-	-	-	-	1,260	18,000	23,200	-	-
	04/12/12	-	-	-	-	-	-	-	-	1,020	9,840	25,600	-	-
	07/25/12	-	-	-	-	-	-	-	-	-	25,700	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	826	22,000	51,500	-	-
MW-2	01/19/11	-	-	-	-	-	-	-	-	1,250	45,100	78,200	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,280	19,100	33,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,570	11,700	25,900	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,010	10,500	19,500	-	-
	01/06/12	-	-	-	-	-	-	-	-	1,840	26,000	35,800	-	-
	04/12/12	-	-	-	-	-	-	-	-	1,800	21,800	36,900	-	-
	07/25/12	-	-	-	-	-	-	-	-	-	27,300	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,490	22,100	37,200	-	-
MW-3	01/19/11	-	-	-	-	-	-	-	-	1,750	47,500	81,800	-	-
	04/14/11	-	-	-	-	-	-	-	-	1,170	25,100	41,000	-	-
	07/29/11	-	-	-	-	-	-	-	-	1,420	25,100	52,400	-	-
	10/28/11	-	-	-	-	-	-	-	-	1,480	33,400	57,000	-	-
	01/06/12	-	-	-	-	-	-	-	-	1,680	45,300	68,400	-	-
	04/12/12	-	-	-	-	-	-	-	-	1,560	38,300	63,900	-	-
	07/25/12	-	-	-	-	-	-	-	-	-	30,000	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	1,830	57,200	85,700	-	-
MW-4	01/19/11	-	-	-	-	-	-	-	-	279	<125	792	-	-
	04/14/11	-	-	-	-	-	-	-	-	81	510	3,330	-	-

Table 2
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #7
Chaves County, New Mexico

Monitor Well	Date Sampled	Dissolved Calcium (mg/L)	Dissolved Magnesium (mg/L)	Dissolved Sodium (mg/L)	Dissolved Potassium (mg/L)	Hydroxide Alkalinity (mg/L)	Carbonate Alkalinity (mg/L)	Bicarbonate Alkalinity (mg/L)	Total Alkalinity (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	Hardness (mg/L)	pH
MW-4	07/29/11	-	-	-	-	-	-	-	-	114	127	648	-	-
	10/28/11	-	-	-	-	-	-	-	-	113	144	770	-	-
	01/06/12	-	-	-	-	-	-	-	-	114	98.4	646	-	-
	04/12/12	-	-	-	-	-	-	-	-	106	87.5	579	-	-
	07/25/12	-	-	-	-	-	-	-	-	-	138	-	-	-
	10/25/12	-	-	-	-	-	-	-	-	110	122	695	-	-
RW-1	01/19/11	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
	07/29/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	01/06/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	04/12/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not sampled

(-) Not analyzed

Table 3
Celero Energy II, LP
Groundwater Analytical Results
Rock Queen Unit Tract #7
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	<0.001	<0.001	<0.001	<0.001	<0.001
	02/25/10	<0.001	<0.001	<0.001	<0.001	<0.001
	07/12/10	<0.001	<0.001	<0.001	<0.001	<0.001
	10/11/10	<0.001	<0.001	<0.001	<0.001	<0.001
	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	<0.001	<0.001	<0.001	<0.001	0.0041
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	0.0068	<0.001	<0.001	<0.001	0.0068
	07/29/11	0.0065	<0.001	<0.001	<0.001	0.0068
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	0.0050	0.0011	<0.001	0.0088	0.0149
	10/25/12	0.00320	<0.001	<0.001	<0.001	0.00320
MW-3	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
MW-4	01/19/11	<0.001	<0.001	<0.001	<0.001	<0.001
	04/14/11	<0.001	<0.001	<0.001	<0.001	<0.001
	07/29/11	<0.001	<0.001	<0.001	<0.001	<0.001
	10/28/11	<0.001	<0.001	<0.001	<0.001	<0.001
	01/06/12	<0.001	<0.001	<0.001	<0.001	<0.001
	04/12/12	<0.001	<0.001	<0.001	<0.001	<0.001
	07/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
	10/25/12	<0.001	<0.001	<0.001	<0.001	<0.001
RW-1	01/19/11	NS	NS	NS	NS	NS
	04/14/11	NS	NS	NS	NS	NS
	07/29/11	NS	NS	NS	NS	NS
	10/28/11	NS	NS	NS	NS	NS
	01/06/12	NS	NS	NS	NS	NS
	04/12/12	NS	NS	NS	NS	NS
	07/25/12	NS	NS	NS	NS	NS
	10/25/12	NS	NS	NS	NS	NS

NS - Not sampled

APPENDIX A
LABORATORY ANALYTICAL

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: January 19, 2012

Work Order: 12010637

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #7 TB
Project Number: 115-6403130

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
285935	MW-1	water	2012-01-06	09:00	2012-01-06
285936	MW-2	water	2012-01-06	09:30	2012-01-06
285937	MW-3	water	2012-01-06	09:20	2012-01-06
285938	MW-4	water	2012-01-06	09:40	2012-01-06

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.

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen #7 TB were received by TraceAnalysis, Inc. on 2012-01-06 and assigned to work order 12010637. Samples for work order 12010637 were received intact without headspace and at a temperature of 1.3 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	74464	2012-01-10 at 14:00	87701	2012-01-10 at 17:31
Chloride (IC)	E 300.0	74566	2012-01-16 at 10:03	87830	2012-01-17 at 14:42
Chloride (IC)	E 300.0	74567	2012-01-16 at 10:04	87831	2012-01-17 at 14:44
SO4 (IC)	E 300.0	74566	2012-01-16 at 10:03	87830	2012-01-17 at 14:42
SO4 (IC)	E 300.0	74567	2012-01-16 at 10:04	87831	2012-01-17 at 14:44
TDS	SM 2540C	74509	2012-01-06 at 10:02	87908	2012-01-12 at 10:01

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 12010637 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: 285935 - MW-1

Laboratory: Midland
Analysis: BTEX
QC Batch: 87701
Prep Batch: 74464

Analytical Method: S 8021B
Date Analyzed: 2012-01-10
Sample Preparation: 2012-01-10

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.106	mg/L	1	0.100	106	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0764	mg/L	1	0.100	76	67.5 - 140.8

Sample: 285935 - MW-1

Laboratory: Midland
Analysis: Chloride (IC)
QC Batch: 87830
Prep Batch: 74566

Analytical Method: E 300.0
Date Analyzed: 2012-01-17
Sample Preparation: 2012-01-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q*	1	**18000**	mg/L	1000	2.50

Sample: 285935 - MW-1

Laboratory: Midland
Analysis: SO4 (IC)
QC Batch: 87830
Prep Batch: 74566

Analytical Method: E 300.0
Date Analyzed: 2012-01-17
Sample Preparation: 2012-01-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate	Q*	1	**1260**	mg/L	100	2.50

Sample: 285935 - MW-1

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	87908	Date Analyzed:	2012-01-12	Analyzed By:	AR
Prep Batch:	74509	Sample Preparation:	2012-01-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	**23200**	mg/L	100	10.0

Sample: 285936 - MW-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	87701	Date Analyzed:	2012-01-10	Analyzed By:	AG
Prep Batch:	74464	Sample Preparation:	2012-01-10	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.102	mg/L	1	0.100	102	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0774	mg/L	1	0.100	77	67.5 - 140.8

Sample: 285936 - MW-2

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87830	Date Analyzed:	2012-01-17	Analyzed By:	AR
Prep Batch:	74566	Sample Preparation:	2012-01-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q*	1	**26000**	mg/L	1000	2.50

Sample: 285936 - MW-2

Laboratory:	Midland				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87830	Date Analyzed:	2012-01-17	Analyzed By:	AR
Prep Batch:	74566	Sample Preparation:	2012-01-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate	Q*	1	**1840**	mg/L	100	2.50

Sample: 285936 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	87908	Date Analyzed:	2012-01-12	Analyzed By:	AR
Prep Batch:	74509	Sample Preparation:	2012-01-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	**35800**	mg/L	100	10.0

Sample: 285937 - MW-3

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	87701	Date Analyzed:	2012-01-10	Analyzed By:	AG
Prep Batch:	74464	Sample Preparation:	2012-01-10	Prepared By:	AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.101	mg/L	1	0.100	101	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0822	mg/L	1	0.100	82	67.5 - 140.8

Sample: 285937 - MW-3

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87831	Date Analyzed:	2012-01-17	Analyzed By:	AR
Prep Batch:	74567	Sample Preparation:	2012-01-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**45300**	mg/L	5000	2.50

Sample: 285937 - MW-3

Laboratory:	Midland				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87831	Date Analyzed:	2012-01-17	Analyzed By:	AR
Prep Batch:	74567	Sample Preparation:	2012-01-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate	Q=	1	**1680**	mg/L	50	2.50

Sample: 285937 - MW-3

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	87908	Date Analyzed:	2012-01-12	Analyzed By:	AR
Prep Batch:	74509	Sample Preparation:	2012-01-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	**68400**	mg/L	100	10.0

Sample: 285938 - MW-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	87701	Date Analyzed:	2012-01-10	Analyzed By:	AG
Prep Batch:	74464	Sample Preparation:	2012-01-10	Prepared By:	AG

continued ...

sample 285938 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0991	mg/L	1	0.100	99	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0691	mg/L	1	0.100	69	67.5 - 140.8

Sample: 285938 - MW-4

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87831	Date Analyzed:	2012-01-17	Analyzed By:	AR
Prep Batch:	74567	Sample Preparation:	2012-01-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**98.4**	mg/L	5	2.50

Sample: 285938 - MW-4

Laboratory:	Midland				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	87831	Date Analyzed:	2012-01-17	Analyzed By:	AR
Prep Batch:	74567	Sample Preparation:	2012-01-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate	Q-	1	**114**	mg/L	5	2.50

Sample: 285938 - MW-4

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	87908	Date Analyzed:	2012-01-12	Analyzed By:	AR
Prep Batch:	74509	Sample Preparation:	2012-01-06	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		1	**646**	mg/L	2	10.0

Method Blanks

Method Blank (1) QC Batch: 87701

QC Batch: 87701 Date Analyzed: 2012-01-10 Analyzed By: AG
Prep Batch: 74464 QC Preparation: 2012-01-10 Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0964	mg/L	1	0.100	96	61.1 - 118.4
4-Bromofluorobenzene (4-BFB)			0.0701	mg/L	1	0.100	70	45.9 - 126.4

Method Blank (1) QC Batch: 87830

QC Batch: 87830 Date Analyzed: 2012-01-17 Analyzed By: AR
Prep Batch: 74566 QC Preparation: 2012-01-16 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	1.11	mg/L	2.5

Method Blank (1) QC Batch: 87830

QC Batch: 87830 Date Analyzed: 2012-01-17 Analyzed By: AR
Prep Batch: 74566 QC Preparation: 2012-01-16 Prepared By: AR

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

Method Blank (1) QC Batch: 87831

QC Batch: 87831
Prep Batch: 74567

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	1.39	mg/L	2.5

Method Blank (1) QC Batch: 87831

QC Batch: 87831
Prep Batch: 74567

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

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: 87908

QC Batch: 87908
Prep Batch: 74509

Date Analyzed: 2012-01-12
QC Preparation: 2012-01-06

Analyzed By: AR
Prepared By: AR

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

Duplicates (2) Duplicated Sample: 285949

QC Batch: 87908
Prep Batch: 74509

Date Analyzed: 2012-01-12
QC Preparation: 2012-01-06

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	1	95700	89800	mg/L	100	6	10
Total Dissolved Solids	1	95700	68400	mg/L	100	6	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 87701
Prep Batch: 74464

Date Analyzed: 2012-01-10
QC Preparation: 2012-01-10

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.106	mg/L	1	0.100	<0.000400	106	76.8 - 120.3
Toluene		1	0.102	mg/L	1	0.100	<0.000300	102	80.9 - 122.2
Ethylbenzene		1	0.0962	mg/L	1	0.100	<0.000300	96	72.7 - 120.2
Xylene		1	0.285	mg/L	1	0.300	<0.000333	95	72.1 - 121.5

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.108	mg/L	1	0.100	<0.000400	108	76.8 - 120.3	2	20
Toluene		1	0.104	mg/L	1	0.100	<0.000300	104	80.9 - 122.2	2	20
Ethylbenzene		1	0.0983	mg/L	1	0.100	<0.000300	98	72.7 - 120.2	2	20
Xylene		1	0.291	mg/L	1	0.300	<0.000333	97	72.1 - 121.5	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.101	mg/L	1	0.100	102	101	61.9 - 119.2
4-Bromofluorobenzene (4-BFB)	0.0912	0.0902	mg/L	1	0.100	91	90	56.4 - 127.9

Laboratory Control Spike (LCS-1)

QC Batch: 87830
Prep Batch: 74566

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.3	mg/L	1	25.0	<0.265	101	90 - 110

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	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: 87830
Prep Batch: 74566

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

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

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	25.7	mg/L	1	25.0	<0.177	103	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: 87831
Prep Batch: 74567

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

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.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.6	mg/L	1	25.0	<0.265	102	90 - 110	2	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 87831
Prep Batch: 74567

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.7	mg/L	1	25.0	<0.177	103	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	25.8	mg/L	1	25.0	<0.177	103	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: 87908
Prep Batch: 74509

Date Analyzed: 2012-01-12
QC Preparation: 2012-01-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	969	mg/L	1	1000	<9.75	97	85.5 - 112.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1	990	mg/L	1	1000	<9.75	99	85.5 - 112.7	2	10

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

Laboratory Control Spike (LCS-2)

QC Batch: 87908
Prep Batch: 74509

Date Analyzed: 2012-01-12
QC Preparation: 2012-01-06

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		1	1000	mg/L	1	1000	<9.75	100	85.5 - 112.7

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		1	1040	mg/L	1	1000	<9.75	104	85.5 - 112.7	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: 285945

QC Batch: 87701
Prep Batch: 74464
Date Analyzed: 2012-01-10
QC Preparation: 2012-01-10
Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.112	mg/L	1	0.100	0.0068	105	66.9 - 128.2
Toluene		1	0.0945	mg/L	1	0.100	0.002	92	81.6 - 122.9
Ethylbenzene		1	0.0786	mg/L	1	0.100	<0.000300	79	62.7 - 117.9
Xylene		1	0.233	mg/L	1	0.300	<0.000333	78	62.9 - 118.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.113	mg/L	1	0.100	0.0068	106	66.9 - 128.2	1	20
Toluene		1	0.0960	mg/L	1	0.100	0.002	94	81.6 - 122.9	2	20
Ethylbenzene		1	0.0807	mg/L	1	0.100	<0.000300	81	62.7 - 117.9	3	20
Xylene		1	0.236	mg/L	1	0.300	<0.000333	79	62.9 - 118.2	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0966	0.114	mg/L	1	0.1	97	114	58.6 - 119.7
4-Bromofluorobenzene (4-BFB)	0.0986	0.116	mg/L	1	0.1	99	116	52.2 - 135.8

Matrix Spike (MS-1) Spiked Sample: 285935

QC Batch: 87830
Prep Batch: 74566
Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16
Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	20200	mg/L	100	2750	19400	29	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	Q=	Q=	1	20200	mg/L	100	2750	19400	29	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: 285935

QC Batch: 87830
Prep Batch: 74566

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	Q=	Q=	1	2650	mg/L	100	2750	1260	50	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	Q=	Q=	1	2650	mg/L	100	2750	1260	50	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: 285946

QC Batch: 87831
Prep Batch: 74567

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	1710	mg/L	50	1380	204	110	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	1710	mg/L	50	1380	204	110	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: 285946

QC Batch: 87831
Prep Batch: 74567

Date Analyzed: 2012-01-17
QC Preparation: 2012-01-16

Analyzed By: AR
Prepared By: AR

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate	Qs	Qs	1	1450	mg/L	50	1380	238	88	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	Qs	Qs	1	1460	mg/L	50	1380	238	89	90 - 110	1	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 87701 Date Analyzed: 2012-01-10 Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.104	104	80 - 120	2012-01-10
Toluene		1	mg/L	0.100	0.0962	96	80 - 120	2012-01-10
Ethylbenzene		1	mg/L	0.100	0.0892	89	80 - 120	2012-01-10
Xylene		1	mg/L	0.300	0.264	88	80 - 120	2012-01-10

Standard (CCV-2)

QC Batch: 87701 Date Analyzed: 2012-01-10 Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.101	101	80 - 120	2012-01-10
Toluene		1	mg/L	0.100	0.0955	96	80 - 120	2012-01-10
Ethylbenzene		1	mg/L	0.100	0.0897	90	80 - 120	2012-01-10
Xylene		1	mg/L	0.300	0.263	88	80 - 120	2012-01-10

Standard (CCV-1)

QC Batch: 87830 Date Analyzed: 2012-01-17 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	25.0	100	90 - 110	2012-01-17

Standard (CCV-1)

QC Batch: 87830 Date Analyzed: 2012-01-17 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	25.5	102	90 - 110	2012-01-17

Standard (CCV-2)

QC Batch: 87830 Date Analyzed: 2012-01-17 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	25.2	101	90 - 110	2012-01-17

Standard (CCV-2)

QC Batch: 87830 Date Analyzed: 2012-01-17 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	25.8	103	90 - 110	2012-01-17

Standard (CCV-1)

QC Batch: 87831 Date Analyzed: 2012-01-17 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	25.2	101	90 - 110	2012-01-17

Standard (CCV-1)

QC Batch: 87831 Date Analyzed: 2012-01-17 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	25.8	103	90 - 110	2012-01-17

Standard (CCV-2)

QC Batch: 87831 Date Analyzed: 2012-01-17 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	25.3	101	90 - 110	2012-01-17

Standard (CCV-2)

QC Batch: 87831 Date Analyzed: 2012-01-17 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	25.8	103	90 - 110	2012-01-17

Appendix

Report Definitions

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

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	T104704392-11-3	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

#12010637

Analysis Request of Chain of Custody Record

PAGE: | OF:

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: Celero | SITE MANAGER: Jeff Kindley

PROJECT NO.: 115-6403130 | PROJECT NAME: Celero / Rock Queen #7

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
285935	1/6	0500	W		X	MW-1	4	N	X		X	
936		0530				MW-2						
937		0520				MW-3						
938	↓	0540	↓		↓	MW-4	↓	↓	↓		↓	

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC:MS Vol. 8240/8260/624	GC:MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS	SO4
X												X				X	X
↓												↓				↓	↓

RELINQUISHED BY: (Signature) — Date: 1/6/12 Time: 1540 — RECEIVED BY: (Signature) — Date: 1/6/12 Time: 1540

RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

RECEIVING LABORATORY: Trac
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLED BY: (Print & Initial) ST/BS — Date: 1/6/12 Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

TETRA TECH CONTACT PERSON: Jeff Kindley

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.3°

REMARKS:

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

TRACEANALYSIS, INC.

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 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: April 23, 2012

Work Order: 12041302

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen Tract #7
Project Number: 115-6403130A

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
294158	MW-1	water	2012-04-12	10:10	2012-04-12
294159	MW-2	water	2012-04-12	09:50	2012-04-12
294160	MW-3	water	2012-04-12	10:00	2012-04-12
294161	MW-4	water	2012-04-12	10:20	2012-04-12

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.

Blair Leftwich

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen Tract #7 were received by TraceAnalysis, Inc. on 2012-04-12 and assigned to work order 12041302. Samples for work order 12041302 were received intact without headspace and at a temperature of 2.9 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	76670	2012-04-18 at 12:45	90366	2012-04-18 at 19:02
Chloride (IC)	E 300.0	76739	2012-04-20 at 11:00	90450	2012-04-23 at 09:20
SO4 (IC)	E 300.0	76739	2012-04-20 at 11:00	90450	2012-04-23 at 09:20
TDS	SM 2540C	76601	2012-04-16 at 10:25	90365	2012-04-17 at 16:53

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 12041302 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: 294158 - MW-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	90366	Date Analyzed:	2012-04-18	Analyzed By:	tc
Prep Batch:	76670	Sample Preparation:	2012-04-18	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0784	mg/L	1	0.100	78	73.5 - 123.1
4-Bromofluorobenzene (4-BFB)			0.0769	mg/L	1	0.100	77	51.1 - 122.9

Sample: 294158 - MW-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**9840**	mg/L	500	2.50

Sample: 294158 - MW-1

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**1020**	mg/L	100	2.50

Sample: 294158 - MW-1

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	90365	Date Analyzed:	2012-04-17	Analyzed By:	AR
Prep Batch:	76601	Sample Preparation:	2012-04-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**25600**	mg/L	100	10.0

Sample: 294159 - MW-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	90366	Date Analyzed:	2012-04-18	Analyzed By:	tc
Prep Batch:	76670	Sample Preparation:	2012-04-18	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0965	mg/L	1	0.100	96	73.5 - 123.1
4-Bromofluorobenzene (4-BFB)			0.0928	mg/L	1	0.100	93	51.1 - 122.9

Sample: 294159 - MW-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**21800**	mg/L	500	2.50

Sample: 294159 - MW-2

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**1800**	mg/L	500	2.50

Sample: 294159 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	90365	Date Analyzed:	2012-04-17	Analyzed By:	AR
Prep Batch:	76601	Sample Preparation:	2012-04-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**36900**	mg/L	100	10.0

Sample: 294160 - MW-3

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	90366	Date Analyzed:	2012-04-18	Analyzed By:	tc
Prep Batch:	76670	Sample Preparation:	2012-04-18	Prepared By:	tc

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0788	mg/L	1	0.100	79	73.5 - 123.1
4-Bromofluorobenzene (4-BFB)			0.0757	mg/L	1	0.100	76	51.1 - 122.9

Sample: 294160 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**38300**	mg/L	1000	2.50

Sample: 294160 - MW-3

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**1560**	mg/L	500	2.50

Sample: 294160 - MW-3

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	90365	Date Analyzed:	2012-04-17	Analyzed By:	AR
Prep Batch:	76601	Sample Preparation:	2012-04-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**63900**	mg/L	100	10.0

Sample: 294161 - MW-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	90366	Date Analyzed:	2012-04-18	Analyzed By:	tc
Prep Batch:	76670	Sample Preparation:	2012-04-18	Prepared By:	tc

continued ...

sample 294161 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	2	<0.00100	mg/L	1	0.00100
Xylene	U	2	<0.00100	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0990	mg/L	1	0.100	99	73.5 - 123.1
4-Bromofluorobenzene (4-BFB)			0.0957	mg/L	1	0.100	96	51.1 - 122.9

Sample: 294161 - MW-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**87.5**	mg/L	5	2.50

Sample: 294161 - MW-4

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	90450	Date Analyzed:	2012-04-23	Analyzed By:	RL
Prep Batch:	76739	Sample Preparation:	2012-04-20	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**106**	mg/L	5	2.50

Sample: 294161 - MW-4

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	90365	Date Analyzed:	2012-04-17	Analyzed By:	AR
Prep Batch:	76601	Sample Preparation:	2012-04-16	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**579**	mg/L	1	10.0

Method Blanks

Method Blank (1) QC Batch: 90365

QC Batch: 90365 | Date Analyzed: 2012-04-17 | Analyzed By: AR
Prep Batch: 76601 | QC Preparation: 2012-04-16 | Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	<9.75	mg/L	10

Method Blank (1) QC Batch: 90366

QC Batch: 90366 | Date Analyzed: 2012-04-18 | Analyzed By: tc
Prep Batch: 76670 | QC Preparation: 2012-04-18 | Prepared By: tc

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.000600	mg/L	0.001
Toluene		2	<0.000400	mg/L	0.001
Ethylbenzene		2	<0.000600	mg/L	0.001
Xylene		2	<0.00130	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0907	mg/L	1	0.100	91	74.2 - 126
4-Bromofluorobenzene (4-BFB)			0.0891	mg/L	1	0.100	89	51.3 - 124.6

Method Blank (1) QC Batch: 90450

QC Batch: 90450 | Date Analyzed: 2012-04-23 | Analyzed By: RL
Prep Batch: 76739 | QC Preparation: 2012-04-20 | Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	0.239	mg/L	2.5

Method Blank (1) QC Batch: 90450

QC Batch: 90450
Prep Batch: 76739

Date Analyzed: 2012-04-23
QC Preparation: 2012-04-20

Analyzed By: RL
Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.179	mg/L	2.5

Duplicates (1) Duplicated Sample: 294165

QC Batch: 90365
Prep Batch: 76601

Date Analyzed: 2012-04-17
QC Preparation: 2012-04-16

Analyzed By: AR
Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	13800	12900	mg/L	20	6	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 90365 | Date Analyzed: 2012-04-17 | Analyzed By: AR
Prep Batch: 76601 | QC Preparation: 2012-04-16 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1020	mg/L	1	1000	<9.75	102	85.5 - 112.7

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch: 90366 | Date Analyzed: 2012-04-18 | Analyzed By: tc
Prep Batch: 76670 | QC Preparation: 2012-04-18 | Prepared By: tc

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.111	mg/L	1	0.100	<0.000600	111	79.7 - 117.6
Toluene		2	0.112	mg/L	1	0.100	<0.000400	112	73.9 - 123.9
Ethylbenzene		2	0.111	mg/L	1	0.100	<0.000600	111	76.8 - 120.8
Xylene		2	0.331	mg/L	1	0.300	<0.00130	110	76.2 - 120.5

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.107	mg/L	1	0.100	<0.000600	107	79.7 - 117.6	4	20
Toluene		2	0.107	mg/L	1	0.100	<0.000400	107	73.9 - 123.9	5	20
Ethylbenzene		2	0.108	mg/L	1	0.100	<0.000600	108	76.8 - 120.8	3	20
Xylene		2	0.324	mg/L	1	0.300	<0.00130	108	76.2 - 120.5	2	20

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

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.101	0.0944	mg/L	1	0.100	101	94	72.5 - 117
4-Bromofluorobenzene (4-BFB)	0.102	0.0960	mg/L	1	0.100	102	96	69.4 - 124

Laboratory Control Spike (LCS-1)

QC Batch: 90450 | Date Analyzed: 2012-04-23 | Analyzed By: RL
Prep Batch: 76739 | QC Preparation: 2012-04-20 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.4	mg/L	1	25.0	<0.209	102	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.2	mg/L	1	25.0	<0.209	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: 90450 | Date Analyzed: 2012-04-23 | Analyzed By: RL
Prep Batch: 76739 | QC Preparation: 2012-04-20 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.4	mg/L	1	25.0	<0.179	102	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	25.1	mg/L	1	25.0	<0.179	100	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: 294164

QC Batch: 90366 | Date Analyzed: 2012-04-18 | Analyzed By: tc
Prep Batch: 76670 | QC Preparation: 2012-04-18 | Prepared By: tc

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.111	mg/L	1	0.100	<0.000600	111	86.6 - 130.3
Toluene		2	0.111	mg/L	1	0.100	<0.000400	111	82.2 - 120.1
Ethylbenzene		2	0.112	mg/L	1	0.100	<0.000600	112	66.8 - 119.2
Xylene		2	0.335	mg/L	1	0.300	<0.00130	112	66.5 - 118.4

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.109	mg/L	1	0.100	<0.000600	109	86.6 - 130.3	2	20
Toluene		2	0.109	mg/L	1	0.100	<0.000400	109	82.2 - 120.1	2	20
Ethylbenzene		2	0.110	mg/L	1	0.100	<0.000600	110	66.8 - 119.2	2	20
Xylene		2	0.331	mg/L	1	0.300	<0.00130	110	66.5 - 118.4	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.104	0.0996	mg/L	1	0.1	104	100	73.2 - 116.6
4-Bromofluorobenzene (4-BFB)	0.102	0.0945	mg/L	1	0.1	102	94	64.8 - 125.7

Matrix Spike (MS-1) Spiked Sample: 294161

QC Batch: 90450 | Date Analyzed: 2012-04-23 | Analyzed By: RL
Prep Batch: 76739 | QC Preparation: 2012-04-20 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	191	mg/L	5	104	87.5	100	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	192	mg/L	5	104	87.5	100	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: 294161

QC Batch: 90450 | Date Analyzed: 2012-04-23 | Analyzed By: RL
Prep Batch: 76739 | QC Preparation: 2012-04-20 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	204	mg/L	5	104	106	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
Sulfate		1	206	mg/L	5	104	106	96	90 - 110	1	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 90366 Date Analyzed: 2012-04-18 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.104	104	80 - 120	2012-04-18
Toluene		2	mg/L	0.100	0.105	105	80 - 120	2012-04-18
Ethylbenzene		2	mg/L	0.100	0.106	106	80 - 120	2012-04-18
Xylene		2	mg/L	0.300	0.313	104	80 - 120	2012-04-18

Standard (CCV-2)

QC Batch: 90366 Date Analyzed: 2012-04-18 Analyzed By: tc

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.110	110	80 - 120	2012-04-18
Toluene		2	mg/L	0.100	0.109	109	80 - 120	2012-04-18
Ethylbenzene		2	mg/L	0.100	0.111	111	80 - 120	2012-04-18
Xylene		2	mg/L	0.300	0.332	111	80 - 120	2012-04-18

Standard (CCV-1)

QC Batch: 90450 Date Analyzed: 2012-04-23 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	24.8	99	90 - 110	2012-04-23

Standard (CCV-1)

QC Batch: 90450 Date Analyzed: 2012-04-23 Analyzed By: RL

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	2012-04-23

Standard (CCV-2)

QC Batch: 90450 Date Analyzed: 2012-04-23 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.8	103	90 - 110	2012-04-23

Standard (CCV-2)

QC Batch: 90450 Date Analyzed: 2012-04-23 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	25.6	102	90 - 110	2012-04-23

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-12-7	Lubbock
2	NELAP	T104704392-11-3	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

1204302

Analysis Request of Chain of Custody Record

PAGE: | OF: 1

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:	SITE MANAGER:
Celero	Jeff Kindley

PROJECT NO.:	PROJECT NAME:
115-6403130A	Celero / Rock Queen #7

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, (TDS)	30.41
24158	4/12	1010	W		X	MW-1	4	N	X		X		X											X				X	X
159		0950				MW-2																							
160		1000				MW-3																							
161		1020				MW-4																							

RELINQUISHED BY: (Signature)	Date: 4/12/12 Time: 1450	RECEIVED BY: (Signature)	Date: 4/12/12 Time: 1510
RELINQUISHED BY: (Signature)	Date: 4/13/12 Time: 8:30	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) JT/RS Date: 4/12/12 Time:

SAMPLE SHIPPED BY: (Circle)
FEDEX BUS
HAND DELIVERED UPS
AIRBILL #:
OTHER:

TETRA TECH CONTACT PERSON: Jeff Kindley

Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)

SAMPLE CONDITION WHEN RECEIVED: 29° intact

REMARKS: *Midland – BTEX/TDS *Lubbock – Cl/SO4

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

1204130-2

Analysis Request of Chain of Custody Record

PAGE: | OF: 1

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

CLIENT NAME: Celero
SITE MANAGER: Jeff Kindley
PROJECT NO.: 115-G403130A
PROJECT NAME: Celero / Rock Queen #7

LAB I.D. NUMBER	DATE 2012	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS	30.1
294158	4/12	1010	W		X	MW-1	4	N	X		X		X												X				X	X
159		0950				MW-2																								
160		1000				MW-3																								
161		1020				MW-4																								

RELINQUISHED BY: (Signature) — Date: 4/12/12 Time: 1530
RECEIVED BY: (Signature) — Date: 4/12/12 Time: 1530
RELINQUISHED BY: (Signature) — Date: 4/13/12 Time: 8:30
RECEIVED BY: (Signature) — Date: Time:
RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) JT / RS — Date: 4/12/12 Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:
TETRA TECH CONTACT PERSON: Jeff Kindley — Results by:
RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: Trilogy
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 4/17/12 TIME: 9:00

SAMPLE CONDITION WHEN RECEIVED: 2.9° intact 3.2 3.1
REMARKS: *Midland - BTEX/TDS * Midland - Cl/SO4 LS. ZN 57980 9086.

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

TRACEANALYSIS, INC.

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 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: August 7, 2012

Work Order: 12072703

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen Tract #7
Project Number: 115-6403130A

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
304917	MW-1	water	2012-07-25	14:30	2012-07-26
304918	MW-2	water	2012-07-25	14:40	2012-07-26
304919	MW-3	water	2012-07-25	14:55	2012-07-26
304920	MW-4	water	2012-07-25	14:20	2012-07-26

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

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen Tract #7 were received by TraceAnalysis, Inc. on 2012-07-26 and assigned to work order 12072703. Samples for work order 12072703 were received intact without headspace and at a temperature of 4.0 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	79320	2012-08-01 at 15:45	93574	2012-08-01 at 15:45
Chloride (IC)	E 300.0	79415	2012-08-05 at 00:51	93693	2012-08-06 at 13:08

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 12072703 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: 304917 - MW-1

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	93574	Date Analyzed:	2012-08-01	Analyzed By:	ZLM
Prep Batch:	79320	Sample Preparation:	2012-08-01	Prepared By:	ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.00100	mg/L	1	0.00100
Toluene	U	1	<0.00100	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene	B	1	**0.00410**	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.113	mg/L	1	0.100	113	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0864	mg/L	1	0.100	86	70 - 130

Sample: 304917 - MW-1

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	93693	Date Analyzed:	2012-08-06	Analyzed By:	AR
Prep Batch:	79415	Sample Preparation:	2012-08-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	QM	2	**25700**	mg/L	500	2.50

Sample: 304918 - MW-2

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	93574	Date Analyzed:	2012-08-01	Analyzed By:	ZLM
Prep Batch:	79320	Sample Preparation:	2012-08-01	Prepared By:	ZLM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**0.00500**	mg/L	1	0.00100
Toluene		1	**0.00110**	mg/L	1	0.00100
Ethylbenzene	U	1	<0.00100	mg/L	1	0.00100
Xylene		1	**0.00880**	mg/L	1	0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.119	mg/L	1	0.100	119	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0832	mg/L	1	0.100	83	70 - 130

Sample: 304918 - MW-2

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	93693	Date Analyzed:	2012-08-06	Analyzed By:	AR
Prep Batch:	79415	Sample Preparation:	2012-08-05	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	Q*	2	**27300**	mg/L	5000	2.50

Sample: 304919 - MW-3

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	93574	Date Analyzed:	2012-08-01	Analyzed By:	ZLM
Prep Batch:	79320	Sample Preparation:	2012-08-01	Prepared By:	ZLM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0820	mg/L	1	0.100	82	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0836	mg/L	1	0.100	84	70 - 130

Sample: 304919 - MW-3

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	93693	Date Analyzed:	2012-08-06	Analyzed By:	AR
Prep Batch:	79415	Sample Preparation:	2012-08-05	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	Q*	2	**30000**	mg/L	5000	2.50

Sample: 304920 - MW-4

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	93574	Date Analyzed:	2012-08-01	Analyzed By:	ZLM
Prep Batch:	79320	Sample Preparation:	2012-08-01	Prepared By:	ZLM

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0848	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0885	mg/L	1	0.100	88	70 - 130

Sample: 304920 - MW-4

Laboratory:	Midland				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	93693	Date Analyzed:	2012-08-06	Analyzed By:	AR
Prep Batch:	79415	Sample Preparation:	2012-08-05	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	Q*	2	**138**	mg/L	10	2.50

Method Blanks

Method Blank (1) QC Batch: 93574

QC Batch: 93574 Date Analyzed: 2012-08-01 Analyzed By: ZLM
Prep Batch: 79320 QC Preparation: 2012-08-01 Prepared By: ZLM

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.000371	mg/L	0.001
Toluene		1	<0.000347	mg/L	0.001
Ethylbenzene		1	<0.000326	mg/L	0.001
Xylene		1	0.000700	mg/L	0.001

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0902	mg/L	1	0.100	90	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0928	mg/L	1	0.100	93	70 - 130

Method Blank (1) QC Batch: 93693

QC Batch: 93693 Date Analyzed: 2012-08-06 Analyzed By: AR
Prep Batch: 79415 QC Preparation: 2012-08-05 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		2	<0.265	mg/L	2.5

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 93574
Prep Batch: 79320

Date Analyzed: 2012-08-01
QC Preparation: 2012-08-01

Analyzed By: ZLM
Prepared By: ZLM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0911	mg/L	1	0.100	<0.000371	91	78.6 - 120
Toluene		1	0.0908	mg/L	1	0.100	<0.000347	91	79.6 - 120
Ethylbenzene		1	0.0947	mg/L	1	0.100	<0.000326	95	80 - 120
Xylene		1	0.280	mg/L	1	0.300	0.0007	93	79.3 - 120

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	0.0915	mg/L	1	0.100	<0.000371	92	78.6 - 120	0	20
Toluene		1	0.0910	mg/L	1	0.100	<0.000347	91	79.6 - 120	0	20
Ethylbenzene		1	0.0963	mg/L	1	0.100	<0.000326	96	80 - 120	2	20
Xylene		1	0.281	mg/L	1	0.300	0.0007	94	79.3 - 120	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0891	0.0889	mg/L	1	0.100	89	89	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0877	0.0887	mg/L	1	0.100	88	89	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93693
Prep Batch: 79415

Date Analyzed: 2012-08-06
QC Preparation: 2012-08-05

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		2	26.0	mg/L	1	25.0	<0.265	104	90 - 110

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		2	25.9	mg/L	1	25.0	<0.265	104	90 - 110	0	20

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

Matrix Spike (MS-1) Spiked Sample: 304906

QC Batch: 93574 | Date Analyzed: 2012-08-01 | Analyzed By: ZLM
Prep Batch: 79320 | QC Preparation: 2012-08-01 | Prepared By: ZLM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0895	mg/L	1	0.100	0.0034	86	42.2 - 136
Toluene		1	0.0756	mg/L	1	0.100	<0.000347	76	44.3 - 133
Ethylbenzene		1	0.0684	mg/L	1	0.100	<0.000326	68	45.6 - 132
Xylene		1	0.200	mg/L	1	0.300	<0.000357	67	44.7 - 128

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	0.0884	mg/L	1	0.100	0.0034	85	42.2 - 136	1	20
Toluene		1	0.0714	mg/L	1	0.100	<0.000347	71	44.3 - 133	6	20
Ethylbenzene		1	0.0648	mg/L	1	0.100	<0.000326	65	45.6 - 132	5	20
Xylene		1	0.192	mg/L	1	0.300	<0.000357	64	44.7 - 128	4	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)			0.0722	0.0680	mg/L	1	0.1	72	68	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	0.0620	0.0617	mg/L	1	0.1	62	62	70 - 130

Matrix Spike (MS-1) Spiked Sample: 304913

QC Batch: 93693 | Date Analyzed: 2012-08-06 | Analyzed By: AR
Prep Batch: 79415 | QC Preparation: 2012-08-05 | Prepared By: AR

Param		F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	Qs	Qs	2	5540	mg/L	100	2750	2130	124	80 - 120

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

Param		F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	Qs	Qs	2	5560	mg/L	100	2750	2130	125	80 - 120	0	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 93574 Date Analyzed: 2012-08-01 Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0938	94	80 - 120	2012-08-01
Toluene		1	mg/L	0.100	0.0923	92	80 - 120	2012-08-01
Ethylbenzene		1	mg/L	0.100	0.0963	96	80 - 120	2012-08-01
Xylene		1	mg/L	0.300	0.281	94	80 - 120	2012-08-01

Standard (CCV-2)

QC Batch: 93574 Date Analyzed: 2012-08-01 Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0896	90	80 - 120	2012-08-01
Toluene		1	mg/L	0.100	0.0880	88	80 - 120	2012-08-01
Ethylbenzene		1	mg/L	0.100	0.0933	93	80 - 120	2012-08-01
Xylene		1	mg/L	0.300	0.273	91	80 - 120	2012-08-01

Standard (CCV-3)

QC Batch: 93574 Date Analyzed: 2012-08-01 Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0883	88	80 - 120	2012-08-01
Toluene		1	mg/L	0.100	0.0863	86	80 - 120	2012-08-01
Ethylbenzene		1	mg/L	0.100	0.0893	89	80 - 120	2012-08-01
Xylene		1	mg/L	0.300	0.266	89	80 - 120	2012-08-01

Standard (CCV-1)

QC Batch: 93693 Date Analyzed: 2012-08-06 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		2	mg/L	25.0	26.4	106	90 - 110	2012-08-06

Standard (CCV-2)

QC Batch: 93693 Date Analyzed: 2012-08-06 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		2	mg/L	25.0	26.7	107	90 - 110	2012-08-06

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-12-8	Lubbock
2	NELAP	T104704392-12-4	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

1207 2703

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: Celero Energy
SITE MANAGER: Jeff Kindley
PROJECT NO.: 115-6403130A
PROJECT NAME: Rock Queen #7 Clover Co.

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
304917	9/25	1430	W		X	MW-1	4		3		X	1	3											1				
918	↓	1440	W		X	MW-2	4		3		X	1	3											1				
919		1455	W		X	MW-3	4		3		X	1	3											1				
920		1420	W		X	MW-4	4		3		X	1	3											1				

RELINQUISHED BY: (Signature) — Date: 9/25 Time: 26 July 2012
RECEIVED BY: (Signature) — Date: 7-26-12 Time: 1445
SAMPLED BY: (Print & Initial) Marcus Kuykendall / Chase Frankenberry — Date:

RELINQUISHED BY: (Signature) — Date: 7-26-12 Time: 1445
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Jeff Kindley — Results by:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4°C
REMARKS: Midland - Cl Burbank - BTEX

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

1207 2703

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: Celero Energy
SITE MANAGER: Jeff Kindley
PROJECT NO.: 115-6403130A
PROJECT NAME: Rock Queen #7 Chaves Co.

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
304917	7/25	1430	W		X	MW-1	4		3		X	1	3												1				
918	↓	1440	W		X	MW-2	4		3		X	1	3												1				
919		1455	W		X	MW-3	4		3		X	1	3												1				
920		1420	W		X	MW-4	4		3		X	1	3												1				

RELINQUISHED BY: (Signature) — Date: 7/25 Time: 2615 July 2012
RECEIVED BY: (Signature) — Date: 7-26-12 Time: 1445
RELINQUISHED BY: (Signature) — Date: 7-26-12 Time: 1445
RECEIVED BY: (Signature) — Date: Time:
RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) Marcus Kuykendall / Celero Frankenberger — Date:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: — OTHER:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward — DATE: 7/31/12 TIME: 9:05

TETRA TECH CONTACT PERSON: Jeff Kindley
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4°C

REMARKS: Midland - Ci Bill to - BTEX LS ZN 950514

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

TRACEANALYSIS, INC.

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 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

Greg Pope
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: November 19, 2013

Work Order: 13103131

Project Location: Chavez Co., NM
Project Name: Celero/Rock Queen #7
Project Number: 114-6401628

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
345372	MW-1	water	2013-10-30	17:15	2013-10-31
345373	MW-2	water	2013-10-30	17:40	2013-10-31
345374	MW-3	water	2013-10-30	17:50	2013-10-31
345375	MW-4	water	2013-10-30	17:30	2013-10-31

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

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

Report Contents

Case Narrative

Samples for project Celero/Rock Queen #7 were received by TraceAnalysis, Inc. on 2013-10-31 and assigned to work order 13103131. Samples for work order 13103131 were received intact without headspace and at a temperature of 1.8 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	90171	2013-11-01 at 10:25	106461	2013-11-01 at 16:26
BTEX	S 8021B	90156	2013-11-01 at 12:38	106459	2013-11-01 at 15:39
Ca, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
Chloride (IC)	E 300.0	90366	2013-11-08 at 10:30	106706	2013-11-08 at 11:32
Hardness	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
K, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
Mg, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
Na, Dissolved	S 6010C	90268	2013-11-06 at 14:46	106734	2013-11-13 at 10:25
pH	SM 4500-H+	90131	2013-10-31 at 13:47	106464	2013-10-31 at 16:42
SO4 (IC)	E 300.0	90366	2013-11-08 at 10:30	106706	2013-11-08 at 11:32
SO4 (IC)	E 300.0	90395	2013-11-12 at 15:00	106738	2013-11-12 at 16:20
TDS	SM 2540C	90164	2013-11-01 at 09:10	106604	2013-11-02 at 18:13

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 13103131 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: 345372 - MW-1

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106461	Date Analyzed:	2013-11-01	Analyzed By:	AR
Prep Batch:	90171	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	**356**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**356**	mg/L as CaCo3	1	20.0

Sample: 345372 - MW-1

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106459	Date Analyzed:	2013-11-01	Analyzed By:	AK
Prep Batch:	90156	Sample Preparation:	2013-11-01	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Q*,U	2	<0.00100	mg/L	1	0.00100
Xylene	Q*,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0849	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0765	mg/L	1	0.100	76	70 - 130

Sample: 345372 - MW-1

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-09	Prepared By:	PM

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Dissolved Calcium		1	**531**		mg/L	10	1.00
Dissolved Potassium		1	**38.9**		mg/L	10	1.00
Dissolved Magnesium		1	**184**		mg/L	10	1.00
Dissolved Sodium		1	**2920**		mg/L	100	1.00

Sample: 345372 - MW-1

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride		1	**5520**		mg/L	500	2.50

Sample: 345372 - MW-1

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-06	Prepared By:	PM

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Hardness (by ICP)			**2080**		mg eq CaCO3/L	1	0.00

Sample: 345372 - MW-1

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106464	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90131	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
pH		2	**7.43**		s.u.	1	0.00

Sample: 345372 - MW-1

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106738	Date Analyzed:	2013-11-12	Analyzed By:	RL
Prep Batch:	90395	Sample Preparation:	2013-11-12	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**609**	mg/L	100	2.50

Sample: 345372 - MW-1

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106604	Date Analyzed:	2013-11-02	Analyzed By:	AR
Prep Batch:	90164	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**11900**	mg/L	20	2.50

Sample: 345373 - MW-2

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106461	Date Analyzed:	2013-11-01	Analyzed By:	AR
Prep Batch:	90171	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	**160**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**160**	mg/L as CaCo3	1	20.0

Sample: 345373 - MW-2

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106459	Date Analyzed:	2013-11-01	Analyzed By:	AK
Prep Batch:	90156	Sample Preparation:	2013-11-01	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Q8,U	2	<0.00100	mg/L	1	0.00100
Xylene	Q8,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0840	mg/L	1	0.100	84	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0733	mg/L	1	0.100	73	70 - 130

Sample: 345373 - MW-2

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-09	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**782**	mg/L	10	1.00
Dissolved Potassium		1	**405**	mg/L	10	1.00
Dissolved Magnesium		1	**410**	mg/L	10	1.00
Dissolved Sodium		1	**7000**	mg/L	1000	1.00

Sample: 345373 - MW-2

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**16500**	mg/L	500	2.50

Sample: 345373 - MW-2

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-06	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**3640**	mg eq CaCO3/L	1	0.00

Sample: 345373 - MW-2

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106464	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90131	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	**6.67**	s.u.	1	0.00

Sample: 345373 - MW-2

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**1250**	mg/L	500	2.50

Sample: 345373 - MW-2

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106604	Date Analyzed:	2013-11-02	Analyzed By:	AR
Prep Batch:	90164	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**84200**	mg/L	100	2.50

Sample: 345374 - MW-3

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106461	Date Analyzed:	2013-11-01	Analyzed By:	AR
Prep Batch:	90171	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	**320**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**320**	mg/L as CaCo3	1	20.0

Sample: 345374 - MW-3

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106459	Date Analyzed:	2013-11-01	Analyzed By:	AK
Prep Batch:	90156	Sample Preparation:	2013-11-01	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Q=,U	2	<0.00100	mg/L	1	0.00100
Xylene	Q=,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0850	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0770	mg/L	1	0.100	77	70 - 130

Sample: 345374 - MW-3

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-09	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**1850**	mg/L	100	1.00
Dissolved Potassium		1	**181**	mg/L	10	1.00
Dissolved Magnesium		1	**821**	mg/L	10	1.00

continued ...

sample 345374 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Sodium		1	**10600**	mg/L	100	1.00

Sample: 345374 - MW-3

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**33500**	mg/L	1000	2.50

Sample: 345374 - MW-3

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-06	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**8000**	mg eq CaCO3/L	1	0.00

Sample: 345374 - MW-3

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106464	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90131	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	**7.05**	s.u.	1	0.00

Sample: 345374 - MW-3

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106738	Date Analyzed:	2013-11-12	Analyzed By:	RL
Prep Batch:	90395	Sample Preparation:	2013-11-12	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**1030**	mg/L	100	2.50

Sample: 345374 - MW-3

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106604	Date Analyzed:	2013-11-02	Analyzed By:	AR
Prep Batch:	90164	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**33700**	mg/L	50	2.50

Sample: 345375 - MW-4

Laboratory:	Midland				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	106461	Date Analyzed:	2013-11-01	Analyzed By:	AR
Prep Batch:	90171	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hydroxide Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Carbonate Alkalinity	U	2	<20.0	mg/L as CaCo3	1	20.0
Bicarbonate Alkalinity		2	**166**	mg/L as CaCo3	1	20.0
Total Alkalinity		2	**166**	mg/L as CaCo3	1	20.0

Sample: 345375 - MW-4

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	106459	Date Analyzed:	2013-11-01	Analyzed By:	AK
Prep Batch:	90156	Sample Preparation:	2013-11-01	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.00100	mg/L	1	0.00100
Toluene	U	2	<0.00100	mg/L	1	0.00100
Ethylbenzene	Q8,U	2	<0.00100	mg/L	1	0.00100
Xylene	Q8,U	2	<0.00300	mg/L	1	0.00300

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0846	mg/L	1	0.100	85	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0766	mg/L	1	0.100	77	70 - 130

Sample: 345375 - MW-4

Laboratory:	Lubbock				
Analysis:	Cations	Analytical Method:	S 6010C	Prep Method:	S 3005A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-09	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Dissolved Calcium		1	**86.1**	mg/L	10	1.00
Dissolved Potassium		1	<10.0	mg/L	10	1.00
Dissolved Magnesium		1	**15.4**	mg/L	10	1.00
Dissolved Sodium		1	**82.2**	mg/L	10	1.00

Sample: 345375 - MW-4

Laboratory:	Lubbock				
Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride		1	**89.4**	mg/L	5	2.50

Sample: 345375 - MW-4

Laboratory:	Lubbock				
Analysis:	Hardness	Analytical Method:	S 6010C	Prep Method:	N/A
QC Batch:	106734	Date Analyzed:	2013-11-13	Analyzed By:	RR
Prep Batch:	90268	Sample Preparation:	2013-11-06	Prepared By:	PM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Hardness (by ICP)			**278**	mg eq CaCO3/L	1	0.00

Sample: 345375 - MW-4

Laboratory:	Midland				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	106464	Date Analyzed:	2013-10-31	Analyzed By:	AR
Prep Batch:	90131	Sample Preparation:	2013-10-31	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
pH		2	**7.85**	s.u.	1	0.00

Sample: 345375 - MW-4

Laboratory:	Lubbock				
Analysis:	SO4 (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	106706	Date Analyzed:	2013-11-08	Analyzed By:	RL
Prep Batch:	90366	Sample Preparation:	2013-11-08	Prepared By:	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Sulfate		1	**115**	mg/L	5	2.50

Sample: 345375 - MW-4

Laboratory:	Midland				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	106604	Date Analyzed:	2013-11-02	Analyzed By:	AR
Prep Batch:	90164	Sample Preparation:	2013-11-01	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Total Dissolved Solids		2	**900**	mg/L	20	2.50

Method Blanks

Method Blank (1) QC Batch: 106459

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK
Prep Batch: 90156 | QC Preparation: 2013-11-01 | Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.000600	mg/L	0.001
Toluene		2	<0.000400	mg/L	0.001
Ethylbenzene		2	<0.000600	mg/L	0.001
Xylene		2	<0.00130	mg/L	0.003

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0881	mg/L	1	0.100	88	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0780	mg/L	1	0.100	78	70 - 130

Method Blank (1) QC Batch: 106461

QC Batch: 106461 | Date Analyzed: 2013-11-01 | Analyzed By: AR
Prep Batch: 90171 | QC Preparation: 2013-11-01 | Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Hydroxide Alkalinity		2	<20.0	mg/L as CaCo3	20
Carbonate Alkalinity		2	<20.0	mg/L as CaCo3	20
Bicarbonate Alkalinity		2	<20.0	mg/L as CaCo3	20
Total Alkalinity		2	<20.0	mg/L as CaCo3	20

Method Blank (1) QC Batch: 106604

QC Batch: 106604 | Date Analyzed: 2013-11-02 | Analyzed By: AR
Prep Batch: 90164 | QC Preparation: 2013-11-01 | Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Total Dissolved Solids		2	<2.50	mg/L	2.5

Method Blank (1) QC Batch: 106706

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL
Prep Batch: 90366 QC Preparation: 2013-11-08 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride		1	<0.254	mg/L	2.5

Method Blank (1) QC Batch: 106706

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL
Prep Batch: 90366 QC Preparation: 2013-11-08 Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.132	mg/L	2.5

Method Blank (1) QC Batch: 106734

QC Batch: 106734 Date Analyzed: 2013-11-13 Analyzed By: RR
Prep Batch: 90268 QC Preparation: 2013-11-06 Prepared By: PM

Parameter	Flag	Cert	MDL Result	Units	RL
Dissolved Calcium		1	<0.0441	mg/L	1
Dissolved Potassium		1	<0.0443	mg/L	1
Dissolved Magnesium		1	<0.0296	mg/L	1
Dissolved Sodium		1	<0.172	mg/L	1

Method Blank (1) QC Batch: 106738

QC Batch: 106738 | Date Analyzed: 2013-11-12 | Analyzed By: RL
Prep Batch: 90395 | QC Preparation: 2013-11-12 | Prepared By: RL

Parameter	Flag	Cert	MDL Result	Units	RL
Sulfate		1	<0.132	mg/L	2.5

Duplicates (1) Duplicated Sample: 345371

QC Batch: 106461 | Date Analyzed: 2013-11-01 | Analyzed By: AR
Prep Batch: 90171 | QC Preparation: 2013-11-01 | Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	2	<20.0	<20.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	2	149	126	mg/L as CaCo3	1	17	20
Total Alkalinity	2	149	126	mg/L as CaCo3	1	17	20

Duplicates (1) Duplicated Sample: 345371

QC Batch: 106464 | Date Analyzed: 2013-10-31 | Analyzed By: AR
Prep Batch: 90131 | QC Preparation: 2013-10-31 | Prepared By: AR

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	2	6.59	6.56	s.u.	1	0	10

Duplicates (1) Duplicated Sample: 345371

QC Batch: 106604 | Date Analyzed: 2013-11-02 | Analyzed By: AR
Prep Batch: 90164 | QC Preparation: 2013-11-01 | Prepared By: AR

continued ...

duplicate continued ...

Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Param		Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	2	121000	113000	mg/L	100	7	10

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK
Prep Batch: 90156 | QC Preparation: 2013-11-01 | Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0900	mg/L	1	0.100	<0.000600	90	70 - 130
Toluene		2	0.0892	mg/L	1	0.100	<0.000400	89	70 - 130
Ethylbenzene		2	0.0872	mg/L	1	0.100	<0.000600	87	70 - 130
Xylene		2	0.266	mg/L	1	0.300	<0.00130	89	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.0895	mg/L	1	0.100	<0.000600	90	70 - 130	1	20
Toluene		2	0.0892	mg/L	1	0.100	<0.000400	89	70 - 130	0	20
Ethylbenzene		2	0.0868	mg/L	1	0.100	<0.000600	87	70 - 130	0	20
Xylene		2	0.265	mg/L	1	0.300	<0.00130	88	70 - 130	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0899	0.0914	mg/L	1	0.100	90	91	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0936	0.0945	mg/L	1	0.100	94	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 106604 | Date Analyzed: 2013-11-02 | Analyzed By: AR
Prep Batch: 90164 | QC Preparation: 2013-11-01 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Dissolved Solids		2	1010	mg/L	1	1000	<2.50	101	90 - 110

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Dissolved Solids		2	981	mg/L	1	1000	<2.50	98	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: 106706 | Date Analyzed: 2013-11-08 | Analyzed By: RL
Prep Batch: 90366 | QC Preparation: 2013-11-08 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	25.5	mg/L	1	25.0	<0.254	102	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.4	mg/L	1	25.0	<0.254	102	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: 106706 | Date Analyzed: 2013-11-08 | Analyzed By: RL
Prep Batch: 90366 | QC Preparation: 2013-11-08 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	26.3	mg/L	1	25.0	<0.132	105	90 - 110

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Sulfate		1	26.6	mg/L	1	25.0	<0.132	106	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: 106734 | Date Analyzed: 2013-11-13 | Analyzed By: RR
Prep Batch: 90268 | QC Preparation: 2013-11-06 | Prepared By: PM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	54.6	mg/L	1	52.5	<0.0441	104	85 - 115
Dissolved Potassium		1	52.3	mg/L	1	52.5	<0.0443	100	85 - 115
Dissolved Magnesium		1	53.7	mg/L	1	52.5	<0.0296	102	85 - 115
Dissolved Sodium		1	53.6	mg/L	1	52.5	<0.172	102	85 - 115

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
Dissolved Calcium		1	55.6	mg/L	1	52.5	<0.0441	106	85 - 115	2	20
Dissolved Potassium		1	53.3	mg/L	1	52.5	<0.0443	102	85 - 115	2	20
Dissolved Magnesium		1	54.7	mg/L	1	52.5	<0.0296	104	85 - 115	2	20
Dissolved Sodium		1	54.3	mg/L	1	52.5	<0.172	103	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: 106738 | Date Analyzed: 2013-11-12 | Analyzed By: RL
Prep Batch: 90395 | QC Preparation: 2013-11-12 | Prepared By: RL

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	26.6	mg/L	1	25.0	<0.132	106	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	26.3	mg/L	1	25.0	<0.132	105	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: 345371

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK
Prep Batch: 90156 | QC Preparation: 2013-11-01 | Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	0.0833	mg/L	1	0.100	<0.000600	83	70 - 130
Toluene		2	0.0783	mg/L	1	0.100	<0.000400	78	70 - 130
Ethylbenzene	Q8	Q8 2	0.0693	mg/L	1	0.100	<0.000600	69	70 - 130
Xylene	Q8	Q8 2	0.207	mg/L	1	0.300	<0.00130	69	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	0.0836	mg/L	1	0.100	<0.000600	84	70 - 130	0	20
Toluene		2	0.0793	mg/L	1	0.100	<0.000400	79	70 - 130	1	20
Ethylbenzene	Q8	Q8 2	0.0696	mg/L	1	0.100	<0.000600	70	70 - 130	0	20
Xylene		2	0.211	mg/L	1	0.300	<0.00130	70	70 - 130	2	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)	0.0833	0.0825	mg/L	1	0.1	83	82	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0863	0.0870	mg/L	1	0.1	86	87	70 - 130

Matrix Spike (MS-1) Spiked Sample: 345377

QC Batch: 106706 | Date Analyzed: 2013-11-08 | Analyzed By: RL
Prep Batch: 90366 | QC Preparation: 2013-11-08 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride		1	286000	mg/L	5000	125000	135837	120	80 - 120

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	284000	mg/L	5000	125000	135837	118	80 - 120	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: 345377

QC Batch: 106706 | Date Analyzed: 2013-11-08 | Analyzed By: RL
Prep Batch: 90366 | QC Preparation: 2013-11-08 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	137000	mg/L	5000	125000	1810	108	80 - 120

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	136000	mg/L	5000	125000	1810	107	80 - 120	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: 345371

QC Batch: 106734 | Date Analyzed: 2013-11-13 | Analyzed By: RR
Prep Batch: 90268 | QC Preparation: 2013-11-06 | Prepared By: PM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Calcium		1	6650	mg/L	1	500	6210	88	75 - 125
Dissolved Potassium		1	664	mg/L	1	500	147	103	75 - 125
Dissolved Magnesium		1	3470	mg/L	1	500	3000	94	75 - 125
Dissolved Sodium		1	26800	mg/L	1	500	26300	100	75 - 125

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
Dissolved Calcium		1	6700	mg/L	1	500	6210	98	75 - 125	1	20
Dissolved Potassium		1	640	mg/L	1	500	147	99	75 - 125	4	20
Dissolved Magnesium		1	3390	mg/L	1	500	3000	78	75 - 125	2	20
Dissolved Sodium		1	26800	mg/L	1	500	26300	100	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: 346002

QC Batch: 106738 | Date Analyzed: 2013-11-12 | Analyzed By: RL
Prep Batch: 90395 | QC Preparation: 2013-11-12 | Prepared By: RL

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	381	mg/L	10	250	81.9	120	80 - 120

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	358	mg/L	10	250	81.9	110	80 - 120	6	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0895	90	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0887	89	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0871	87	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.264	88	80 - 120	2013-11-01

Standard (CCV-2)

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0855	86	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0853	85	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0851	85	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.256	85	80 - 120	2013-11-01

Standard (CCV-3)

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0898	90	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0877	88	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0871	87	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.263	88	80 - 120	2013-11-01

Standard (CCV-4)

QC Batch: 106459 | Date Analyzed: 2013-11-01 | Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/L	0.100	0.0905	90	80 - 120	2013-11-01
Toluene		2	mg/L	0.100	0.0889	89	80 - 120	2013-11-01
Ethylbenzene		2	mg/L	0.100	0.0872	87	80 - 120	2013-11-01
Xylene		2	mg/L	0.300	0.263	88	80 - 120	2013-11-01

Standard (ICV-1)

QC Batch: 106461 | Date Analyzed: 2013-11-01 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	232		-	2013-11-01
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Total Alkalinity		2	mg/L as CaCo3	250	233	93	90 - 110	2013-11-01

Standard (CCV-1)

QC Batch: 106461 | Date Analyzed: 2013-11-01 | Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Carbonate Alkalinity		2	mg/L as CaCo3	0.00	214		-	2013-11-01
Bicarbonate Alkalinity		2	mg/L as CaCo3	0.00	<20.0		-	2013-11-01
Total Alkalinity		2	mg/L as CaCo3	250	232	93	90 - 110	2013-11-01

Standard (ICV-1)

QC Batch: 106464 | Date Analyzed: 2013-10-31 | Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	6.99	100	98 - 102	2013-10-31

Standard (CCV-1)

QC Batch: 106464 Date Analyzed: 2013-10-31 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		2	s.u.	7.00	7.05	101	98 - 102	2013-10-31

Standard (CCV-1)

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.3	101	90 - 110	2013-11-08

Standard (CCV-1)

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-11-08

Standard (CCV-2)

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		1	mg/L	25.0	25.3	101	90 - 110	2013-11-08

Standard (CCV-2)

QC Batch: 106706 Date Analyzed: 2013-11-08 Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.3	105	90 - 110	2013-11-08

Standard (ICV-1)

QC Batch: 106734 Date Analyzed: 2013-11-13 Analyzed By: RR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	52.9	104	90 - 110	2013-11-13
Dissolved Potassium		1	mg/L	55.0	56.3	102	90 - 110	2013-11-13
Dissolved Magnesium		1	mg/L	51.0	52.7	103	90 - 110	2013-11-13
Dissolved Sodium		1	mg/L	51.0	50.8	100	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106734 Date Analyzed: 2013-11-13 Analyzed By: RR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		1	mg/L	51.0	51.6	101	90 - 110	2013-11-13
Dissolved Potassium		1	mg/L	55.0	54.8	100	90 - 110	2013-11-13
Dissolved Magnesium		1	mg/L	51.0	51.1	100	90 - 110	2013-11-13
Dissolved Sodium		1	mg/L	51.0	50.8	100	90 - 110	2013-11-13

Standard (CCV-1)

QC Batch: 106738 | Date Analyzed: 2013-11-12 | Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.4	106	90 - 110	2013-11-12

Standard (CCV-2)

QC Batch: 106738 | Date Analyzed: 2013-11-12 | Analyzed By: RL

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate		1	mg/L	25.0	26.0	104	90 - 110	2013-11-12

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock
2	NELAP	T104704392-13-7	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
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.

1310 3131

Analysis Request of Chain of Custody Record

PAGE: OF:

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

CLIENT NAME: Celero Energy
SITE MANAGER: Greg Pope
PROJECT NO.: 114-G01628
PROJECT NAME: Rock Queen #7

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
315372	10/31/13	1715	W		X	MW-1	5	N	X		X		X												X			X	
373		1740				MW-2	5																						
374		1750				MW-3	5																						
375		1730				MW-4	5																						

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 10/31/13 Time: 1739
RECEIVED BY: (Signature) Date: 10/31/13 Time: 12:29
SAMPLED BY: (Print & Initial) CFRD Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: 790536309

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
OTHER:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) TX
DATE: 11/1/13 TIME: 9:40
TETRA TECH CONTACT PERSON:
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 1.8°
REMARKS: Midland - BTEX/all/TDS/pH Rubbish - anions/cations

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