# 1RP-1554

# Groundwater Sampling Report

Append & C (Cont.)
Lab Analysis

DATE: March 29, 2012

4044



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## Certifications

#### NCTRCA $\mathbf{DBE}$ NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report (Corrected Report)

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

Report Date: August 24, 2011

Work Order:

11080104

Project Location:

Chavez Co, NM

Project Name:

Celero/Rock Queen #1 TB

Project Number:

115-6403129

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
273194	MW-1	water	2011-07-28	15:00	2011-07-29
273195	MW-2	water	2011-07-28	14:50	2011-07-29
273196	MW-3	water	2011-07-28	15:20	2011-07-29
273197	MW-4	water	2011-07-28	15:40	2011-07-29
273198	MW-5	water	2011-07-28	14:40	2011-07-29
273199	MW-6	water	2011-07-28	15:10	2011-07-29
273200	MW-7	water	2011-07-28	15:30	2011-07-29

#### Report Corrections (Work Order 11080104)

- Corrected Report
- $\bullet$  Re-ran the chlorides and SO4 for 273198. 8/24/11

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

This report consists of a total of 36 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

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QC	Batch	83538 -	- CCI	<b>/</b> (1)																			 										31
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### Case Narrative

Samples for project Celero/Rock Queen #1 TB were received by TraceAnalysis, Inc. on 2011-07-29 and assigned to work order 11080104. Samples for work order 11080104 were received intact without headspace and at a temperature of 10.8 C.

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

		Prep	Prep	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	70921	2011-08-02 at 09:42	83491	2011-08-02 at 09:42
BTEX	S 8021B	70958	2011-08-03 at 09:47	83538	2011-08-03 at 09:47
Chloride (IC)	E 300.0	70869	2011-08-01 at 12:42	83505	2011-08-02 at 11:12
Chloride (IC)	E 300.0	70897	2011-08-02 at 10:07	83579	2011-08-03 at 15:04
Chloride (IC)	$\to 300.0$	70898	2011-08-02 at 10:08	83580	2011-08-03 at 15:05
Chloride (IC)	E 300.0	71505	2011-08-22 at 09:26	84218	2011-08-22 at 14:27
SO4 (IC)	$\mathbf{E}$ 300.0	70869	2011-08-01 at 12:42	83505	2011-08-02 at 11:12
SO4 (IC)	E 300.0	70897	2011-08-02 at 10:07	83579	2011-08-03 at 15:04
SO4 (IC)	E 300.0	70898	2011-08-02 at 10:08	83580	2011-08-03 at 15:05
SO4 (IC)	E 300.0	71505	2011-08-22 at 09:26	84218	2011-08-22 at 14:27
TDS	SM 2540C	70895	2011-08-02 at 08:59	83717	2011-08-09 at 11:17
TDS	SM 2540C	70948	2011-08-03 at 14:50	83789	2011-08-11 at 10:15

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11080104 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.

Samples were received on ice.

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

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 6 of 36 Chavez Co, NM

# **Analytical Report**

Sample: 273194 - MW-1

Laboratory:

Midland

Analysis:

BTEX

Analytical Method:

S 8021B

Prep Method:

S 5030B

QC Batch:

83538

Date Analyzed:

2011-08-03

Analyzed By:

Prep Batch:

70958

Sample Preparation: 2011-08-03 Prepared By:

MEME

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0723	mg/L	1	0.100	72	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0733	mg/L	1	0.100	73	67.5 - 140.8

Sample: 273194 - MW-1

Laboratory:

Midland

Analysis:

Chloride (IC)

83505

Analytical Method:

E 300.0

Prep Method: N/A

QC Batch: Prep Batch: 70869

Date Analyzed:

2011-08-02

Analyzed By: AR

AR

Sample Preparation: 2011-08-01

Prepared By:

			RL	•		
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		1	141000	$_{ m mg/L}$	5000	2.50

Sample: 273194 - MW-1

Laboratory:

Midland

Analysis: SO4 (IC) QC Batch: 83505

Analytical Method:

E 300.0 2011-08-02 Prep Method: N/A Analyzed By:

Prep Batch: 70869 Date Analyzed: Sample Preparation: 2011-08-01

AR Prepared By: AR

RL

Parameter Flag Cert Result Units Dilution RLSulfate 2210 mg/L 50 2.50

Page Number: 7 of 36 Report Date: August 24, 2011 Work Order: 11080104 115-6403129 Chavez Co, NM Celero/Rock Queen #1 TB Sample: 273194 - MW-1 Laboratory: Midland TDS Analysis: Analytical Method: SM 2540C Prep Method: N/A QC Batch: 83717 Date Analyzed: 2011-08-09 Analyzed By: AR Prep Batch: 70895 Sample Preparation: 2011-08-02 Prepared By: AR RL

Cert

1

Flag

Result

231000

Units

mg/L

Sample: 273195 - MW-2

Laboratory: Midland
Analysis: BTEX
QC Batch: 83491
Prep Batch: 70921

Total Dissolved Solids

Parameter

Analytical Method: S 8021B
Date Analyzed: 2011-08-02
Sample Preparation: 2011-08-02

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

Dilution

100

RL

10.0

RLParameter Dilution RLFlag Cert Result Units Benzene 0.00100 < 0.00100 mg/L U 1 Toluene < 0.00100 mg/L1 0.00100 υ Ethylbenzene U < 0.00100 mg/L 1 0.00100 1 Xylene U < 0.00100 mg/L 0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.102	mg/L	1	0.100	102	67.5 - 140.8

Sample: 273195 - MW-2

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 83579 Prep Batch: 70897 Analytical Method:
Date Analyzed:
Sample Preparation:

E 300.0 Prep Method: N/A 2011-08-03 Analyzed By: AR 2011-08-02 Prepared By: AR

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 8 of 36 Chavez Co, NM

Sample: 273195 - MW-2

Laboratory: Midland

SO4 (IC) Analysis: QC Batch: 83579 Prep Batch: 70897

Analytical Method: E 300.0 Date Analyzed:

Sample Preparation:

2011-08-03 2011-08-02

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

RL

Dilution RLParameter Flag Cert Result Units Sulfate 135 2.50 mg/L

Sample: 273195 - MW-2

Laboratory:

Midland

Analysis: TDS QC Batch: 83717 Prep Batch: 70895 Analytical Method: Date Analyzed: Sample Preparation:

SM 2540C 2011-08-09 2011-08-02 Prep Method: N/A Analyzed By: AR Prepared By: AR

RL

Result Units Dilution RLParameter Flag Cert Total Dissolved Solids 25300 mg/L 100 10.0

Sample: 273196 - MW-3

Laboratory:

Midland

Analysis: **BTEX** QC Batch: 83491 Prep Batch: 70921

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-08-02 2011-08-02 Prep Method: S 5030B Analyzed By: ME Prepared By: ME

RLDilution RLParameter Result Units Flag Cert Benzene < 0.00100 mg/L ī 0.00100 U 1 Toluene < 0.00100 mg/L 1 0.00100 υ 1 0.00100 Ethylbenzene < 0.00100 mg/L 1 U < 0.00100 mg/L 1 0.00100Xylene

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0899	mg/L	1 .	0.100	90	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0877	mg/L	1	0.100	88	67.5 - 140.8

Report Date: August 24, 2011 15-6403129				r: 11080104 Queen #1 TB		Page Number: Chavez C	
Sample: 273196	- MW-3						
Laboratory: Mid	lland			•			
Analysis: Chl	oride (IC)	Ar	nalytical Metho	d: E 300.0		Prep Method:	N/A
QC Batch: 835	79		te Analyzed:	2011-08-0	3	Analyzed By:	AR
Prep Batch: 708	97	Sa	mple Preparati	on: 2011-08-0	2	Prepared By:	$\mathbf{A}\mathbf{R}$
				RL			
Parameter	Flag	C		Result	Units	Dilution	/ RL
Chloride	-		1 6	7300	mg/L	5000	2.50
Sample: 273196	- MW-3				•		
Laboratory: Mid	lland						
Analysis: SO4	4 (IC)	Anal	ytical Method:	E 300.0		Prep Method:	N/A
QC Batch: 835'		Date	Analyzed:	2011-08-03		Analyzed By:	AR
Prep Batch: 7089	97	Sam	ple Preparation	: 2011-08-02		Prepared By:	AR
				RL			
Parameter	Flag	C		tesult	Units	Dilution	RL
Sulfate			1	2070	mg/L	50	2.50
Sample: 273196	- MW-3						
•	lland			~~ -\			/.
Analysis: TDS			ytical Method:	SM 2540C		Prep Method:	N/A
QC Batch: 837			Analyzed:	2011-08-09		Analyzed By:	AR
Prep Batch: 7089	95	Samp	le Preparation:	2011-08-02		Prepared By:	AR
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Total Dissolved So	1: 1 -		1	93400	mg/L	100	10.0

Analytical Method:

Sample Preparation: 2011-08-02

Date Analyzed:

S 8021B

2011-08-02

Laboratory: Midland

 $\mathbf{BTEX}$ 

83491

70921

Analysis:

QC Batch:

Prep Batch:

Prepared By:

Prep Method: S 5030B

ME

ME

Analyzed By:

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 10 of 36 Chavez Co, NM

sample 273197 continued ...

Parameter	Flag	Cert		RL Result	IIn	its	Dilution	m RL
1 Bi Billiotti	riag	Oere		1 Court		1103	Diludion	101
				RL				
Parameter	Flag	Cert		Result	Un	its	Dilution	RL
Benzene	υ	1		< 0.00100	mg	:/L	1	0.00100
Toluene	υ	1	<	< 0.00100	mg	· .	1	0.00100
Ethylbenzene	· U	1	<	< 0.00100	mg	·	1	0.00100
Xylene	U	1		< 0.00100	mg	· •—	1	0.00100
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		<del></del>	0.102	mg/L	1	0.100	102	79.1 - 127.2

Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Triffuorotoluene (TFT)		-	0.102	mg/L	1	0.100	102	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0988	mg/L	1	0.100	99	67.5 - 140.8_

#### Sample: 273197 - MW-4

Laboratory:

Midland

Analysis: QC Batch: Prep Batch:

83579 70897

Chloride (IC)

Date Analyzed: Sample Preparation:

Analytical Method: E 300.0

2011-08-03 2011-08-02

Prep Method: N/A

Analyzed By: AR Prepared By: AR

RLParameter Flag Cert Result Units Dilution RLChloride 934 mg/L 2.50

#### Sample: 273197 - MW-4

Laboratory:

Midland

Analysis: QC Batch: SO4 (IC) 83579

Prep Batch: 70897 Analytical Method: Date Analyzed:

Sample Preparation:

 $\mathbf{E}$  300.0

2011-08-03 2011-08-02 Prep Method: N/A

ARAnalyzed By: Prepared By: AR

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	$\mathtt{RL}_{\_}$
Sulfate		1	90.5	mg/L	5	2.50

Report Date: August 24, 2011 Work Order: 11080104 Page Number: 11 of 36 115-6403129 Celero/Rock Queen #1 TB Chavez Co, NM Sample: 273197 - MW-4 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 83789 2011-08-11 Analyzed By: AR Date Analyzed: Prep Batch: 70948 Sample Preparation: 2011-08-05 Prepared By: AR RLParameter Flag Cert Result Units Dilution RLTotal Dissolved Solids 1720 mg/L 10.0 1

Sample: 273198 - MW-5

Laboratory: Midland

Analysis: BTEX QC Batch: 83491 Prep Batch: 70921 Analytical Method: S 8021B
Date Analyzed: 2011-08-02
Sample Preparation: 2011-08-02

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

RLResult Units Dilution Parameter Flag Cert RLBenzene < 0.00100 mg/L 0.00100 1 U 1 Toluene < 0.00100 mg/L 1 0.00100 U 1 mg/L Ethylbenzene 1 U 1 < 0.00100 0.00100Xylene < 0.00100 mg/L 1 0.00100 U

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.100	mg/L	1	0.100	100	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0941	mg/L	1	0.100	94	67.5 - 140.8

Sample: 273198 - MW-5

Laboratory: Midland

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

Analytical Method: E 300.0
Date Analyzed: 2011-08-22
Sample Preparation: 2011-08-22

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

Report Date: August 24, 201 115-6403129			Work Order: Celero/Rock Q		Page Number: 12 of 36 Chavez Co, NM					
Sample: 273198 - MW-5										
Laboratory: Midland			•*							
Analysis: SO4 (IC)		Anal	ytical Method:	E 300.0		Prep Method:	N/A			
QC Batch: 84218		Date	Analyzed:	2011-08-22		Analyzed By:	AR			
Prep Batch: 71505		Samp	ole Preparation:	2011-08-22		Prepared By:	AR			
				RL	•					
Parameter Flag		C	ert Re	esult	Units					
Sulfate			1	138	m mg/L	5	2.50			
Sample: 273198 - MW-5										
Laboratory: Midland										
Analysis: TDS		Analy	tical Method:	SM 2540C		Prep Method:	N/A			
QC Batch: 83789		Date	Analyzed:	2011-08-11		Analyzed By:	AR			
Prep Batch: 70948		Samp	le Preparation:	2011-08-05		Prepared By:	AR			
				RL						
Parameter		Flag	Cert	Result	Units	Dilution	RL			
Total Dissolved Solids			1	414	mg/L	2	10.0			

Sample:	273100	_ MW_6
Samue:	213199	- IVI VV -U

Laboratory:	Midland
Analysis.	BTEX

Analysis: BTEX
QC Batch: 83491
Prep Batch: 70921

Analytical Method: S 8021B
Date Analyzed: 2011-08-02
Sample Preparation: 2011-08-02

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

		m RL								
Parameter	Flag	Cert	Result	Units	Dilution	RL				
Benzene	U	1	< 0.00100	mg/L	1	0.00100				
Toluene	υ	1	< 0.00100	mg/L	1	0.00100				
Ethylbenzene	v ·	1	< 0.00100	m mg/L	1	0.00100				
Xylene	υ	1	< 0.00100	mg/L	.1	0.00100				

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0770	mg/L	1	0.100	77	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0771	mg/L	1	0.100	77	67.5 - 140.8

Report Date: August 24, 2011 Work Order: 11080104 Page Number: 13 of 36 115-6403129 Celero/Rock Queen #1 TB Chavez Co, NM Sample: 273199 - MW-6 Laboratory: Midland Analysis: Chloride (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 83579 Date Analyzed: 2011-08-03 Analyzed By: ARPrep Batch: 70897 Sample Preparation: 2011-08-02 Prepared By: ARRLParameter Cert Result Units Dilution RLFlag Chloride 101000 mg/L 5000 2.50 1 Sample: 273199 - MW-6 Laboratory: Midland Analysis: SO4 (IC) Analytical Method: E 300.0 Prep Method: N/A QC Batch: 83579 Date Analyzed: 2011-08-03 Analyzed By: AR Sample Preparation: Prep Batch: 2011-08-02 Prepared By: 70897 AR RLParameter Dilution Flag Cert Result Units RLSulfate 2680 mg/L 500 2.50 1 Sample: 273199 - MW-6 Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: N/A QC Batch: 83789 Date Analyzed: 2011-08-11 Analyzed By: AR Prep Batch: 70948 Sample Preparation: 2011-08-05 Prepared By: AR RLDilution Parameter Flag Cert Result Units RLTotal Dissolved Solids 160000 mg/L 20 10.0

Sample: 273200 - MW-7

Laboratory: Midland

Analysis: BTEX QC Batch: 83491 Prep Batch: 70921 Analytical Method: S 8021B
Date Analyzed: 2011-08-02
Sample Preparation: 2011-08-02

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

continued ...

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 14 of 36 Chavez Co, NM

sample 273200 continued ...

	•			$\mathbf{RL}$				
Parameter	Flag	Cert		Result	Ur	its	Dilution	RL
				RL				
Parameter	Flag	Cert		Result	Ur	its	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		/L	1	0.00100
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0764	mg/L	1	0.100	76	79.1 - 127.2

Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0764	mg/L	1	0.100	76	79.1 - 127.2
4-Bromofluorobenzene (4-BFB)			0.0771	mg/L	1	0.100	77	67.5 - 140.8
	•							

#### Sample: 273200 - MW-7

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 83580 Prep Batch: 70898

Analytical Method: Date Analyzed:

Sample Preparation:

E 300.0 2011-08-03 2011-08-02 Prep Method: N/A Analyzed By: AR Prepared By: AR

RLFlag Cert Dilution Result Units RLParameter 99400 5000 mg/L 2.50 Chloride 1

#### Sample: 273200 - MW-7

Laboratory:

Midland

Analysis: SO4 (IC) QC Batch: 83580 70898 Prep Batch:

Analytical Method: Date Analyzed:

E 300.0 2011-08-03 Sample Preparation: 2011-08-02 Prep Method: N/A Analyzed By: AR Prepared By: AR

			m RL			
Parameter	Flag	Cert	Result	Units	Dilution	$\mathbf{RL}$
Sulfate		. 1	2300	mg/L	50	2.50

Report Date: August 24, 2011 Work Order: 11080104 Page Number: 15 of 36 115-6403129 Chavez Co, NM Celero/Rock Queen #1 TB Sample: 273200 - MW-7 Laboratory: MidlandAnalysis:  $\mathbf{TDS}$ Analytical Method:  $\rm SM~2540C$ Prep Method: N/A QC Batch: 83789 Date Analyzed: Analyzed By: AR 2011-08-11 Prep Batch: 70948 Prepared By: Sample Preparation: 2011-08-05 ARRL

Result

194000

Units

mg/L

 $\mathbf{Cert}$ 

1

Flag

Parameter

Total Dissolved Solids

Dilution

100

RL

10.0

Report Date: August 24, 2011 115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB

Method Blanks

Method Blank (1)

QC Batch: 83491

QC Batch: Prep Batch: 70921

83491

Date Analyzed: QC Preparation: 2011-08-02 2011-08-02 Analyzed By: ME

Page Number: 16 of 36

Chavez Co, NM

Prepared By: ME

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

						Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.0926	mg/L	1	0.100	93	61.1 - 118.4
4-Bromofluorobenzene (4-BFB)			0.0850	mg/L	1	0.100	85	45.9 - 126.4

Method Blank (1)

QC Batch: 83505

QC Batch: Prep Batch: 83505

70869

Date Analyzed: QC Preparation:

2011-08-02 2011-08-01 Analyzed By: AR Prepared By:

MDL Cert Result Units RL

Flag Parameter Chloride 0.780 mg/L 2.5

Method Blank (1)

QC Batch: 83505

QC Batch: Prep Batch:

Sulfate

83505 70869 Date Analyzed:

QC Preparation:

2011-08-02 2011-08-01 Analyzed By: AR Prepared By: AR

MDL Cert Parameter Flag

Result Units RL< 0.177 2.5 mg/L

Report Date: August 24, 2 115-6403129	2011		Work Ord lero/Rock	Page Nu C	of 36				
Method Blank (1)	QC Batch: 83538								
QC Batch: 83538		Date Ar		2011-08-0				zed By:	ME
Prep Batch: 70958		QC Pre	paration:	2011-08-0	)3		Prepar	red By:	ME
					MDL				
Parameter	Flag		Cert		Result		Units		RL
Benzene			1		<0.000400		mg/L	,	0.001
Toluene			1		< 0.000300	•	mg/L		0.001
Ethylbenzene Ylene			1		<0.000300		mg/L	-	0.001
Xylene			1		< 0.000333		mg/L	<del></del>	0.001
_			_			Spike	Percent	Reco	•
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Lin	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-E	משכ		0.103 0.0946	mg/L mg/L	1 1	0.100 0.100	103 95	61.1 - 45.9 -	
4-Diomondorobolizatio (412	J. D)		0.0010	1116/11		0.100		10.0	120.3
	QC Batch: 83579							ţ	
Method Blank (1)	QC Batch: 83579	Date Ar	nalvzed:	2011-08-6	าส		Analy	zed By:	AR.
	QC Batch: 83579	Date Ar QC Prej	nalyzed: paration:	2011-08-6 2011-08-6				zed By: red By:	AR AR
Method Blank (1) (QC Batch: 83579	QC Batch: 83579								
Method Blank (1) (QC Batch: 83579					)2				AR
Method Blank (1) (QC Batch: 83579 Prep Batch: 70897	QC Batch: 83579 Flag		paration:		)2 MDL		Prepa		AR RL
Method Blank (1)  QC Batch: 83579  Prep Batch: 70897  Parameter			paration: Cert		02 MDL Result		Prepa Units		
Method Blank (1)  QC Batch: 83579  Prep Batch: 70897  Parameter  Chloride			paration: Cert		02 MDL Result		Prepa Units		AR RL
Method Blank (1)  QC Batch: 83579  Prep Batch: 70897  Parameter  Chloride	Flag		Cert		MDL Result 2.49		Prepa Units mg/L		AR RL
Method Blank (1)  QC Batch: 83579 Prep Batch: 70897  Parameter Chloride  Method Blank (1)	Flag	QC Pre	Cert	2011-08-0	MDL Result 2.49		Prepa Units mg/L Analy	red By:	AR RL 2.5
Method Blank (1)  QC Batch: 83579 Prep Batch: 70897  Parameter Chloride  Method Blank (1)  QC Batch: 83579	Flag QC Batch: 83579	QC Pre	Cert  1  nalyzed:	2011-08-0	MDL Result 2.49		Prepa Units mg/L Analy	zed By:	AR RL 2.5
Method Blank (1)  QC Batch: 83579 Prep Batch: 70897  Parameter Chloride  Method Blank (1)  QC Batch: 83579	Flag	QC Pre	Cert  1  nalyzed:	2011-08-0	MDL Result 2.49		Prepa Units mg/L Analy	zed By:	AR RL 2.5

QC Batch: 83580 Date Analyzed: 2011-08-03 Analyzed By: AR Prep Batch: 70898 QC Preparation: 2011-08-02 Prepared By: AR

Method Blank (1)

QC Batch: 83580

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 18 of 36

Chavez Co, NM

			MDL		
Parameter	$\mathbf{Flag}$	Cert	Result	Units	RL
Chloride		1	2.77	$_{ m mg/L}$	2.5

Method Blank (1)

QC Batch: 83580

QC Batch: 83580 Prep Batch: 70898 Date Analyzed: 2011-08-03 QC Preparation: 2011-08-02 Analyzed By: AR Prepared By: AR

MDL Parameter Units RLFlag Cert Result mg/L2.5 Sulfate < 0.177

Method Blank (1)

QC Batch: 83717

QC Batch: 83717 Prep Batch: 70895 Date Analyzed: QC Preparation:

2011-08-09 2011-08-02 Analyzed By: AR

Prepared By: AR

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

Method Blank (1)

QC Batch: 83789

QC Batch: Prep Batch: 70948

83789

Date Analyzed: QC Preparation:

2011-08-11 2011-08-03 Analyzed By: AR

Prepared By: AR

			$\mathtt{MDL}$	•	
Parameter	Flag	Cert	Result	Units	RL
Total Dissolved Solids		1	< 9.75	mg/L	10

Method Blank (1)

QC Batch: 84218

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

Analyzed By: AR Prepared By: AR

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 19 of 36

Chavez Co, NM

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

Method Blank (1)

QC Batch: 84218

Flag

QC Batch:

Parameter

Sulfate

84218

Date Analyzed:

2011-08-22

Analyzed By: AR

Prepared By: AR

Prep Batch: 71505 QC Preparation:

2011-08-22

MDL

Result Units RL< 0.177 mg/L 2.5

Duplicates (1)

Duplicated Sample: 273196

QC Batch:

83717

Date Analyzed:

2011-08-09

Analyzed By: AR

Prep Batch: 70895

QC Preparation:

2011-08-02

Prepared By: AR

		Duplicate	Sample				RPD
Param		Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	1	99100	93400	m mg/L	100	6	10

Cert

Duplicates (1)

Duplicated Sample: 273206

QC Batch:

83789

Date Analyzed:

2011-08-11

Analyzed By: AR

Prep Batch: 70948

QC Preparation:

2011-08-03

Prepared By: AR

		Duplicate	Sample				RPD
Param		Result	Result	Units	Dilution	RPD	Limit
Total Dissolved Solids	1	940	934	mg/L	2	1	10

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 20 of 36 Chavez Co, NM

# **Laboratory Control Spikes**

#### Laboratory Control Spike (LCS-1)

QC Batch:

83491

Date Analyzed:

2011-08-02

Analyzed By: ME

Prep Batch: 70921

QC Preparation: 2011-08-02

Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.104	mg/L	1	0.100	< 0.000400	104	76.8 - 110.3
Toluene		1	0.101	mg/L	1	0.100	< 0.000300	101	90.9 - 122.2
Ethylbenzene		1	0.0945	mg/L	1	0.100	< 0.000300	94	72.7 - 120.2
Xylene		1	0.284	m 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.

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.104	mg/L	1	0.100	< 0.000400	104	76.8 - 110.3	0	20
Toluene		1	0.101	mg/L	1	0.100	< 0.000300	101	90.9 - 122.2	0	20
Ethylbenzene		1	0.0952	mg/L	1	0.100	< 0.000300	95	72.7 - 120.2	1	20
Xylene		1	0.286	mg/L	1	0.300	< 0.000333	95	72.1 - 121.5	1	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.0993	0.0992	mg/L	1	0.100	99	99	61.9 - 119.2
4-Bromofluorobenzene (4-BFB)	0.0973	0.0980	mg/L	1	0.100	97	98	56.4 - 127.9

#### Laboratory Control Spike (LCS-1)

QC Batch:

83505

Date Analyzed:

2011-08-02

Analyzed By: AR

Prep Batch:

70869

QC Preparation:

2011-08-01

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	25.6	mg/L	1	25.0	< 0.265	102	90.9 - 113.9

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

continued ...

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 21 of 36 Chavez Co, NM

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	С	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		1	25.7	mg/L	1	25.0	< 0.265	103	90.9 - 113.9	0	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2011-08-02

Analyzed By: AR

Prep Batch: 70869

QC Preparation: 2011-08-01 Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	25.0	mg/L	1	25.0	< 0.177	100	99 - 113.6

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

•			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	24.8	mg/L	1	25.0	< 0.177	99	99 - 113.6	1	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch:

83538

Date Analyzed:

2011-08-03

Analyzed By: ME

Prep Batch:

70958

QC Preparation:

2011-08-03

Prepared By: ME

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

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.103	mg/L	1	0.100	< 0.000400	103	76.8 - 110.3	2	20
Toluene		ı	0.0996	mg/L	1	0.100	< 0.000300	100	90.9 - 122.2	2	20

continued ...

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 22 of 36

Chavez Co, NM

control spikes continued	control	spikes	continued		
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			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Ethylbenzene		1	0.0942	m mg/L	1	0.100	< 0.000300	94	72.7 - 120.2	2	20
Xylene		1	0.282	mg/L	1	0.300	< 0.000333	94	72.1 - 121.5	2	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.0992	0.0894	mg/L	1	0.100	99	89	61.9 - 119.2
4-Bromofluorobenzene (4-BFB)	0.0986	0.0880	mg/L	1	0.100	99	88	56.4 - 127.9

#### Laboratory Control Spike (LCS-1)

QC Batch:

83579 Prep Batch: 70897 Date Analyzed: QC Preparation:

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

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	26.2	mg/L	1	25.0	< 0.265	105	90.9 - 113.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	${f F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	25.6	mg/L	1	25.0	< 0.265	102	90.9 - 113.9	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:

83579

Date Analyzed:

2011-08-03

Analyzed By: AR

Prep Batch: 70897

QC Preparation: 2011-08-02

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	25.2	mg/L	1	25.0	< 0.177	101	99 - 113.6

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	· F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	25.2	mg/L	1	25.0	< 0.177	101	99 - 113.6	0	20

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

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 23 of 36 Chavez Co, NM

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

83580 70898 Date Analyzed: QC Preparation:

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

Prepared By: AR

Param		F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	•		1	26.1	mg/L	1	25.0	< 0.265	104	90.9 - 113.9

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	26.3	mg/L	1	25.0	< 0.265	105	90.9 - 113.9	1	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch:

83580 70898

Date Analyzed:

2011-08-03 QC Preparation: 2011-08-02 Analyzed By: AR

Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Sulfate		1	25.7	mg/L	1	25.0	< 0.177	103	99 - 113.6

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	25.4	mg/L	1	25.0	< 0.177	102	99 - 113.6	1	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 70895

Date Analyzed:

2011-08-09

Analyzed By: AR

QC Preparation: 2011-08-02 Prepared By: AR

_	_		LCS			Spike	Matrix		Rec.
Param	F	$\mathbf{C}$	Result	$\mathbf{Units}$	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids		1	964	mg/L	· 1	1000	< 9.75	96	85.5 - 112.7

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

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Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 24 of 36 Chavez Co, NM

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	1010	mg/L	1	1000	< 9.75	101	85.5 - 112.7	5	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:

83789

Date Analyzed:

2011-08-11

Analyzed By: AR

Prep Batch: 70948

QC Preparation: 2011-08-03 Prepared By: AR

			LCS			Spike	Matrix	,	Rec.
Param	${f F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Dissolved Solids		1	981	mg/L	1	1000	< 9.75	98	85.5 - 112.7

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		1	1030	mg/L	1	1000	<9.75	103	85.5 - 112.7	5	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:

84218

Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

QC Preparation:

2011-08-22

Prepared By: AR

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

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	24.0	mg/L	1	25.0	< 0.265	96	90.9 - 113.9	1	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch:

84218

Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

QC Preparation:

2011-08-22

Prepared By: AR

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 25 of 36 Chavez Co, NM

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

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	26.1	mg/L	1	25.0	< 0.177	104	99 - 113.6	0	20

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

Matrix Spike (MS-1)

Spiked Sample: 273205

QC Batch: Prep Batch: 70921

83491

Date Analyzed: QC Preparation:

2011-08-02 2011-08-02 Analyzed By: ME

Prepared By: ME

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	0.0992	mg/L	1	0.100	< 0.000400	99	66.9 - 128.2
Toluene		1	0.0931	mg/L	1	0.100	< 0.000300	93	81.6 - 122.9
Ethylbenzene		1	0.0805	mg/L	1	0.100	< 0.000300	80	62.7 - 117.9
Xvlene		1	0.241	mg/L	1	0.300	< 0.000333	80	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	0.107	mg/L	1	0.100	< 0.000400	107	66.9 - 128.2	8	20
Toluene		1	0.0999	mg/L	1	0.100	< 0.000300	100	81.6 - 122.9	7	20
Ethylbenzene		1	0.0868	mg/L	1	0.100	< 0.000300	87	62.7 - 117.9	8	20
Xylene		1	0.259	mg/L	1	0.300	< 0.000333	86	62.9 - 118.2	7	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)	0.0945	0.0975	mg/L	1	0.1	94	98	58.6 - 119.7
4-Bromofluorobenzene (4-BFB)	0.0964	0.0997	mg/L	1	0.1	96	100	52.2 - 135.8

Matrix Spike (MS-1)

Spiked Sample: 273192

QC Batch:

83505

Date Analyzed:

2011-08-02 2011-08-01 Analyzed By: AR

Prep Batch:

70869

QC Preparation:

Prepared By: AR

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 26 of 36

Chavez Co, NM

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	3210	mg/L	100	2750	912	84	48.4 - 143.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
$\overline{\mathrm{C}}$ hloride		1	3260	mg/L	100	2750	912	85	48.4 - 143.2	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 273192

QC Batch:

83505

Date Analyzed:

2011-08-02

Analyzed By: AR

Prep Batch: 70869

QC Preparation:

2011-08-01

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	${f F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	2400	mg/L	100	2750	148	82	59.7 - 115.4

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

			MSD	,		Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	2430	mg/L	100	2750	148	83	59.7 - 115.4	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 273037

QC Batch:

83538

Date Analyzed:

QC Preparation: 2011-08-03

2011-08-03

Analyzed By: ME

Prep Batch:

70958

Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1	0.587	mg/L	5	0.500	0.127	92	66.9 - 128.2
Toluene		1	0.544	mg/L	5	0.500	0.1205	85	81.6 - 122.9
Ethylbenzene		1	0.421	mg/L	5	0.500	< 0.00150	84	62.7 - 117.9
Xylene		1	1.29	mg/L	5	1.50	0.1543	76	62.9 - 118.2

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

continued ...

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 27 of 36 Chavez Co, NM

matrix spikes continued											
•			MSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.607	mg/L	5	0.500	0.127	96	66.9 - 128.2	3	20
Toluene		1	0.563	mg/L	5	0.500	0.1205	88	81.6 - 122.9	3	20
Ethylbenzene		1	0.438	mg/L	5	0.500	< 0.00150	88	62.7 - 117.9	4	20
Xylene		1	1.34	mg/L	5	1.50	0.1543	79	62.9 - 118.2	4	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.511	0.468	mg/L	5	0.5	102	94	58.6 - 119.7
4-Bromofluorobenzene (4-BFB)	0.502	0.461	${ m mg/L}$	5	0.5	100	92	52.2 - 135.8

Matrix Spike (MS-1)

Spiked Sample: 273196

QC Batch:

83579 Prep Batch: 70897 Date Analyzed:

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

			MS			Spike .	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	56000	mg/L	50	1380	56000	0	48.4 - 143.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	56000	mg/L	50	1380	56000	0	48.4 - 143.2	0	20

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

Matrix Spike (MS-1)

Spiked Sample: 273196

QC Batch:

83579

Date Analyzed:

2011-08-03

Analyzed By: AR

Prep Batch: 70897

QC Preparation: 2011-08-02

Prepared By: AR

•			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	3080	mg/L	50	1380	2070	73	59.7 - 115.4

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

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 28 of 36

Chavez Co, NM

			MSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	3090	mg/L	50	1380	2070	74	59.7 - 115.4	0	20

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

Matrix Spike (MS-1)

Spiked Sample: 273201

QC Batch:

83580

Date Analyzed:

2011-08-03

Analyzed By: AR

Prep Batch:

70898

QC Preparation:

2011-08-02

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		1	21800	mg/L	100	2750	21600	7	48.4 - 143.2

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	21800	mg/L	100	2750	21600	7	48.4 - 143.2	0	20

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

Matrix Spike (MS-1)

Spiked Sample: 273201

QC Batch:

83580

Date Analyzed:

2011-08-03

Analyzed By: AR

Prep Batch:

70898

QC Preparation:

2011-08-02

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		1	3000	m mg/L	100	2750	625	86	59.7 - 115.4

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	C.	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		1	3020	mg/L	100	2750	625	87	59.7 - 115.4	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 273206

QC Batch:

84218

Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

QC Preparation: 2011-08-22

Prepared By: AR

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 29 of 36

Chavez Co, NM

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

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

			MSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		1	2150	mg/L	50	1380	1010	83	48.4 - 143.2	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 273206

QC Batch:

84218

Date Analyzed:

2011-08-22

Analyzed By: AR

Prep Batch: 71505

Prepared By: AR

QC Preparation:

2011-08-22

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

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

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

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

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 30 of 36 Chavez Co, NM

# Calibration Standards

Standard (CCV-1)

QC Batch: 83491

Date Analyzed: 2011-08-02

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0972	97	80 - 120	2011-08-02
Toluene		1	mg/L	0.100	0.0955	96	80 - 120	2011-08-02
Ethylbenzene		1	mg/L	0.100	0.0882	88	80 - 120	2011-08-02
Xylene		1	${ m mg/L}$	0.300	0.273	91	80 - 120	2011-08-02

Standard (CCV-2)

QC Batch: 83491

Date Analyzed: 2011-08-02

Analyzed By: ME

				CCVs True	CCVs Found	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	Percent Recovery	Date
Param	Flag	Cert	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.104	104	80 - 120	2011-08-02
Toluene		1	$_{ m mg/L}$	0.100	0.0994	99.	80 - 120	2011-08-02
Ethylbenzene		1	mg/L	0.100	0.0933	93	80 - 120	2011-08-02
Xylene		1	mg/L .	0.300	0.279	93	80 - 120	2011-08-02

Standard (CCV-3)

QC Batch: 83491

Date Analyzed: 2011-08-02

Analyzed By: ME

				CCVs True	$\operatorname{CCVs}$ Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	$_{ m mg/L}$	0.100	0.101	101	80 - 120	2011-08-02
Toluene		1	mg/L	0.100	0.0976	. 98	80 - 120	2011-08-02
Ethylbenzene		1	mg/L	0.100	0.0913	91	80 - 120	2011-08-02
Xylene		1	${ m mg/L}$	0.300	0.274	91	80 - 120	2011-08-02

Report Date: A 115-6403129	august 24, 20	11 	Work Order: 11080104 Celero/Rock Queen #1 TB			В		mber: 31 of 36 Chavez Co, NM
Standard (IC	V-1)							
QC Batch: 835	505		Date	Analyzed:	2011-08-02		Analy	zed By: AR
				ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	26.6	106	90 - 110	2011-08-02
Standard (IC	V-1)			·			~	
QC Batch: 835	505		Date	Analyzed:	2011-08-02		Analy	zed By: AR
			•	ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	${ m mg/L}$	25.0	26.3	105	90 - 110	2011-08-02
Standard (CC QC Batch: 835	·		Data	Analyzed:	2011-08-02		Δ nalv	zed By: AR
QU Daten. Of	100		Date	лиану гец.	2011-00-02		Anaiy	zea by. Ait
				CCVs	CCVs	CCVs	Percent	_
D	771	α.	**	True	Found	Percent	Recovery	Date
Param Chloride	Flag	Cert	Units mg/L	Conc. 25.0	Conc. 25.9	Recovery 104	Limits 90 - 110	Analyzed 2011-08-02
	,		mg/ D	20.0	20.0			2011 00 02
Standard (CC	V-1)							
QC Batch: 835	605		Date	Analyzed:	2011-08-02	·	Analy	zed By: AR
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	24.9.	100	90 - 110	2011-08-02

Standard (CCV-1)

QC Batch: 83538

Date Analyzed: 2011-08-03

Analyzed By: ME

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 32 of 36 Chavez Co, NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/L	0.100	0.0989	99	80 - 120	2011-08-03
Toluene		1	mg/L	0.100	0.0948	95	80 - 120	2011-08-03
Ethylbenzene		1	mg/L	0.100	0.0892	89	80 - 120	2011-08-03
Xylene		1	mg/L	0.300	0.271	90	80 - 120	2011-08-03

#### Standard (CCV-2)

QC Batch: 83538

Date Analyzed: 2011-08-03

Analyzed By: ME

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

#### Standard (ICV-1)

QC Batch: 83579

Date Analyzed: 2011-08-03

Analyzed By: AR

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	mg/L	25.0	25.3	101	90 - 110	2011-08-03

#### Standard (ICV-1)

QC Batch: 83579

Date Analyzed: 2011-08-03

				<b>ICVs</b>	<b>ICV</b> s	<b>ICVs</b>	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	24.9	100	90 - 110	2011-08-03

Report Date: August 24, 2011 115-6403129			(		der: 11080104 k Queen #1 T	B	_	Limits Analyzed			
Standard (CC	CV-1)										
QC Batch: 83	579		Date	Analyzed:	2011-08-03		Analy	zed By: AR			
	,			CCVs	CCVs	CCVs	Percent				
				True	Found	Percent	Recovery	Date			
Param	Flag	Cert	Units	Conc.	Conc.	Recovery		Analyzed			
Chloride		1	mg/L	25.0	26.5	106	90 - 110	2011-08-03			
Standard (CO	CV-1)										
QC Batch: 83	579		Date .	Analyzed:	2011-08-03		Analy	zed By: AR			
			•	CCVs	CCVs	CCVs	Percent				
				True	Found	Percent	Recovery	Date			
Param	Flag	Cert	Units	Conc.	Conc	Recovery	Limits	Analyzed			
	Flag	Cert	Units mg/L	Conc. 25.0	Conc 25.5		•	Analyzed			
Param Sulfate	Flag					Recovery	Limits				
						Recovery	Limits	Analyzed			
Sulfate	V-1)		mg/L			Recovery	Limits 90 - 110	Analyzed			
Sulfate Standard (IC	V-1)		mg/L	25.0	25.5	Recovery	Limits 90 - 110	Analyzed 2011-08-03			
Sulfate Standard (IC	<b>V-1</b> ) 580		mg/L	25.0 Analyzed:	25.5 2011-08-03	Recovery 102	Limits 90 - 110  Analy	Analyzed 2011-08-03			
Sulfate Standard (IC	V-1)		mg/L	25.0 Analyzed: ICVs	25.5 2011-08-03 ICVs	Recovery 102	Limits 90 - 110  Analy Percent	Analyzed 2011-08-03 zed By: AR			

#### Standard (ICV-1)

QC Batch: 83580

Date Analyzed: 2011-08-03

Analyzed By: AR

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

#### Standard (CCV-1)

QC Batch: 83580

Date Analyzed: 2011-08-03

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 34 of 36

Chavez Co, NM

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		1	${ m mg/L}$	25.0	26.2	105	90 - 110	2011-08-03

#### Standard (CCV-1)

QC Batch: 83580

Date Analyzed: 2011-08-03

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		1	mg/L	25.0	25.0	100	90 - 110	2011-08-03

#### Standard (ICV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

Analyzed By: AR

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

#### Standard (ICV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Sulfate	-	1	mg/L	25.0	25.0	100	90 - 110	2011-08-22

#### Standard (CCV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 35 of 36

Chavez Co, NM

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

#### Standard (CCV-1)

QC Batch: 84218

Date Analyzed: 2011-08-22

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

Report Date: August 24, 2011

115-6403129

Work Order: 11080104 Celero/Rock Queen #1 TB Page Number: 36 of 36 Chavez Co, NM

# **Appendix**

## **Laboratory Certifications**

	Certifying	Certification	Laboratory
C	Authority	Number	Location
=	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-10-TX	Midland

## Standard Flags

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

## Attachments

The scanned attachments will follow this page.

Please note, each attachment may consist of more than one page.

4:11080104

TETRATECH 1910 N. Big Spring St. Midland, Texas 79705 (432) 682-4559 • Fax (432) 682-3946  CLIENT NAME; 115-6-10-312-0  LAND Best (20)  LAND B	An	<b>Analysis Request of Chain of Custody Recor</b>							ď		<u>_</u>		PAGE: OF:						1_													
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## Certifications

NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Jeff Kindley

Tetra Tech 1910 N. Big Spring Street

Midland, TX, 79705

Report Date: November 10, 2011

Project Location: Chavez Co., NM

Project Name:

Celero/Rock Queen #1 TB

Project Number:

115-6403129

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

	•	•	Date	Time	Ďate
Sample	Description	Matrix	Taken	Taken	Received
281160	MW-4	water	2011-10-25	09:25	2011-10-31
281161	MW-7	water	2011-10-25	10:20	2011-10-31
281162	MW-3	water	2011-10-25	11:15	2011-10-31
281163	MW-5	water	2011-10-25	12:15	2011-10-31
281164	MW-2	water	2011-10-25	13:08	2011-10-31
281165	MW-6	water	2011-10-25	13:48	2011-10-31
281166	MW-1	water	2011-10-25	16:20	2011-10-31

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

This report consists of a total of 20 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

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

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# Case Narrative

Samples for project Celero/Rock Queen #1 TB were received by TraceAnalysis, Inc. on 2011-10-31 and assigned to work order 11103128. Samples for work order 11103128 were received intact without headspace and at a temperature of 3.9 C.

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

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	73017	2011-11-01 at 15:26	86000	2011-11-01 at 15:26
Chloride (IC)	E 300.0	73107	2011-11-03 at 09:31	86200	2011-11-03 at 11:32
Chloride (IC)	E 300.0	73108	2011-11-03 at 09:33	86204	2011-11-03 at 11:33
Chloride (IC)	E 300.0	73109	2011-11-03 at 09:33	86206	2011-11-04 at 11:34

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

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11103128 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 5 of 20 Chavez Co., NM

# **Analytical Report**

Sample: 281160 - MW-4

Laboratory:

Lubbock

Analysis:

BTEX

Analytical Method:

S 8021B

Prep Method:

S 5030B

QC Batch:

86000

Date Analyzed:

2011-11-01

Analyzed By:

ZLM

Prep Batch:

73017

Sample Preparation: 2011-11-01 Prepared By:

ZLM

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Benzene	/ U	U	1	< 0.00100	mg/L	1	0.00100
Toluene	Ū	U	1	< 0.00100	$_{ m mg/L}$	1	0.00100
Ethylbenzene	U	${f U}$	1	< 0.00100	mg/L	1	0.00100
Xylene	บ	U	1	< 0.00100	${ m mg/L}$	1	0.00100

						$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.110	mg/L	1	0.100	110	70 - 130
4-Bromofluorobenzene (4-BFB)			0.115	mg/L	1	0.100	115	70 - 130

Sample: 281160 - MW-4

Laboratory:

Midland

Analysis:

Chloride (IC)

Analytical Method:

E 300.0

Prep Method: N/A

QC Batch:

86200

Date Analyzed:

2011-11-03

Analyzed By:

Prep Batch: 73107

Sample Preparation:

2011-11-03

Prepared By:

AR AR

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs	Qs	2	23700	mg/L	5000	2.50

Sample: 281161 - MW-7

Laboratory:

Lubbock

Analysis:

BTEX

Analytical Method:

S 8021B

2011-11-01

Prep Method: S 5030B

QC Batch: Prep Batch:

73017

86000

Date Analyzed:

Analyzed By:

Sample Preparation: 2011-11-01

Prepared By:

ZLM ZLM

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 6 of 20 Chavez Co., NM

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

	-					Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.106	mg/L	1	0.100	106	70 - 130
4-Bromofluorobenzene (4-BFB)			0.115	mg/L	1	0.100	115	70 - 130

Sample: 281161 - MW-7

Laboratory:

Midland

Analysis: QC Batch:

Prep Batch:

Chloride (IC)

86204 73108 Analytical Method:

Sample Preparation:

E 300.0

Date Analyzed:

2011-11-03 2011-11-03 Prep Method: N/A

Analyzed By: AR Prepared By:

DI

			$\kappa_{\rm L}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		2	99400	m mg/L	10000	2.50

Sample: 281162 - MW-3

Laboratory:

Lubbock

Analysis: QC Batch: Prep Batch: BTEX

86000 73017 Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-11-01

2011-11-01

Analyzed By: Prepared By:

Prep Method: S 5030B ZLMZLM

RLParameter Flag Cert Result Units Dilution RLŪ Benzene < 0.00100 mg/L 0.00100 mg/LToluene U < 0.00100 1 0.00100υ Ethylbenzene υ U < 0.00100 mg/L 1 0.00100 Xylene U < 0.00100 mg/L 1 0.00100

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0919	mg/L	1	0.100	92	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0986	mg/L	1	0.100	99	70 - 130

Report Date: November 10, 2011 115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 7 of 20 Chavez Co., NM

#### Sample: 281162 - MW-3

Laboratory: Analysis:

Midland Chloride (IC)

QC Batch: 86204 Prep Batch: 73108 Analytical Method: Date Analyzed:

E 300.0 2011-11-03 Sample Preparation: 2011-11-03 Prep Method: N/A AR

Analyzed By: Prepared By: AR

RL

Parameter Flag Cert Result Units Dilution RLChloride 60700 mg/L 10000 2.50

#### Sample: 281163 - MW-5

Laboratory:

Lubbock

Analysis: BTEX QC Batch: 86000 Prep Batch: 73017

Analytical Method: Date Analyzed:

S 8021B 2011-11-01 Sample Preparation: 2011-11-01 Prep Method: S 5030B Analyzed By: ZLM Prepared By:

ZLM

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

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

#### Sample: 281163 - MW-5

Laboratory:

Midland

Analysis: Chloride (IC) QC Batch: 86204 Prep Batch: 73108

Analytical Method: Date Analyzed:

E 300.0 2011-11-03 Sample Preparation: 2011-11-03 Prep Method: N/A Analyzed By: AR, Prepared By: AR

			${ m RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride		3	128	mg/L	10	2.50

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 8 of 20 Chavez Co., NM

#### Sample: 281164 - MW-2

Laboratory: Lubbock Analysis: BTEX QC Batch: 86000

Prep Batch: 73017

115-6403129

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

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

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Benzene	U	U	1	< 0.00100	mg/L	1	0.00100
Toluene	U	U	1	< 0.00100	m mg/L	1	0.00100
Ethylbenzene	U	, <b>U</b>	1	< 0.00100	mg/L	1	0.00100
Xylene	บ	U	1	< 0.00100	mg/L	1	0.00100

						Spike	Percent	Recovery
Surrogate	$\mathbf{Flag}$	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.107	mg/L	1	0.100	107	70 - 130
4-Bromofluorobenzene (4-BFB)			0.110	${ m mg/L}$	1	0.100	110	70 - 130

### Sample: 281164 - MW-2

Laboratory: Midland

Prep Batch:

Analysis: Chloride (IC) QC Batch: 86204

73108

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

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

#### Sample: 281165 - MW-6

Laboratory: Lubbock

Analysis: BTEX QC Batch: 86000 Prep Batch: 73017 Analytical Method: S 8021B
Date Analyzed: 2011-11-01
Sample Preparation: 2011-11-01

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

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

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 9 of 20 Chavez Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.106	mg/L	1	0.100	106	70 - 130
4-Bromofluorobenzene (4-BFB)	1		0.115	mg/L	1	0.100	115	70 - 130

Sample: 281165 - MW-6

Laboratory:

Midland

Analysis:

Chloride (IC)

86206 Prep Batch:

Analytical Method:

E 300.0

Prep Method: N/A

QC Batch:

73109

Date Analyzed: Sample Preparation:

2011-11-04 2011-11-03 Analyzed By: AR Prepared By:

RL

Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride	Q <sub>B</sub>	Qs	2	111000	$_{ m mg/L}$	10000	2.50

Sample: 281166 - MW-1

Laboratory:

Lubbock

Analysis: QC Batch: Prep Batch:

BTEX 86000 73017

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2011-11-01 2011-11-01

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

RLFlag Parameter Cert Result Units Dilution RLBenzene Ū < 0.00100 mg/L 0.00100 1 ប 1 U Toluene < 0.00100 mg/L 1 0.00100U 1 U 1 Ethylbenzene < 0.00100 mg/L 0.00100 υ 1 Xylene 0.0205 mg/L 1 0.00100

							Spike	Percent	Recovery
Surrogate		$\mathbf{Flag}$	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)	Qar	Qsr		0.157	mg/L	1	0.100	157	70 - 130
4-Bromofluorobenzene (4-BFB)				0.110	mg/L	1	0.100	110	70 - 130

Sample: 281166 - MW-1

Laboratory:

Midland

Chloride (IC) Analysis:

QC Batch: 86206 Prep Batch: 73109

Analytical Method: Date Analyzed:

E 300.0 2011-11-04

Sample Preparation: 2011-11-03 Prep Method: N/A AR

Analyzed By: Prepared By:

Report Date: November 10, 2011 115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB

Page Number: 10 of 20 Chavez Co., NM

				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
Chloride	Qв	Qs	2	155000	${ m mg/L}$	10000	2.50

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 11 of 20 Chavez Co., NM

# Method Blanks

Method Blank (1)

QC Batch: 86000

QC Batch:

86000

Date Analyzed:

2011-11-01

Analyzed By: ZLM

Prep Batch:

73017

QC Preparation:

2011-11-01

Prepared By:

ZLM

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			0.106	mg/L	1	0.100	106	70 - 130
4-Bromofluorobenzene (4-BFB)			0.105	mg/L	1	0.100	105	70 - 130

Method Blank (1)

QC Batch: 86200

QC Batch: Prep Batch: 73107

Chloride

86200

Date Analyzed: QC Preparation:

2011-11-03 2011-11-03 Analyzed By: AR

Prepared By: AR

MDL Parameter

Flag Cert Result Units RL0.667 mg/L 2.5

Method Blank (1)

QC Batch: 86204

QC Batch: Prep Batch:

86204 73108 Date Analyzed: QC Preparation:

2011-11-03 2011-11-03 Analyzed By: AR Prepared By: AR

MDL Parameter Cert Result Units RLFlag 0.650 mg/L 2.5 Chloride

Report Date: November 10, 2011 115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 12 of 20

Chavez Co., NM

Method Blank (1)

QC Batch: 86206

QC Batch: 86206 Date Analyzed:

Analyzed By: AR

2011-11-04

Prep Batch:

73109

QC Preparation:

2011-11-03

Prepared By: AR

MDL $\mathbf{Cert}$ 

Parameter Flag Chloride

Result 0.679 Units mg/L RL2.5

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 13 of 20 Chavez Co., NM

# **Laboratory Control Spikes**

### Laboratory Control Spike (LCS-1)

QC Batch:

86000

Date Analyzed:

2011-11-01

Analyzed By: ZLM

Prep Batch: 73017

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.103	mg/L	1	0.100	< 0.000765	103	70 - 130
Toluene		1	0.0993	mg/L	. 1	0.100	< 0.000719	99	70 - 130
Ethylbenzene		1	0.0973	mg/L	1	0.100	< 0.000860	97	70 - 130
Xylene		1	0.289	mg/L	1	0.300	< 0.000942	96	70 - 130

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.107	mg/L	1	0.100	< 0.000765	107	70 - 130	4	20
Toluene		1	0.102	mg/L	1	0.100	< 0.000719	102	70 - 130	3	20
Ethylbenzene		1	0.0998	mg/L	1	0.100	< 0.000860	100	70 - 130	2	20
Xylene		1	0.294	mg/L	1	0.300	< 0.000942	98	70 - 130	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.100	0.0953	mg/L	1	0.100	100	95	70 - 130
4-Bromofluorobenzene (4-BFB)	0.0975	0.0923	mg/L	1	0.100	98	92	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 73107

86200

Date Analyzed:

2011-11-03

QC Preparation: 2011-11-03 Analyzed By: AR

Prepared By: AR

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		2	22.9	mg/L	1	25.0	< 0.265	92	90 - 110

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

 $continued \dots$ 

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 14 of 20 Chavez Co., NM

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	С	LCSD Result	Units	Dil.	Spike -	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride		2	23.4	mg/L	1	25.0	< 0.265	94	90 - 110	2	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch:

86204

Date Analyzed:

2011-11-03

Analyzed By: AR

Prepared By: AR

Prep Batch: 73108

QC Preparation:

2011-11-03

•			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		2	23.1	mg/L	1	25.0	< 0.265	92	90 - 110

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		2	23.1	mg/L	1	25.0	< 0.265	92	90 - 110	0	20

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

### Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2011-11-04

Analyzed By: AR Prepared By:

Prep Batch: 73109 QC Preparation: 2011-11-03

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Chloride 23.1 mg/L 25.0 < 0.265 92 90 - 110

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		2	23.3	mg/L	1	25.0	< 0.265	93	90 - 110	1	20

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 15 of 20 Chavez Co., NM

Matrix Spike (MS-1)

Spiked Sample: 281152

QC Batch:

86000

Date Analyzed:

2011-11-01

Analyzed By: ZLM

Prep Batch: 73017

QC Preparation:

2011-11-01

Prepared By: ZLM

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene .		1	0.102	mg/L	1	0.100	< 0.000765	102	70 - 130
Toluene		1	·0.0935	mg/L	1	0.100	< 0.000719	94	70 - 130
Ethylbenzene		1	0.0881	mg/L	1	0.100	< 0.000860	88	70 - 130
Xylene		1	0.260	mg/L	1	0.300	< 0.000942	87	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	0.0891	mg/L	1	0.100	< 0.000765	89	70 - 130	14	20
Toluene		1	0.0813	mg/L	1	0.100	< 0.000719	81	70 - 130	14	20
Ethylbenzene		1	0.0776	mg/L	1	0.100	< 0.000860	78	70 - 130	13	20
Xylene		1	0.228	mg/L	1	0.300	< 0.000942	76	70 - 130	13	20

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

Surrogate	$rac{MS}{Result}$	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.102	0.101	mg/L	1	0.1	102	101	70 - 130
4-Bromofluorobenzene (4-BFB)	0.107	0.106	mg/L	1	0.1	107	106	70 - 130

Matrix Spike (MS-1)

Spiked Sample: 281157

QC Batch: Prep Batch:

86200 73107 Date Analyzed: QC Preparation:

2011-11-03 2011-11-03

Analyzed By: AR Prepared By: AR

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	Qs	Qs	2	3870	mg/L	50	1380	2750	81	90 - 110

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

				MSD			Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	Qв	Qs	2	3880	mg/L	50	1380	2750	82	90 - 110	0	20

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 16 of 20 Chavez Co., NM

Matrix Spike (MS-1)

Spiked Sample: 281163

QC Batch:

86204

Date Analyzed:

2011-11-03

Analyzed By: AR

Prep Batch: 73108

QC Preparation:

2011-11-03

Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride		2	382	mg/L	10	275	128	92	90 - 110

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

			MSD			Spike	Matrix		Rec.		RPD
Param	${f F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		2	384	mg/L	10	275	128	93	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: 281167

QC Batch:

Date Analyzed:

2011-11-04

Analyzed By: AR

Prep Batch: 73109

QC Preparation: 2011-11-03

Prepared By: AR

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	Qs	Qs	2	40900	mg/L	50	1380	40900	0	90 - 110

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

				MSD			Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	Qs	Qs	2	43300	mg/L	50	1380	40900	0	90 - 110	6	20

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 17 of 20 Chavez Co., NM

# Calibration Standards

Standard (CCV-1)

QC Batch: 86000

Date Analyzed: 2011-11-01

Analyzed By: ZLM

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.106	106	80 - 120	2011-11-01
Toluene		1	$_{ m mg/L}$	0.100	0.102	102	80 - 120	2011-11-01
Ethylbenzene		1	$_{ m mg/L}$	0.100	0.0994	99	80 - 120	2011-11-01
Xylene		1	m mg/L	0.300	0.297	99	80 - 120	2011-11-01

Standard (CCV-2)

QC Batch: 86000

Date Analyzed: 2011-11-01

Analyzed By: ZLM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	 	1	mg/L	0.100	0.109	109	80 - 120	2011-11-01
Toluene		1 ·	$_{ m mg/L}$	0.100	0.104	104	80 - 120	2011-11-01
Ethylbenzene		1,	$_{ m mg/L}$	0.100	0.101	101	80 - 120	2011-11-01
Xylene		1	m mg/L	0.300	0.300	100	80 - 120	2011-11-01

Standard (CCV-3)

QC Batch: 86000

Date Analyzed: 2011-11-01

Analyzed By: ZLM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/L	0.100	0.108	108	80 - 120	2011-11-01
Toluene		1	m mg/L	0.100	0.102	102	80 - 120	2011-11-01
Ethylbenzene		1	mg/L	0.100	0.100	100	80 - 120	2011-11-01
Xylene		1	mg/L	0.300	0.298	99	80 - 120	2011-11-01

Report Da 115-640313		mber 10,	2011	HT-1		Order: 11103128 ock Queen #1		Page Number: 18 of 20 Chavez Co., NM			
Standard	(CCV-1	L) ·									
QC Batch:	86200			Date	Analyzed:	2011-11-03		Analy	zed By: AR		
					CCVs	CCVs	CCVs	Percent			
					True	Found	Percent	Recovery	Date		
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride			2	mg/L	25.0	22.6	90	90 - 110	2011-11-03		
					,						
*								•			
Standard	(CCV s	<b>)</b>				·					
Standard	(00 7-2	4)						•			
QC Batch:	86200			Date	Analyzed:	2011-11-03		Analy	zed By: AR		
					~~		0.077	<b>.</b>	•		
					CCVs	CCVs	CCVs	Percent	ъ.		
D		T31	<b>C</b> 1	TT *4	True	Found	Percent	Recovery	Date		
Param Chloride		Flag	Cert	Units mg/L	Conc. 25.0	Conc. 22.9	Recovery 92	Limits 90 - 110	Analyzed 2011-11-03		
				· · · · · · · · · · · · · · · · · · ·		444					
Standard	(CCV-1	L)									
QC Batch:	86204			Date	Analyzed:	2011-11-03		Analy	zed By: AR		
•					CCVs	CCV:	CCVs	Percent			
	•				True	Found	Percent	Recovery	Date		
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride			2	$_{ m mg/L}$	25.0	22.9	92	90 - 110	2011-11-03		
Chloride  Standard  QC Batch:	,			mg/L				90 - 110			
				•	CCVs	CCVs	CCVs	Percent	_		
_		<b>731</b>	<b>a</b> .		True	Found	Percent	Recovery	Date		
Daram		Flor	Cont	IInita	Cone	Cono	Daggraner	Limita	Analyzad		

Standard (CCV-1)

Flag

 $\mathbf{Cert}$ 

Units

mg/L

QC Batch: 86206

Param

Chloride

Date Analyzed: 2011-11-04

Conc.

25.0

Conc.

23.2

Recovery

93

Limits

90 - 110

Analyzed By: AR

Analyzed

2011-11-03

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 19 of 20 Chavez Co., NM

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	$\mathbf{Flag}$	$\operatorname{Cert}$	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		2	m mg/L	25.0	23.2	93	90 - 110	2011-11-04

## Standard (CCV-2)

QC Batch: 86206

Date Analyzed: 2011-11-04

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		2	mg/L	25.0	23.8	95	90 - 110	2011-11-04

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 20 of 20 Chavez Co., NM

# **Appendix**

# **Laboratory Certifications**

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
_	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-4	Lubbock
2	NELAP	T104704392-10-TX	Midland

## Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less 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.

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



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817 • 201 • 5260

E-Mail: lab@traceanalysis.com

# Certifications

## WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

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

Report Date: November 30, 2011

Work Order:

Project Location:

Chavez Co., NM

Project Name:

Celero/Rock Queen #1 TB

Project Number:

115-6403129

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

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
281160	MW-4	water	2011-10-25	09:25	2011-10-31
281161	MW-7	water	2011-10-25	10:20	2011-10-31
281162	MW-3	water	2011-10-25	11:15	2011-10-31
281163	MW-5	water	2011-10-25	12:15	2011-10-31
281164	MW-2	water	2011-10-25	13:08	2011-10-31
281165	MW-6	water	2011-10-25	13:48	2011-10-31
281166	MW-1	water	2011-10-25	16:20	2011-10-31

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

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

#### Notes:

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

Michael april

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

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Report Date: November 30, 2011 115-6403129 Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 4 of 17

Chavez Co., NM

# Case Narrative

Samples for project Celero/Rock Queen #1 TB were received by TraceAnalysis, Inc. on 2011-10-31 and assigned to work order 11103128. Samples for work order 11103128 were received intact without headspace and at a temperature of 3.9 C.

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

		Prep	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
SO4 (IC)	E 300.0	73346	2011-11-01 at 10:24	86377	2011-11-03 at 10:38
SO4 (IC)	E 300.0	73346	2011-11-01 at 10:24	86378	2011-11-03 at 10:39
SO4 (IC)	E 300.0	73346	2011-11-01 at 10:24	86379	2011-11-03 at 10:41
TDS	SM 2540C	73371	2011-11-14 at 13:39	86618	2011-11-17 at 15:43
TDS	SM 2540C	73603	2011-11-22 at 13:44	86755	2011-11-28 at 15:17

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 11103128 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 5 of 17 Chavez Co., NM

# **Analytical Report**

Sample: 281160 - MW-4

Laboratory:

Midland

Analysis:

86377

SO4 (IC) Analytical Method:

E 300.0

Prep Method: N/A

QC Batch:

F

J,Qs

Date Analyzed: Sample Preparation: 2011-11-03 2011-11-03 Analyzed By: Prepared By:

AR

Prep Batch:

73346

MQL Method Blank

MQL (Unadjusted) MDL

Parameter Sulfate

Based Based C Result Result 442 <1250

SDL

Result Units <88.5 mg/L Dilution SDL 500 88.5 (Unadjusted)

0.177

Sample: 281160 - MW-4

Laboratory:

Midland

Analysis: QC Batch:

TDS 86618 Analytical Method:

SM 2540C 2011-11-17 Prep Method: N/A Analyzed By: AR

Prep Batch: 73371

Date Analyzed: Sample Preparation:

2011-11-14

Prepared By: AR

SDL

MQL

Method

MQL

2.5

MDL

Blank Based Based Result

Parameter C Result Total Dissolved Solids 48300 48300 Result Units <975 mg/L

Dilution SDL 100 975

(Unadjusted) 10

(Unadjusted) 9.75

Sample: 281161 - MW-7

Laboratory:

Midland

Analysis:

SO4 (IC)

Analytical Method: Date Analyzed:

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

QC Batch: Prep Batch:

86378 73346

Sample Preparation: 2011-11-03

SDL

Based

Method

Prepared By:

MQL

MDL (Unadjusted)

0.177

MQL Based Blank SDL F Units Dilution Parameter Result Result Result (Unadjusted) <2500 Sulfate J,Qs 2370 <177 mg/L 1000 177 2.5

Sample: 281161 - MW-7

Laboratory:

Midland

Analysis:

TDS

Analytical Method:

SM 2540C

Prep Method: N/A

Report Date: November 30 115-6403129	, 20	11			ork Orde cro/Rock (				Page Number: 6 of 17 Chavez Co., NM				
QC Batch: 86618			D	ate Analyz	æd:	2011-11-	-17		Analyze	d By: AR			
Prep Batch: 73371			Sa	ample Prep	ple Preparation:		-14		Prepare	d By: AR			
			SDL	MQL	Method								
			$\mathbf{Based}$	$\mathbf{Based}$	Blank				MQL	MDL			
Parameter	$\mathbf{F}$	$\mathbf{C}$	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)			
Total Dissolved Solids		2	170000	170000	<975	mg/L	100	975	10	9.75			

Laboratory: Analysis: QC Batch: Prep Batch:	Midland SO4 (IC) 86378 73346			Date .	tical Metho Analyzed: le Preparati	201	00.0 1-11-03 1-11-03		Prep M Analyze Prepare	-
			$\operatorname{SDL}$	MQL	Method					
			Based	Based	Blank				MQL	MDL
Parameter	$\mathbf{F}$	$\mathbf{C}$	Result	Result	Result	Units	Dilution	$\operatorname{SDL}$	(Unadjusted)	(Unadjusted)
Sulfate	J Os	-	2000	<2500	<177	mg/L	1000	177	2.5	0.177

Sample: 281162 - MW-3

Sample: 281162 - MV	V-3									
Laboratory: Midland Analysis: TDS Analytical Method: SM 2540C Prep Method: QC Batch: 86755 Date Analyzed: 2011-11-28 Analyzed By: Prep Batch: 73603 Sample Preparation: 2011-11-22 Prepared By:									d By: AR	
Trop Baron. 18000			SDL Based	MQL Based	Method Blank				MQL	MDL
Parameter	F	C	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Total Dissolved Solids		2	110000	110000	<975	mg/L	100	975	10	9.75

Sample: 28	1163 - M	W-5								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland SO4 (IC) 86378 73346			Date	ytical Metho Analyzed: ble Preparat	201		Prep M Analyze Prepare	•	
			$\operatorname{SDL}$	MQL	Method					
			Based	Based	Blank		•	,	MQL	MDL
Parameter	$\mathbf{F}$	$\mathbf{C}$	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Sulfate	Qs	2	136	136	<1.77	mg/L	10	1.77	2.5	0.177

Report Date: November 30, 2011 115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 7 of 17 Chavez Co., NM

Sample:	281163 -	MW-5
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Laboratory: Midland

Analysis: TDS QC Batch: 86755 Prep Batch: 73603 Analytical Method: Date Analyzed: Sample Preparation:

SM 2540C 2011-11-28 2011-11-22

Dilution

2

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

SDL MQL Method

Based Based

Blank Result Units <19.5 mg/L

MQL SDL (Unadjusted) 19.5

10

MDL (Unadjusted) 9.75

Parameter C Result Result Total Dissolved Solids 896 896

Sample: 281164 - MW-2

Laboratory:

Midland

Analysis: SO4 (IC) QC Batch: 86378 Prep Batch: 73346

Analytical Method: Date Analyzed:

Sample Preparation:

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

SDL Method MQL

MDL

MQL Based Based Blank (Unadjusted) Parameter F  $\mathbf{C}$ Result Result Result Dilution SDL (Unadjusted) Units Sulfate J,Qs 189 <250 <17.7 mg/L 100 17.7 2.5 0.1772

Sample: 281164 - MW-2

Laboratory:

Midland

TDS Analysis: 86755 QC Batch: 73603 Prep Batch:

Analytical Method: Date Analyzed:

Sample Preparation:

SM 2540C 2011-11-28 2011-11-22 Prep Method: N/A Analyzed By: AR Prepared By: AR

SDL MQL Method

Blank Based Based Parameter C Result Result Result Total Dissolved Solids 14800 14800

MQL MDL SDL Dilution Units (Unadjusted) (Unadjusted) 9.75 100 975 <975 mg/L 10

Sample: 281165 - MW-6

Laboratory:

Midland

SO4 (IC) Analysis: QC Batch: 86379 Prep Batch: 73346

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

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

115-6403129

Work Order: 11103128 Celer

Page Number: 8 of 17 vez Co., NM

ro/Rock Q	ueen #1 TF	Char

			$\operatorname{SDL}$	MQL	Method					•
			Based	Based	Blank				MQL	MDL
Parameter	$\mathbf{F}$	$\mathbf{C}$	Result	Result	Result	Units	Dilution	SDL	(Unadjusted)	(Unadjusted)
Sulfate	Qs	2	2660	2660	<177	mg/L	1000	177	2.5	0.177

Sample: 281165 - MW-6

Laboratory: Midland

Parameter

Analysis: TDS 86755 QC Batch: 73603 Prep Batch:

Analytical Method: Date Analyzed:

SM 2540C 2011-11-28 Prep Method: N/A

Sample Preparation: 2011-11-22

Analyzed By: AR Prepared By: AR

N/A

AR

AR

SDL MQL Method

Blank MQL MDL Based Based Result Result Units Dilution SDL  $\mathbf{F}$ C Result (Unadjusted) (Unadjusted) Total Dissolved Solids 160000 160000 <975 mg/L 100 975 10 9.75

Sample: 281166 - MW-1

Laboratory: Midland

Analysis: SO4 (IC) QC Batch: 86379 Prep Batch: 73346

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

Prep Method: Analyzed By: 2011-11-03 Prepared By:

SDL MQL Method Based Based Blank MQL MDL Units Dilution SDL Parameter F  $\mathbf{C}$ Result Result Result (Unadjusted) (Unadjusted) J,Qs 2270 <2500 <177 mg/L 1000 177 2.5 0.177 Sulfate

Sample: 281166 - MW-1

Laboratory:

Midland TDS Analysis: QC Batch: 86755 Prep Batch: 73603

SM 2540C Analytical Method: 2011-11-28 Date Analyzed: Sample Preparation: 2011-11-22

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

SDL MQL Method Blank MQLMDL Based Based  $\mathbf{C}$ Result Result Dilution SDL F Result Units (Unadjusted) (Unadjusted) Parameter Total Dissolved Solids 239000 239000 <975 mg/L 100 975 9.75 10

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 9 of 17 Chavez Co., NM

# Method Blanks

Method Blank (1)

QC Batch: 86377 Prep Batch: 73346 Date Analyzed: QC Preparation:

2011-11-03 2011-11-01 Analyzed By: AR

Prepared By: AR

Reporting Parameter  $\mathbf{F}$  $\mathbf{C}$ Result Units Limits 0.177 Sulfate < 0.177 mg/L

Method Blank (1)

QC Batch: Prep Batch:

86378 73346 Date Analyzed: QC Preparation:

2011-11-03 2011-11-01

Analyzed By: AR

Prepared By: AR

Reporting Parameter F  $\mathbf{C}$ Result Units Limits Sulfate < 0.177mg/L 0.177 2

Method Blank (1)

QC Batch: Prep Batch: 73346

Date Analyzed: QC Preparation:

2011-11-03 2011-11-01

Analyzed By: AR Prepared By: AR

Reporting

F C Parameter Result Units Limits Sulfate 0.177 2 < 0.177 mg/L

Method Blank (1)

QC Batch: Prep Batch: 73371

86618

Date Analyzed: QC Preparation:

2011-11-17 2011-11-14

Analyzed By: AR Prepared By: AR

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 10 of 17

Chavez Co., NM

	٠		٠		Reporting
Parameter	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Limits
Total Dissolved Solids		2	<9.75	mg/L	9.75

Method Blank (1)

QC Batch: 86755 Prep Batch: 73603 Date Analyzed: QC Preparation:

2011-11-28 2011-11-22 Analyzed By: AR Prepared By: AR

Reporting Parameter F C Result Units Limits Total Dissolved Solids < 9.75 mg/L 9.75

Duplicate (1) Duplicated Sample: 281161

QC Batch: Prep Batch: 73371

86618

Date Analyzed: QC Preparation:

2011-11-17 2011-11-14

Analyzed By: AR

Prepared By: AR

RPD Duplicate Sample Param C Result Dilution RPD Limit F Result Units Total Dissolved Solids 168000 170000 100 10 mg/L

Duplicate (1) Duplicated Sample: 281167

QC Batch: Prep Batch:

86755 73603 Date Analyzed: QC Preparation: 2011-11-28 2011-11-22 Analyzed By: AR Prepared By: AR

**RPD** Duplicate Sample  $\mathbf{F}$  $\mathbf{C}$ Result Result Units Dilution RPD Limit Param Total Dissolved Solids 93700 96800 mg/L 100 10

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 11 of 17 Chavez Co., NM

# **Laboratory Control Spikes**

#### Laboratory Control Spike (LCS-1)

QC Batch:

86377

Date Analyzed:

2011-11-03

Analyzed By: AR

Prep Batch:

73346

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

			LCS			Spike	Matrix		Rec.
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		2	24.5	mg/L	1	25.0	< 0.177	98	90 - 110

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		2	24.6	mg/L	1	25.0	< 0.177	98	90 - 110	0	20

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

#### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 73346

86378

Date Analyzed: QC Preparation:

2011-11-03 2011-11-01

Analyzed By: AR Prepared By: AR

•			LCS			Spike	Matrix		Rec.
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		2	24.9	$_{ m mg/L}$	1	25.0	< 0.177	100	90 - 110

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		2	24.7	mg/L	1	25.0	< 0.177	99	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:

Date Analyzed:

2011-11-03

Analyzed By: AR

Prep Batch:

73346

QC Preparation: 2011-11-01

Prepared By: AR

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Sulfate 24.8 25.0 90 - 110 mg/L < 0.177

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 12 of 17 Chavez Co., NM

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate		2	25.1	mg/L	1	25.0	< 0.177	100	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:

86618

Date Analyzed:

2011-11-17

Analyzed By: AR

Prep Batch: 73371

QC Preparation:

2011-11-14

Prepared By: AR

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

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		2	1010	mg/L	1	1000	<9.75	101	85.5 - 112.7	3	10

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

#### Laboratory Control Spike (LCS-1)

QC Batch:

86755 Prep Batch: 73603 Date Analyzed: QC Preparation:

2011-11-28 2011-11-22 Analyzed By: AR

Prepared By: AR

Spike Matrix Rec. LCS Param Result Dil. Amount Result Rec. Limit Units Total Dissolved Solids 85.5 - 112.7 924 mg/L 1 1000 < 9.75 92

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Dissolved Solids		2	948	mg/L	1	1000	<9.75	95	85.5 - 112.7	3	10

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

Matrix Spike (MS-1)

Spiked Sample: 281157

QC Batch:

Prep Batch: 73346

Date Analyzed:

2011-11-03 QC Preparation:

2011-11-01

Analyzed By: AR Prepared By: AR

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 13 of 17

Chavez Co., NM

•			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	Qs	2	1250	mg/L	50	1380	68	86	90 - 110

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit .
Sulfate	Qs	2	1250	mg/L	50	1380	68	86	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: 281163

QC Batch: Prep Batch: 73346

86378

Date Analyzed:

2011-11-03

Analyzed By: AR

Prepared By: AR

				MS			Spike	Matrix		Rec.
Param	1	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate		$\overline{\mathrm{Qs}}$	2	362	mg/L	10	275	136	82	90 - 110

QC Preparation: 2011-11-01

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	Qs	2	350	mg/L	10	275	136	78	90 - 110	3	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: 281167

QC Batch: Prep Batch:

73346

Date Analyzed:

2011-11-03 QC Preparation: 2011-11-01

Analyzed By: AR Prepared By: AR

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	Qs	2	1290	mg/L	50	1380	521	56	90 - 110

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	Qs	2	1320	mg/L	50	1380	521	58	90 - 110	2	20

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 14 of 17 Chavez Co., NM

# Calibration Standards

Standard (I	$\mathbf{cv}$	-1)
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QC Batch: 86377

Date Analyzed: 2011-11-03

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	_
				True	Found	Percent	Recovery	Date
Param	$\mathbf{F}$	$\mathbf{C}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		2	mg/L	25.0	24.3	97	90 - 110	2011-11-03

### Standard (CCV-1)

QC Batch: 86377

Date Analyzed: 2011-11-03

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
		t		True	Found	Percent	Recovery	Date
Param	${f F}$	$\mathbf{C}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		2	mg/L	25.0	24.7	99	90 - 110	2011-11-03

#### Standard (ICV-1)

QC Batch: 86378

Date Analyzed: 2011-11-03

Analyzed By: AR

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	${f F}$	C	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		2	mg/L	25.0	24.7	( 99	90 - 110	2011-11-03

### Standard (CCV-1)

QC Batch: 86378

Date Analyzed: 2011-11-03

Analyzed By: AR

				$\mathbf{CCVs}$	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	F	C	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		2	mg/L	25.0	24.7	99	90 - 110	2011-11-03

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 15 of 17 Chavez Co., NM

Standard (ICV-1)

QC Batch: 86379

Date Analyzed: 2011-11-03

Analyzed By: AR

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\mathbf{F}$	$\mathbf{C}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		2	mg/L	25.0	24.7	99	90 - 110	2011-11-03

Standard (CCV-1)

QC Batch: 86379

Date Analyzed: 2011-11-03

Analyzed By: AR

**CCVs**  $\mathbf{CCVs}$ CCVsPercent Date True Found Percent Recovery Param  $\mathbf{F}$  $\mathbf{C}$ Units Conc. Conc. Recovery Limits Analyzed Sulfate 90 - 110 2011-11-03 mg/L 25.0 25.3 101 2

Report Date: November 30, 2011 115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 16 of 17 Chavez Co., NM

# Limits of Detection (LOD)

115-6403129

Work Order: 11103128 Celero/Rock Queen #1 TB Page Number: 17 of 17 Chavez Co., NM

# **Appendix**

## Report Definitions

Name	Definition
$\overline{ ext{MDL}}$	Method Detection Limit
MQL	Minimum Quantitation Limit
$\operatorname{SDL}$	Sample Detection Limit

## **Laboratory Certifications**

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-4	Lubbock
2	NELAP	T104704392-10-TX	Midland

## Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less 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.

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ľ						l	Midland, Tex	Spring St.	-								6 (Ext. to C35)	i	Cd Cr Pb Hg Se	as funda sa										DS		
CLIENT NAM	ΛE:Λ	eler	Ð				SITE MANAGE	R: Undley		NERS		PI		ERV		E	TX1005		s Ba C	3			960/624	270/625		ľ				ns, pH,		
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28/160	10/	25	0425	ય		X	MW-4			4	Ŋ	X		X			<b>(</b>									X				$\perp$		
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163			1215	Ш			MW-5			Ц	Ш	$\coprod$	$\perp$	$\coprod$	$\perp$		$\perp$			I						$\coprod$	$oldsymbol{\perp}$	Ш	$\bot$	$\perp$		
164			1308	Щ			MW-Z			Щ	$\prod$	$\coprod$	_	11	4		$\!$	L		$\perp$	$oldsymbol{\perp}$			$\perp$		$\prod$			$\perp$	$\perp$	Ш	
165			1348	Ш		$\parallel$	MN-C					$\prod$		$\coprod$	_		4			$\perp$				1	$\downarrow$	$\perp \!\!\! \perp$			$\perp$	$\perp$	Ш	
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•				7	J.	TETRA 1910 N. Big Midland, Te: (432) 682-4559	Spring St.								- 1	75 (EXI. 10 C35)	ය ඊ	Vr Pd Hg									TDS		
CLIENT NAME: Celero SITE MANAGER:  Left Kindley							ER: Kindley		ERS	T			RVATI HOD	VE		COOLY	Ba	Ba Cd	1.		60/624	20/0/2					ß, pH,		
PROJECT N	0.: - 6403		PF	ROJ	ECT Ce	NAME; lero/ Rock Quee			CONTAI	€ E					۵	MQ.	s Ag As	ls Ag As	Volatiles		8240/82	11. VOI. 02 1608	g g		ği.	tos)	s/Cation		
LAB I.D. NUMBER			MATRIX	COMP.	GRAB		LE IDENTIFICATION		NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL.	<u> </u>	NONE			PAH 8270	RCRA Metals Ag /	TCLP Metals	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	PCB's 8080/608	Pest. 808/608	Chloride)	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS	1	
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