

**1RP-1662**

**Assessment and Closure  
Report**

**DATE:  
Oct. 2009**



**TETRA TECH**

October 12, 2009

Mr. Glenn von Gonten  
Senior Hydrologist/Acting Environmental Bureau Chief  
Environmental Bureau  
Oil Conservation Division  
Energy, Minerals, and Natural Resources Department  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**RE: Assessment and Closure Report for the Pit Located at the Drickey Queen Unit Saltwater Plant # 3, Unit Letter H, Section 16, Township 14 South, Range 31 East, Chaves County, New Mexico, Operated by Celero Energy II, LP (NMOCD 1RP#1662)**

Dear Mr. von Gonten:

Tetra Tech was contacted by Celero Energy (Celero) to assist in the closure of a pit at the Drickey Queen Unit Saltwater Plant # 3, located in Unit Letter H, Section 16, Township 14 South, Range 31 East, Chaves County, New Mexico (Site). The pit coordinates are N 33.10630° W 103.81912°. Both the State of New Mexico C-141 and C-144 (Initial and Final) are shown in Appendix E. The Site is shown on Figures 1 and 2.

### **Background**

On October 11, 2007, Highlander submitted an Investigation and Characterization work plan for an open pit at this site. The ICP was approved by the New Mexico Oil Conservation Division (NMOCD).

The Drickey Queen Unit Saltwater Plant # 3 pit was dewatered and the residual sludge and tank bottom materials were removed in September 2007. Removed fluids were placed into an existing SWD system or taken to disposal, while the sludge and tank bottom materials were disposed of at the Gandy-Marley, Inc. landfill site in Lovington, New Mexico. Upon completion of the removal of the fluids and sludge, the underlying soils were visually inspected for obvious signs of impact. Approximately 1,400 cubic yards of soil were excavated and transported to Gandy-Marley, Inc for disposal. The pit was excavated to a point where the subsoil would support a soil boring rig.

**Tetra Tech**

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 [www.tetratech.com](http://www.tetratech.com)



## **Groundwater and Regulatory**

Neither the New Mexico State Engineer's Office database nor the USGS database show any wells in Section 16, Township 14 South, Range 31 East. The New Mexico State Engineer's Office database does show wells in Sections 23 and 34, Township 14S, Range 31E, with reported depths to water from 260 feet to 275 feet. This site is located west of Mescalero Ridge, and any groundwater would be derived from the Triassic Dockum or Quaternary Alluvium. See Appendix A for NM State Engineer's database report.

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

## **Assessment and Results**

On October 29, 2007, Highlander supervised the installation of soil borings at the pit. Prior to the installation of the borings, a visual inspection was performed around the perimeter of the pit. The area of the pit excavation measured approximately 57 feet by 69 feet. One soil boring (SB-1) was installed in the center of the pit. The remaining boreholes (SB-2 through SB-5) were installed outside the edges of the pit. The boring locations and the approximate edge of the pit are shown on Figure 3.

The borings were installed using an air-rotary type drilling rig. Soil samples from soil boring SB-1 were collected at 5 foot intervals to 20 feet and then 10 foot intervals thereafter during drilling operations. The samples were field screened for hydrocarbons with a PID, and field screened for chlorides. Soil samples from the remaining soil borings were collected at 10 foot intervals to depths up to 50 feet below ground surface (bgs).

The soil samples were field screened for chlorides to determine if impacts showed a distinctive decline with depth. Select soil samples were analyzed for Total Petroleum Hydrocarbons (TPH) by method modified 8015 DRO/GRO, benzene, toluene, ethylbenzene, and xylene (BTEX) by method 8021B and chloride by method 4500 Cl-B. All samples were collected and preserved in



laboratory prepared sample containers with standard QA/QC procedures. All samples were shipped under proper chain-of-custody control and analyzed within the standard holding times. The results of the sampling are shown in Table 1. The laboratory reports and chain-of-custody are included in Appendix B.

All down hole equipment was washed between boreholes or sampling events using a potable water and laboratory grade detergent. All down hole equipment (i.e., drill rods, drill bits, etc.) were thoroughly decontaminated between each use with a high-pressure hot water wash and rinse. Soil cuttings from drilling were stockpiled adjacent to the borehole. Following the completion of the drilling activities, all boreholes were grouted to the surface.

Referring to Table 1, the samples selected for TPH and BTEX analysis were all below the reporting limits. Chloride impact was found throughout SB-1. Horizontal chloride impact was defined inside the perimeter boreholes.

## **Soil Capping**

During the week of December 22, 2007, Gandy-Marley Corporation of Lovington, New Mexico was onsite to install a one foot thick clay liner for the pit. The pit area was further extended out approximately 25 feet north and west, and 30 feet south of the original dimensions based upon the results of the borehole samples. See Figure 3 for pit liner dimensions. The soils were excavated to a depth of 4 feet bgs. The soils excavated soils were placed back into the center of the original excavation in order to bring the excavation up to a depth of 4 feet bgs. Upon completion of the clay liner, overburden material stripped from the expansion of the pit was utilized as backfill for the site and brought up to grade. A copy of the sieve analysis/permeability data for the clay is included in Appendix C.

## **Monitor Well Installation**

On May 30, 2007, Tetra Tech was onsite to oversee the installation of temporary monitor well TMW-1, which was installed southeast of the pit. The monitor well was drilled to a depth of 100 feet and installed with 50 feet of 0.02" slotted screen at the bottom and 55 feet of schedule 40 blank PVC at the top of the boring. No groundwater was encountered during drilling of the monitor well. On July 30, 2008, Tetra Tech was onsite to gauge, develop, and sample temporary monitor well TMW-1. Approximately 10 gallons of water were removed from the well and stored in an onsite 55-gallon drum. Once the well stabilized, a sample was collected and submitted to Trace Analysis, Inc. of Midland, Texas for analysis of chlorides using EPA method E 300.0. Temporary Monitor well TMW-1 had analytical results of 64,500 mg/L chlorides. The results of the sampling are shown in Table 2. A copy of the laboratory reports and



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chain-of-custody are included in Appendix B, while the boring log is included in Appendix D.

Since the sampled water is believed to be perched water, and based on the results of the sampling, Tetra Tech plugged the temporary monitor well and proposes to reinstall a permanent monitor well east to southeast of the pit. Based on the findings of the new monitor well, additional monitor wells may be required to complete delineation of the groundwater.

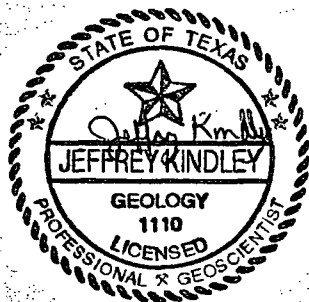
### **Conclusions**

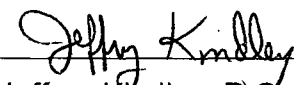
Between October and December 2007, the pit area was excavated to dimensions of 95 feet by 115 feet. Approximately 1,400 cubic yards of soil were excavated and transported offsite for disposal at Gandy-Marley of Lovington, New Mexico. A clay liner was placed at 4 feet bgs in the excavation in order to impede the remaining chlorides at the site from migrating to the underlying groundwater. Upon completion of the clay liner, the site was backfilled with overburden material and brought up to surface grade.

Based upon the results of the pit closure work performed at the site, Celero Energy requests consideration of this pit for closure. If you require any additional information or have any questions or comments concerning the assessment/closure report, please call at (432) 682-4559.

Respectfully submitted,

Tetra Tech



  
Jeffrey Kindley, P.G.

Senior Environmental Geologist

cc: Bruce Woodard – Celero Energy II LP  
Larry Johnson – NMOCD – Hobbs, New Mexico

## FIGURES

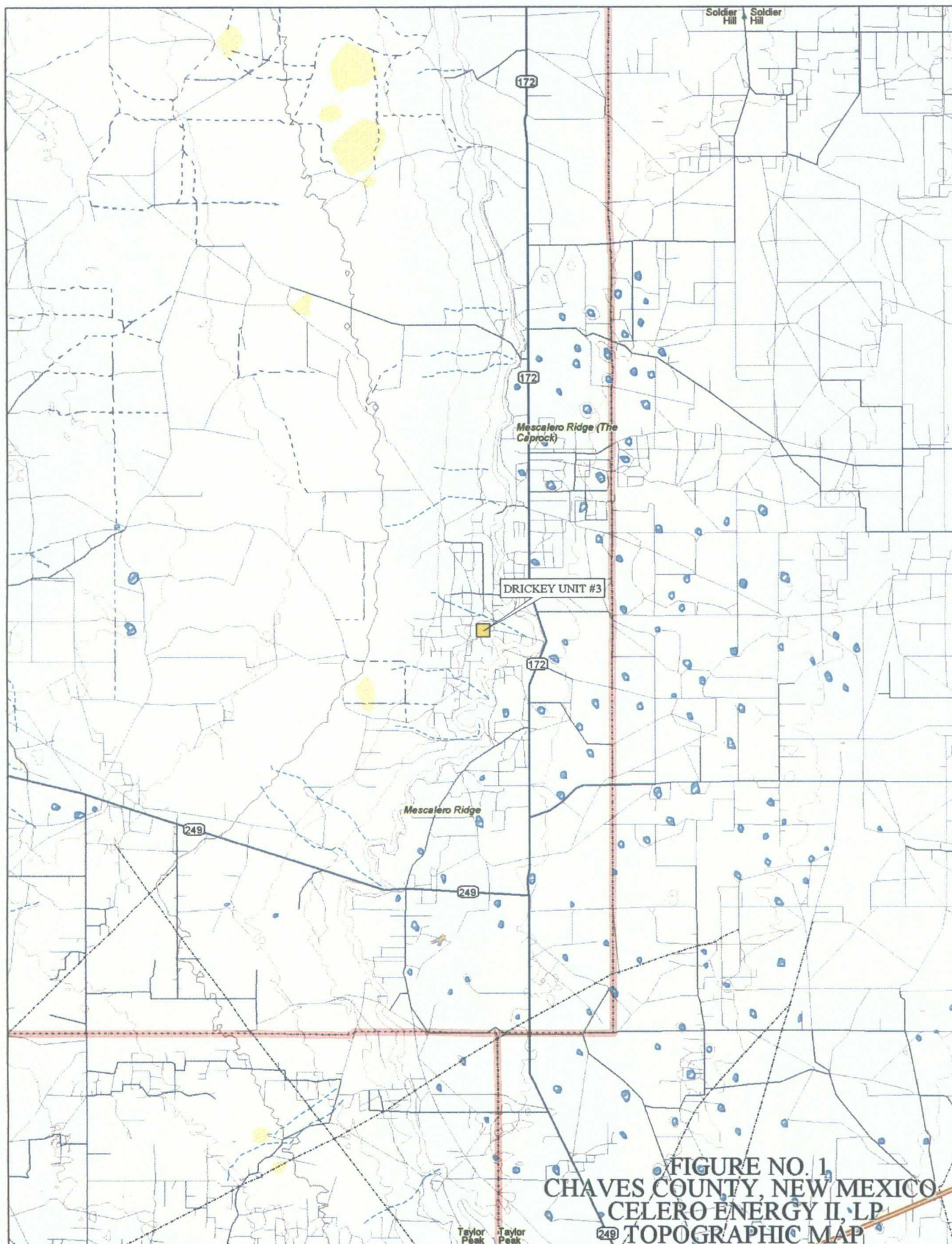
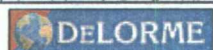


FIGURE NO. 1  
CHAVES COUNTY, NEW MEXICO  
CELERO ENERGY II, LP  
TOPOGRAPHIC MAP

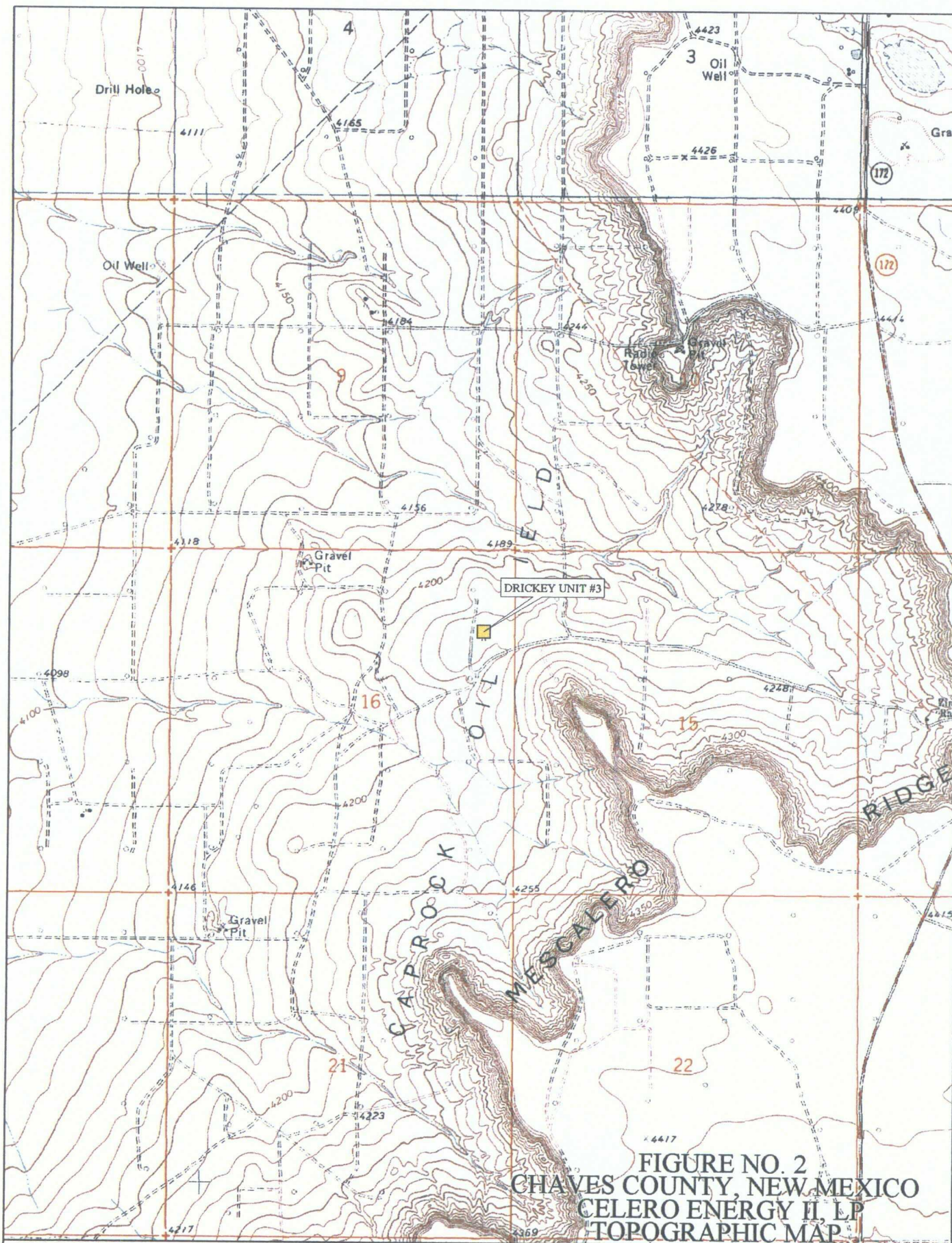


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www.delorme.com

Scale 1 : 200,000  
1" = 3.16 mi









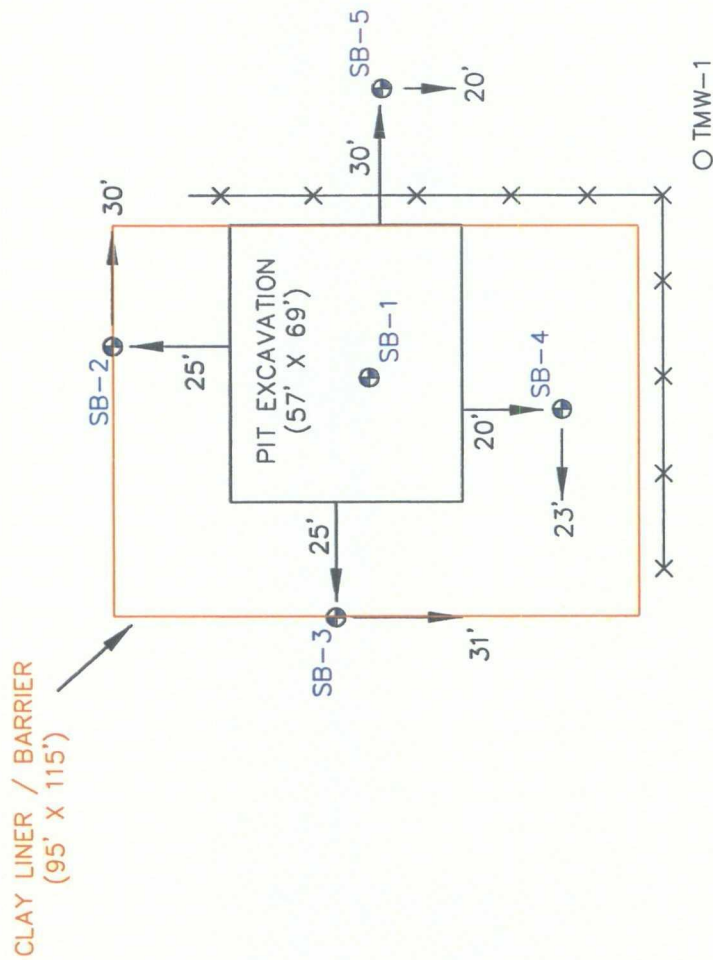


FIGURE NO. 3

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY

DRICKEY QUEEN UNIT SALTWATER PLANT #3  
SOIL BORING / CLAY LINER LOCATIONS

TETRA TECH  
MIDLAND, TEXAS

DATE:  
11/5/07

DRAWN BY:  
RC

FILE:  
ACCT000031304  
0 0 UNIT 13

NOT TO SCALE

## TABLES

Table 1  
Celero Energy  
Drickey Queen Unit 3  
Chaves County, New Mexico

Sample ID	Date Sampled	Excavation Depth (ft)	TPH (mg/kg)		Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			DRO	GRO					
SB-1	10/29/2007	(3-5')	<50.0	<1.00	<0.0100	<0.0100	<0.0100	<0.0100	1150
	10/29/2007	(8-10')	-	-	-	-	-	-	1680
	10/29/2007	(13-15')	-	-	-	-	-	-	948
	10/29/2007	(18-20')	-	-	-	-	-	-	1330
	10/29/2007	(28-30')	-	-	-	-	-	-	2350
SB-2	10/29/2007	(38-40')	-	-	-	-	-	-	5780
	10/29/2007	(48-50')	-	-	-	-	-	-	7290
	10/29/2007	(58-60')	-	-	-	-	-	-	6310
	10/29/2007	(68-70')	-	-	-	-	-	-	2140
	10/29/2007	(78-80')	-	-	-	-	-	-	1270
SB-3	10/29/2007	(8-10')	-	-	-	-	-	-	155
	10/29/2007	(18-20')	-	-	-	-	-	-	1960
	10/29/2007	(28-30')	-	-	-	-	-	-	2410
	10/29/2007	(38-40')	-	-	-	-	-	-	1100
	10/29/2007	(48-50')	-	-	-	-	-	-	1190
SB-4	10/29/2007	(8-10')	-	-	-	-	-	-	184
	10/29/2007	(18-20')	-	-	-	-	-	-	533
	10/29/2007	(28-30')	-	-	-	-	-	-	931
	10/29/2007	(38-40')	-	-	-	-	-	-	110
	10/29/2007	(48-50')	-	-	-	-	-	-	<100
SB-5	10/29/2007	(8-10')	-	-	-	-	-	-	<100
	10/29/2007	(18-20')	-	-	-	-	-	-	876
	10/29/2007	(28-30')	-	-	-	-	-	-	3910
	10/29/2007	(38-40')	-	-	-	-	-	-	728
	10/29/2007	(48-50')	-	-	-	-	-	-	<100
	10/29/2007	(8-10')	-	-	-	-	-	-	<100
	10/29/2007	(18-20')	-	-	-	-	-	-	263
	10/29/2007	(28-30')	-	-	-	-	-	-	345
	10/29/2007	(38-40')	-	-	-	-	-	-	571
	10/29/2007	(48-50')	-	-	-	-	-	-	486

(-) Not Analyzed

Table 2  
Celero Energy  
Drickey Queen Unit 3  
Chaves County, New Mexico

Sample ID	Date Sampled	Chloride (mg/kg)
TMW-1	07/31/08	<50.0

(-) Not Analyzed



## **APPENDIX A GROUNDWATER DATA**

*New Mexico Office of the State Engineer*  
**POD Reports and Downloads**

Township: 14S Range: 31E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) ☐ Non-Domestic ☐ Domestic ☒ All

POD / Surface Data Report

Avg Depth to Water Report

Water Column Report

Clear Form

iWATERS Menu

Help

**AVERAGE DEPTH OF WATER REPORT 10/11/2007**

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg
L	14S	31E	23				2	275	275	275
L	14S	31E	34				2	260	260	260

Record Count: 4

**APPENDIX B**  
**LABORATORY ANALYTICAL**



# TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298  
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944  
5002 Basin Street, Suite A1 Midland, Texas 79703 432•683•6301 FAX 432•689•6313  
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260  
E-Mail: lab@traceanalysis.com

## NELAP Certifications

Lubbock T104704219-08-TX  
LELAP-02003

El Paso T104704221-08-TX  
LELAP-02002

Midland T104704392-08-TX

## Analytical and Quality Control Report

Ike Tavarez  
Tetra Tech  
1910 N. Big Spring Street  
Midland, TX, 79705

Report Date: August 5, 2008

Work Order: 8080109



Project Name: Celero-Dricky Queen Saltwater Plant #3  
Project Number: 3136

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
169222	TMW-1	water	2008-07-31	13:30	2008-08-01

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 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.





*Michael Abel*

---

Dr. Blair Leftwich, Director

**Standard Flags**

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

## Case Narrative

Samples for project Celero-Dricky Queen Saltwater Plant #3 were received by TraceAnalysis, Inc. on 2008-08-01 and assigned to work order 8080109. Samples for work order 8080109 were received intact at a temperature of 3.4 deg. C.

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

Test	Method
Chloride (IC)	E 300.0

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 8080109 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: August 5, 2008  
3136

Work Order: 8080109  
Celero-Dricky Queen Saltwater Plant #3

Page Number: 4 of 5

## Analytical Report

Sample: 169222 - TMW-1

Laboratory: Midland  
Analysis: Chloride (IC)  
QC Batch: 51103  
Prep Batch: 43811

Analytical Method: E 300.0  
Date Analyzed: 2008-08-05  
Sample Preparation: 2008-08-04

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		64500	mg/L	5000	0.500

Method Blank (1)      QC Batch: 51103

QC Batch: 51103  
Prep Batch: 43811

Date Analyzed: 2008-08-05  
QC Preparation: 2008-08-04

Analyzed By: AR  
Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.0181	mg/L	0.5

Laboratory Control Spike (LCS-1)

QC Batch: 51103  
Prep Batch: 43811

Date Analyzed: 2008-08-05  
QC Preparation: 2008-08-04

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	13.0	mg/L	1	12.5	<0.0181	104	90 - 110

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13.0	mg/L	1	12.5	<0.0181	104	90 - 110	0	

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

Matrix Spike (MS-1)      Spiked Sample: 168431

QC Batch: 51103  
Prep Batch: 43811

Date Analyzed: 2008-08-05  
QC Preparation: 2008-08-04

Analyzed By: AR  
Prepared By: AR

Report Date: August 5, 2008  
3136

Work Order: 8080109  
Celero-Dricky Queen Saltwater Plant #3

Page Number: 5 of 5

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	<sup>1</sup> 90600	mg/L	50	625	90576	4	90 - 110

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	90500	mg/L	50	625	90576	0	90 - 110	0	

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

#### Standard (ICV-1)

QC Batch: 51103

Date Analyzed: 2008-08-05

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.1	105	90 - 110	2008-08-05

#### Standard (CCV-1)

QC Batch: 51103

Date Analyzed: 2008-08-05

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	13.0	104	90 - 110	2008-08-05

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







6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298  
200 East Sunset Road, Suite E El Paso, Texas 79922 888•598•3443 915•585•3443 FAX 915•595•4944  
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313  
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260  
E-Mail: lab@traceanalysis.com

## Analytical and Quality Control Report

Ike Tavaréz  
Highlander Environmental Services  
1910 N. Big Spring Street  
Midland, TX, 79705

Report Date: November 13, 2007

Work Order: 7103136



Project Name: Drickey Queen Unit 3  
Project Number: 3136

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
141331	SB-1 (3-5')	soil	2007-10-29	00:00	2007-10-31
141332	SB-1 (8-10')	soil	2007-10-29	00:00	2007-10-31
141333	SB-1 (13-15')	soil	2007-10-29	00:00	2007-10-31
141334	SB-1 (18-20')	soil	2007-10-29	00:00	2007-10-31
141335	SB-1 (28-30')	soil	2007-10-29	00:00	2007-10-31
141336	SB-1 (38-40')	soil	2007-10-29	00:00	2007-10-31
141337	SB-1 (48-50')	soil	2007-10-29	00:00	2007-10-31
141338	SB-1 (58-60')	soil	2007-10-29	00:00	2007-10-31
141339	SB-1 (68-70')	soil	2007-10-29	00:00	2007-10-31
141340	SB-1 (78-80')	soil	2007-10-29	00:00	2007-10-31
141341	SB-2 (8-10')	soil	2007-10-29	00:00	2007-10-31
141342	SB-2 (18-20')	soil	2007-10-29	00:00	2007-10-31
141343	SB-2 (28-30')	soil	2007-10-29	00:00	2007-10-31
141344	SB-2 (38-40')	soil	2007-10-29	00:00	2007-10-31
141345	SB-2 (48-50')	soil	2007-10-29	00:00	2007-10-31
141346	SB-3 (8-10')	soil	2007-10-29	00:00	2007-10-31
141347	SB-3 (18-20')	soil	2007-10-29	00:00	2007-10-31
141348	SB-3 (28-30')	soil	2007-10-29	00:00	2007-10-31
141349	SB-3 (38-40')	soil	2007-10-29	00:00	2007-10-31
141350	SB-3 (48-50')	soil	2007-10-29	00:00	2007-10-31
141351	SB-4 (8-10')	soil	2007-10-29	00:00	2007-10-31
141352	SB-4 (18-20')	soil	2007-10-29	00:00	2007-10-31
141353	SB-4 (28-30')	soil	2007-10-29	00:00	2007-10-31
141354	SB-4 (38-40')	soil	2007-10-29	00:00	2007-10-31

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
141355	SB-4 (48-50')	soil	2007-10-29	00:00	2007-10-31
141356	SB-5 (8-10')	soil	2007-10-29	00:00	2007-10-31
141357	SB-5 (18-20')	soil	2007-10-29	00:00	2007-10-31
141358	SB-5 (28-30')	soil	2007-10-29	00:00	2007-10-31
141359	SB-5 (38-40')	soil	2007-10-29	00:00	2007-10-31
141360	SB-5 (48-50')	soil	2007-10-29	00:00	2007-10-31

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.




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Dr. Blair Leftwich, Director

#### Standard Flags

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

## Analytical Report

### Sample: 141331 - SB-1 (3-5')

Analysis: BTEX  
QC Batch: 42934  
Prep Batch: 37042

Analytical Method: S 8021B  
Date Analyzed: 2007-11-09  
Sample Preparation: 2007-11-08

Prep Method: S 5035  
Analyzed By: DC  
Prepared By: DC

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0100	mg/Kg	1	0.0100
Toluene		<0.0100	mg/Kg	1	0.0100
Ethylbenzene		<0.0100	mg/Kg	1	0.0100
Xylene		<0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.09	mg/Kg	1	1.00	109	39.6 - 116
4-Bromofluorobenzene (4-BFB)		0.637	mg/Kg	1	1.00	64	47.3 - 144.2

### Sample: 141331 - SB-1 (3-5')

Analysis: Chloride (Titration)  
QC Batch: 42947  
Prep Batch: 37060

Analytical Method: SM 4500-Cl B  
Date Analyzed: 2007-11-12  
Sample Preparation:

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1150	mg/Kg	50	2.00

### Sample: 141331 - SB-1 (3-5')

Analysis: TPH DRO  
QC Batch: 42653  
Prep Batch: 36804

Analytical Method: Mod. 8015B  
Date Analyzed: 2007-11-02  
Sample Preparation: 2007-11-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		178	mg/Kg	1	150	119	17.3 - 169.6

### Sample: 141331 - SB-1 (3-5')

Analysis: TPH GRO  
QC Batch: 42937  
Prep Batch: 37042

Analytical Method: S 8015B  
Date Analyzed: 2007-11-09  
Sample Preparation: 2007-11-08

Prep Method: S 5035  
Analyzed By: DC  
Prepared By: DC

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.762	mg/Kg	1	1.00	76	50.2 - 89.3
4-Bromofluorobenzene (4-BFB)		0.693	mg/Kg	1	1.00	69	51.2 - 107.4

**Sample: 141332 - SB-1 (8-10')**

Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 42947	Date Analyzed: 2007-11-12	Analyzed By: AR
Prep Batch: 37060	Sample Preparation:	Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1680	mg/Kg	50	2.00

**Sample: 141333 - SB-1 (13-15')**

Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 42947	Date Analyzed: 2007-11-12	Analyzed By: AR
Prep Batch: 37060	Sample Preparation:	Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		948	mg/Kg	50	2.00

**Sample: 141334 - SB-1 (18-20')**

Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 42947	Date Analyzed: 2007-11-12	Analyzed By: AR
Prep Batch: 37060	Sample Preparation:	Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1330	mg/Kg	50	2.00

**Sample: 141335 - SB-1 (28-30')**

Analysis: Chloride (Titration)	Analytical Method: SM 4500-Cl B	Prep Method: N/A
QC Batch: 42947	Date Analyzed: 2007-11-12	Analyzed By: AR
Prep Batch: 37060	Sample Preparation:	Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2350	mg/Kg	50	2.00

**Sample: 141336 - SB-1 (38-40')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42947	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37060	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5780	mg/Kg	50	2.00

**Sample: 141337 - SB-1 (48-50')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42947	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37060	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7290	mg/Kg	50	2.00

**Sample: 141338 - SB-1 (58-60')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42947	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37060	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6310	mg/Kg	50	2.00

**Sample: 141339 - SB-1 (68-70')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2140	mg/Kg	50	2.00

**Sample: 141340 - SB-1 (78-80')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

*continued ...*

sample 141340 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1270	mg/Kg	50	2.00

Sample: 141341 - SB-2 (8-10')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		155	mg/Kg	50	2.00

Sample: 141342 - SB-2 (18-20')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1960	mg/Kg	50	2.00

Sample: 141343 - SB-2 (28-30')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2410	mg/Kg	50	2.00

Sample: 141344 - SB-2 (38-40')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1100	mg/Kg	50	2.00

Sample: 141345 - SB-2 (48-50')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1190	mg/Kg	50	2.00

Sample: 141346 - SB-3 (8-10')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		184	mg/Kg	50	2.00

Sample: 141347 - SB-3 (18-20')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		533	mg/Kg	50	2.00

Sample: 141348 - SB-3 (28-30')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42948	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37062	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		931	mg/Kg	50	2.00

Sample: 141349 - SB-3 (38-40')

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42949	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37063	Sample Preparation:		Prepared By:	AR

continued ...



sample 141349 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		110	mg/Kg	1	2.00

Sample: 141350 - SB-3 (48-50')

Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 42949      Date Analyzed: 2007-11-12      Analyzed By: AR  
Prep Batch: 37063      Sample Preparation:      Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<100	mg/Kg	50	2.00

Sample: 141351 - SB-4 (8-10')

Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 42949      Date Analyzed: 2007-11-12      Analyzed By: AR  
Prep Batch: 37063      Sample Preparation:      Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<100	mg/Kg	50	2.00

Sample: 141352 - SB-4 (18-20')

Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 42949      Date Analyzed: 2007-11-12      Analyzed By: AR  
Prep Batch: 37063      Sample Preparation:      Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		876	mg/Kg	50	2.00

Sample: 141353 - SB-4 (28-30')

Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 42949      Date Analyzed: 2007-11-12      Analyzed By: AR  
Prep Batch: 37063      Sample Preparation:      Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3910	mg/Kg	50	2.00

**Sample: 141354 - SB-4 (38-40')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42949	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37063	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		728	mg/Kg	50	2.00

**Sample: 141355 - SB-4 (48-50')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42949	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37063	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<100	mg/Kg	50	2.00

**Sample: 141356 - SB-5 (8-10')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42949	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37063	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<100	mg/Kg	50	2.00

**Sample: 141357 - SB-5 (18-20')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42949	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37063	Sample Preparation:		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		263	mg/Kg	50	2.00

**Sample: 141358 - SB-5 (28-30')**

Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	42949	Date Analyzed:	2007-11-12	Analyzed By:	AR
Prep Batch:	37063	Sample Preparation:		Prepared By:	AR

*continued ...*

sample 141358 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL
Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		345	mg/Kg	50	2.00

Sample: 141359 - SB-5 (38-40')

Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 42980      Date Analyzed: 2007-11-12      Analyzed By: AR  
Prep Batch: 37085      Sample Preparation:      Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		571	mg/Kg	50	2.00

Sample: 141360 - SB-5 (48-50')

Analysis: Chloride (Titration)      Analytical Method: SM 4500-Cl B      Prep Method: N/A  
QC Batch: 42980      Date Analyzed: 2007-11-12      Analyzed By: AR  
Prep Batch: 37085      Sample Preparation:      Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		486	mg/Kg	50	2.00

Method Blank (1)      QC Batch: 42653

QC Batch: 42653      Date Analyzed: 2007-11-02      Analyzed By: LD  
Prep Batch: 36804      QC Preparation: 2007-11-02      Prepared By: LD

Parameter	Flag	MDL Result	Units	RL
DRO		32.6	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		86.5	mg/Kg	1	150	58	32.9 - 156.1

Method Blank (1)      QC Batch: 42934

QC Batch: 42934      Date Analyzed: 2007-11-09      Analyzed By: DC  
Prep Batch: 37042      QC Preparation: 2007-11-08      Prepared By: DC

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00110	mg/Kg	0.01
Toluene		<0.00150	mg/Kg	0.01
Ethylbenzene		<0.00160	mg/Kg	0.01
Xylene		<0.00410	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.950	mg/Kg	1	1.00	95	58.2 - 121.3
4-Bromofluorobenzene (4-BFB)		0.615	mg/Kg	1	1.00	62	25 - 123.7

Method Blank (1) QC Batch: 42937

QC Batch: 42937 Date Analyzed: 2007-11-09 Analyzed By: DC  
Prep Batch: 37042 QC Preparation: 2007-11-08 Prepared By: DC

Parameter	Flag	MDL Result	Units	RL
GRO		0.972	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.727	mg/Kg	1	1.00	73	67.8 - 103
4-Bromofluorobenzene (4-BFB)		0.617	mg/Kg	1	1.00	62	24.6 - 123

Method Blank (1) QC Batch: 42947

QC Batch: 42947 Date Analyzed: 2007-11-12 Analyzed By: AR  
Prep Batch: 37060 QC Preparation: 2007-11-12 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.500	mg/Kg	2

Method Blank (1) QC Batch: 42948

QC Batch: 42948 Date Analyzed: 2007-11-12 Analyzed By: AR  
Prep Batch: 37062 QC Preparation: 2007-11-12 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.500	mg/Kg	2

Method Blank (1) QC Batch: 42949

QC Batch: 42949 Date Analyzed: 2007-11-12 Analyzed By: AR  
Prep Batch: 37063 QC Preparation: 2007-11-12 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.500	mg/Kg	2

Method Blank (1) QC Batch: 42980

QC Batch: 42980 Date Analyzed: 2007-11-12 Analyzed By: AR  
Prep Batch: 37085 QC Preparation: 2007-11-12 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<0.500	mg/Kg	2

Laboratory Control Spike (LCS-1)

QC Batch: 42653 Date Analyzed: 2007-11-02 Analyzed By: LD  
Prep Batch: 36804 QC Preparation: 2007-11-02 Prepared By: LD

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	198	mg/Kg	1	250	<13.4	79	49.1 - 142.3

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	209	mg/Kg	1	250	<13.4	84	49.1 - 142.3	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	119	118	mg/Kg	1	150	79	79	49 - 133.2

Laboratory Control Spike (LCS-1)

QC Batch: 42934 Date Analyzed: 2007-11-09 Analyzed By: DC  
Prep Batch: 37042 QC Preparation: 2007-11-08 Prepared By: DC

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.03	mg/Kg	1	1.00	<0.00110	103	71.2 - 119
Toluene	0.969	mg/Kg	1	1.00	<0.00150	97	76.3 - 116.5
Ethylbenzene	0.865	mg/Kg	1	1.00	<0.00160	86	77.6 - 114
Xylene	2.55	mg/Kg	1	3.00	<0.00410	85	78.8 - 113.9

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.04	mg/Kg	1	1.00	<0.00110	104	71.2 - 119	1	20

continued ...

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene	1.04	mg/Kg	1	1.00	<0.00150	104	76.3 - 116.5	7	20
Ethylbenzene	0.864	mg/Kg	1	1.00	<0.00160	86	77.6 - 114	0	20
Xylene	2.56	mg/Kg	1	3.00	<0.00410	85	78.8 - 113.9	0	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.945	1.04	mg/Kg	1	1.00	94	104	56.1 - 107.8
4-Bromofluorobenzene (4-BFB)	0.782	0.784	mg/Kg	1	1.00	78	78	56.2 - 118.8

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

QC Batch: 42937  
Prep Batch: 37042

Date Analyzed: 2007-11-09  
QC Preparation: 2007-11-08

Analyzed By: DC  
Prepared By: DC

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	9.34	mg/Kg	1	10.0	<0.739	93	56 - 105.2

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

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	9.76	mg/Kg	1	10.0	<0.739	98	56 - 105.2	4	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.866	0.974	mg/Kg	1	1.00	87	97	61.1 - 148.1
4-Bromofluorobenzene (4-BFB)	0.722	0.685	mg/Kg	1	1.00	72	68	67.2 - 119.2

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

QC Batch: 42947  
Prep Batch: 37060

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.2	mg/Kg	1	100	<0.500	98	85 - 115

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

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.2	mg/Kg	1	100	<0.500	99	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 42948  
Prep Batch: 37062

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.1	mg/Kg	1	100	<0.500	97	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	98.1	mg/Kg	1	100	<0.500	98	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 42949  
Prep Batch: 37063

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	100	mg/Kg	1	100	<0.500	100	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<0.500	101	85 - 115	1	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 42980  
Prep Batch: 37085

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.5	mg/Kg	1	100	<0.500	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	98.5	mg/Kg	1	100	<0.500	98	85 - 115	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: 140623

QC Batch: 42653  
Prep Batch: 36804

Date Analyzed: 2007-11-02  
QC Preparation: 2007-11-02

Analyzed By: LD  
Prepared By: LD

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	371	mg/Kg	1	250	276	38	30.2 - 201.4

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	291	mg/Kg	1	250	276	6	30.2 - 201.4	24	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
n-Triacontane	164	164	mg/Kg	1	150	109	109	10 - 194

Matrix Spike (MS-1) Spiked Sample: 141994

QC Batch: 42934  
Prep Batch: 37042

Date Analyzed: 2007-11-09  
QC Preparation: 2007-11-08

Analyzed By: DC  
Prepared By: DC

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.07	mg/Kg	1	1.00	<0.00110	107	65.7 - 119.1
Toluene	1.21	mg/Kg	1	1.00	<0.00150	121	47.7 - 153.8
Ethylbenzene	1.26	mg/Kg	1	1.00	<0.00160	126	73.5 - 126.3
Xylene	3.76	mg/Kg	1	3.00	<0.00410	125	73.6 - 125.9

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.26	mg/Kg	1	1.00	<0.00110	126	65.7 - 119.1	16	20
Toluene	1.51	mg/Kg	1	1.00	<0.00150	151	47.7 - 153.8	22	20
Ethylbenzene	1.55	mg/Kg	1	1.00	<0.00160	155	73.5 - 126.3	21	20
Xylene	4.78	mg/Kg	1	3.00	<0.00410	159	73.6 - 125.9	24	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)	0.734	0.826	mg/Kg	1	1	73	83	51 - 109.6
4-Bromofluorobenzene (4-BFB)	1.16	1.07	mg/Kg	1	1	116	107	60.3 - 124.3

Matrix Spike (MS-1) Spiked Sample: 141491

QC Batch: 42937  
Prep Batch: 37042

Date Analyzed: 2007-11-09  
QC Preparation: 2007-11-08

Analyzed By: DC  
Prepared By: DC

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

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

<sup>3</sup>RPD out due to extractio process. Use LCS/LCSD to show method is in control. •

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

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



Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	33.2	mg/Kg	1	10.0	23.7787	94	10 - 102.2

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	<sup>6</sup> 25.5	mg/Kg	1	10.0	23.7787	17	10 - 102.2	26	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)	0.535	0.541	mg/Kg	1	1	54	54	47.2 - 84.2
4-Bromofluorobenzene (4-BFB)	1.34	1.21	mg/Kg	1	1	134	121	58 - 162.6

**Matrix Spike (MS-1)** Spiked Sample: 141338

QC Batch: 42947  
Prep Batch: 37060

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10900	mg/Kg	50	5000	6310.73	92	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10900	mg/Kg	50	5000	6310.73	92	85 - 115	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: 141348

QC Batch: 42948  
Prep Batch: 37062

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	5830	mg/Kg	50	5000	930.683	98	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	5870	mg/Kg	50	5000	930.683	99	85 - 115	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: 141358

QC Batch: 42949  
Prep Batch: 37063

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

<sup>6</sup>RPD out of control limits due to extraction process. Use LCS/LCSD to show method is in control. •

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	5320	mg/Kg	50	5000	344.828	100	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	5370	mg/Kg	50	5000	344.828	100	85 - 115	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: 141467

QC Batch: 42980  
Prep Batch: 37085

Date Analyzed: 2007-11-12  
QC Preparation: 2007-11-12

Analyzed By: AR  
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9260	mg/Kg	50	5000	5198.11	81	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	9310	mg/Kg	50	5000	5198.11	82	85 - 115	0	20

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

**Standard (CCV-1)**

QC Batch: 42653

Date Analyzed: 2007-11-02

Analyzed By: LD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	221	88	85 - 115	2007-11-02

**Standard (CCV-2)**

QC Batch: 42653

Date Analyzed: 2007-11-02

Analyzed By: LD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	233	93	85 - 115	2007-11-02

**Standard (ICV-1)**

QC Batch: 42934

Date Analyzed: 2007-11-09

Analyzed By: DC

<sup>7</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

<sup>8</sup>Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0950	95	85 - 115	2007-11-09
Toluene		mg/Kg	0.100	0.0952	95	85 - 115	2007-11-09
Ethylbenzene		mg/Kg	0.100	0.0891	89	85 - 115	2007-11-09
Xylene		mg/Kg	0.300	0.267	89	85 - 115	2007-11-09

Standard (CCV-1)

QC Batch: 42934

Date Analyzed: 2007-11-09

Analyzed By: DC

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0986	99	85 - 115	2007-11-09
Toluene		mg/Kg	0.100	0.100	100	85 - 115	2007-11-09
Ethylbenzene		mg/Kg	0.100	0.0950	95	85 - 115	2007-11-09
Xylene		mg/Kg	0.300	0.286	95	85 - 115	2007-11-09

Standard (ICV-1)

QC Batch: 42937

Date Analyzed: 2007-11-09

Analyzed By: DC

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.938	94	85 - 115	2007-11-09

Standard (CCV-1)

QC Batch: 42937

Date Analyzed: 2007-11-09

Analyzed By: DC

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.09	109	85 - 115	2007-11-09

Standard (ICV-1)

QC Batch: 42947

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.8	100	85 - 115	2007-11-12

Standard (CCV-1)

QC Batch: 42947

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2007-11-12

Standard (ICV-1)

QC Batch: 42948

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2007-11-12

Standard (CCV-1)

QC Batch: 42948

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.1	99	85 - 115	2007-11-12

Standard (ICV-1)

QC Batch: 42949

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.9	98	85 - 115	2007-11-12

Standard (CCV-1)

QC Batch: 42949

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2007-11-12

Standard (ICV-1)

QC Batch: 42980

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2007-11-12

Report Date: November 13, 2007  
3136

Work Order: 7103136  
Drickey Queen Unit 3

Page Number: 20 of 20

Standard (CCV-1)

QC Batch: 42980

Date Analyzed: 2007-11-12

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.4	99	85 - 115	2007-11-12

3.5-5 C intact	S-Sail	0-Other	* Only run this if sample above is 500ppm TAN or $\text{BTE} > 50 \text{ ppm}$ or $\text{BZ} > 10 \text{ ppm}$
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Work Order: 7103136

# Analysis Request and Chain of Custody Record

## HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.  
Midland, Texas 79705

Fax (432) 682-3946

(432) 682-4559

CLIENT NAME:		SITE MANAGER:		PROJECT NAME:		PRESERVATIVE METHOD			
Celero		IK4 Tavyay / Jeff Kindley		Drickey Queen Unit #3					
PROJECT NO.:		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS		FILTERED (Y/N)			
3136									
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	HCL	HNO3	ICE	NONE
31341	10/29/07		S	✓	SB-2 (8-10')			✓	
342	10/29/07		S	✓	SB-2 (18-20')			✓	
343	10/29/07		S	✓	SB-2 (28-30')			✓	
344	10/29/07		S	✓	SB-2 (38-40')			✓	
345	10/29/07		S	✓	SB-2 (48-50')			✓	
346	10/29/07		S	✓	SB-3 (8-10')			✓	
347	10/29/07		S	✓	SB-3 (18-20')			✓	
348	10/29/07		S	✓	SB-3 (28-30')			✓	
349	10/29/07		S	✓	SB-3 (38-40')			✓	
350	10/29/07		S	✓	SB-3 (48-50')			✓	

RELINQUISHED BY: (Signature)	Date: 10-31-07	Time: 3:00	RECEIVED BY: (Signature)	Date: 10-31-07	Time: 3:00
RELINQUISHED BY: (Signature)	Date: _____	Time: _____	RELINQUISHED BY: (Signature)	Date: _____	Time: _____
RELINQUISHED BY: (Signature)	Date: _____	Time: _____	RELINQUISHED BY: (Signature)	Date: _____	Time: _____
RELINQUISHED BY: (Signature)	Date: _____	Time: _____	RELINQUISHED BY: (Signature)	Date: _____	Time: _____

RECEIVING LABORATORY:	STATE: TX	ZIP: _____	PHONE: _____	DATE: _____	TIME: _____
ADDRESS: _____					
CITY: Midland					
CONTACT: _____					

SAMPLE CONDITION WHEN RECEIVED:	MATRIX: W-Water, A-Air, SL-Sludge, S-Solid	REMARKS:
3.5 c intact	SB-2 (8-10')	All tests - Midland

ANALYSIS REQUEST	Circle or Specify Method No.
GC/MS Vol. 8240/8280/824	✓
GC/MS Sampl. Vol. 8270/825	✓
PCB's 8080/808	✓
Post. 808/808	✓
BOD, TSS, pH, TDS, Chloride	✓
Cerama Spec.	✓
Alpha Beta (Air)	✓
PLM (Asbestos)	✓

RELINQUISHED BY: (Print & Sign):	Date: October 29, 2007
Jeff Kindley / Jeff Kindley <td></td>	
SAMPLE SHIPPED BY: (Circle) <td>✓</td>	✓
FODEX <td></td>	
HAND DELIVERED <td></td>	
HIGHLANDER CONTACT PERSON: <td></td>	
IK4 Tavyay / Jeff Kindley <td></td>	
Results by: <td></td>	
RUSH Charges <td></td>	
Authorized: <td></td>	
Yes <td></td>	
No <td></td>	

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Environmental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

AK





## **APPENDIX C**

### **PERMEABILITY/SIEVE ANALYSIS**

**Hines, Joleen**

**From:** Hines, Joleen  
**Sent:** Monday, September 28, 2005 3:48 PM  
**To:** 'John P Pellicer'  
**Subject:** Cover Bucket Density & Clay K-Sat

John,

I have attached the results for the density of the cover material 'as-is' in the 5-gal bucket, and the saturated hydraulic conductivity for the clay (remolded at 90%). Please let me know how to proceed.

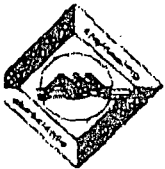
Thank you,

Joleen

Joleen Hines  
Daniel B. Stephens & Associates Laboratory  
5840 Osuna Rd., NE  
Albuquerque, NM 87109

505.889.7752  
505.889.0258(fax)  
jhines@dbstephens.com  
www.dbstephens.com

9/26/2005



Daniel B. Stephens & Associates, Inc.

**Data for Initial Moisture Content,  
Bulk Density, Porosity, and Percent Saturation**

Job Name: Gandy Marley  
Job Number: LB05.0208.00  
Sample Number: Cover (Bucket)  
Ring Number: N/A  
Depth: N/A

Test Date: 23-Sep-05

Field weight\* of sample (g): 21538.00  
Tare weight, ring (g): 0.00  
Tare weight, cap/plate/epoxy (g): 0.00

Dry weight of sample (g): 20511.00  
Sample volume (cm<sup>3</sup>): 14884.63  
Assumed particle density: 2.85

---

Initial Volumetric Moisture Content (% vol): 6.9  
Initial Gravimetric Moisture Content (% g/g): 5.0  
Dry bulk density (g/cm<sup>3</sup>): 1.38  
Wet bulk density (g/cm<sup>3</sup>): 1.45  
Calculated Porosity (% vol): 48.0  
Percent Saturation: 14.3

---

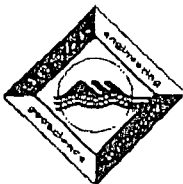
**Comments:**

\* Weight including tares  
NA = Not analyzed

Laboratory analysis by: D. O'Dowd  
Data entered by: D. O'Dowd  
Checked by: J. Hines

*Daniel B. Stephens & Associates, Inc.***Summary of Saturated Hydraulic Conductivity Tests**

Sample Number	$K_{sat}$ (cm/sec)	Method of Analysis	
		Constant Head Flexible Wall	Falling Head Flexible Wall
Clay	1.5E-08		X

*Daniel B. Stephens & Associates, Inc.***SAMPLE RECEIPT FORM**CLIENT: Gandy Marley, Inc.  
PROJECT #: \_\_\_\_\_DATE RECEIVED: 9/16/05DBS&A  
PROJECT #: \_\_\_\_\_

- |   |           |
|---|-----------|
| 1) Are the custody seals on the cooler intact?                          | NA        |
| 2) Are the custody seals on the sample containers intact?               | Yes       |
| 3) Are there Chain of Custody(COC), or other directive shipping papers? | Yes       |
| 4) Is the COC complete?   | See Notes |
| 5) Is the COC in agreement with the samples received?                   | See Notes |
| 6) Did all the samples arrive intact?                                   | Yes       |
| 7) Comments   |           |

Three samples arrived, each in full 5-gallon buckets, in good condition. The clay sample is being prepared today and testing will begin soon. Will await further instruction on the Cover and Caliche samples. Also awaiting in-situ clay core sample.

If you have any questions or concerns please contact Joleen Hines at (505) 889-7752.

NOTE: Samples will be held for a period of 30 days after the completion of testing. After 30 days samples will be disposed of locally unless DBS&A receives other instructions.

Signature: \_\_\_\_\_

5840 OSUNA RD NE, ALBUQUERQUE, NM 87109

(505) 889-7752 FAX (505) 889-0250

**Disclaimer:**

Interpretations of test results, interim reports of laboratory work, and research and development of special equipment or test procedures will be charged at our regular schedule of professional services fees, which is available upon request. The testing utilized to generate laboratory reports follows methods that are standard for the industry. The results do not constitute a professional or expert opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. All testing undertaken by DBS&A, and any and all reports provided from said testing, constitute mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion. Because of the nature of the results of our testing, and the limited scope of the Lab's undertaking, you hereby waive any claim of conflict of interest by DBS&A in the event professional or expert opinion is requested of qualified professionals or experts within DBS&A, for or against any party. Other than the express warranty that the testing utilized under this Contract uses standard methods, DBS&A disclaims any and all other warranties of any kind whatsoever.

## **APPENDIX D BORING LOGS**

## SAMPLE LOG

**Boring/Well:** TMW-1  
**Project Number:** 3136  
**Client:** Celero Energy  
**Site Location:** Drickey Queen Unit SWD Plant #3  
**Location:** Chavez County, New Mexico  
**Total Depth** 100  
**Date Installed:** 10/30/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-10	2.1	Tan/yellow fine grain sand
15-20	2.2	Tan fine grain sand
25-30	2.3	Yellowish/red fine grain sand
35-40	2.6	Red fine grain sand
45-50	2.8	Red/brown fine grain sand
55-60	2.1	Tan/red fine grain sand
65-70	2.4	Red sandy clay
75-80	2.6	Red clay of high plasticity (red clay)
85-90	2.7	Red clay of high plasticity (red clay)
95-100	2.2	Red clay of high plasticity (red clay)

Total Depth is 100 feet      No Groundwater encountered during drilling

## SAMPLE LOG

Boring/Well: SB-1  
Project Number: 3136  
Client: Celero Energy  
Site Location: Drickey Queen Unit SWD Plant #3  
Location: Chavez County, New Mexico  
Total Depth: 80  
Date Installed: 10/29/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	18.2	Tan fine grain well sorted sand
5-10	10.4	Tan fine grain well sorted sand
10-15	3.2	Tan fine grain well sorted sand
15-20	2.2	Tan fine grain well sorted sand
25-30	2.3	Brown/red well sorted sand
35-40	2.2	Brown/red well sorted sand
45-50	2.1	Brown/red well sorted sand
55-60	1.9	Brown clayey sand
65-70	2.0	Red clay (Red bed)
75-80	2.1	Red clay (Red bed)

Total Depth is 70 feet      No Groundwater encountered during drilling



## SAMPLE LOG

Boring/Well: SB-2  
Project Number: 3136  
Client: Celero Energy  
Site Location: Drickey Queen Unit SWD Plant #3  
Location: Chavez County, New Mexico  
Total Depth: 50  
Date Installed: 10/29/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-10	2.3	Brown fine grain sand
15-20	2.2	Tan fine grain sand
25-30	2.1	Tan fine grain sand
35-40	2.2	Brown/red well sorted sand
45-50	2.1	Brown/red well sorted sand

Total Depth is 50 feet

No Groundwater encountered during drilling

## SAMPLE LOG

Boring/Well: SB-3  
Project Number: 3136  
Client: Celero Energy  
Site Location: Drickey Queen Unit SWD Plant #3  
Location: Chavez County, New Mexico  
Total Depth: 50  
Date Installed: 10/29/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-10	2.2	Brown well sorted sand with hydrocarbon odor
15-20	2.2	Tan fine grain well sorted sand
25-30	2.3	Tan fine grain well sorted sand
35-40	2.4	Brown well sorted fine grain sand
45-50	2.1	Brown well sorted fine grain sand

Total Depth is 50 feet      No Groundwater encountered during drilling

## SAMPLE LOG

Boring/Well: SB-4  
Project Number: 3136  
Client: Celero Energy  
Site Location: Drickey Queen Unit SWD Plant #3  
Location: Chavez County, New Mexico  
Total Depth: 50  
Date Installed: 10/29/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-10	2.4	Brown fine grain sand
15-20	2.3	Tan fine grain well sorted sand
25-30	2.1	Tan fine grain well sorted sand
35-40	2.2	Red fine grain well sorted sand
45-50	1.9	Tan/red fine grain well sorted sand

Total Depth is 50 feet

No Groundwater encountered during drilling

## SAMPLE LOG

Boring/Well: SB-5  
Project Number: 3136  
Client: Celero Energy  
Site Location: Drickey Queen Unit SWD Plant #3  
Location: Chavez County, New Mexico  
Total Depth: 50  
Date Installed: 10/30/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5-10	2.3	Tan/brown fine grain well sorted sand
15-20	2.1	Tan fine grain well sorted sand
25-30	2.2	Tan fine grain well sorted sand
35-40	2.3	Reddish tan/brown well sorted fine grain sand
45-50	2.1	Reddish tan/brown well sorted fine grain sand

Total Depth is 50 feet      No Groundwater encountered during drilling

**APPENDIX E**  
**INITIAL/FINAL C-141 & C-144**

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised June 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**(AMENDED)**

**OPERATOR**

☒ Initial Report ☐ Final Report

Name of Company: Celero Energy II, LP	Contact: Bruce Woodard	
Address: 400 W. Illinois, Suite 1601, Midland, TX 79701	Telephone No. 432-686-1883	
Facility Name: Drickey Queen Unit Salt Water Plant #3	Facility Type: Pit at Facility	
Surface Owner State	Mineral Owner	Lease No.

**LOCATION OF RELEASE**

Unit Letter H	Section\ 16	Township 14S	Range 31E	Feet from the	North/South Line	Feet from the	East/West Line	County Chaves
------------------	-------------	-----------------	--------------	---------------	------------------	---------------	----------------	------------------

Latitude 33.13221° Longitude 103.80971°

**NATURE OF RELEASE**

Type of Release Produced Water	Volume of Release Unknown	Volume Recovered None
Source of Release	Date and Hour of Occurrence Unknown	Date and Hour of Discovery N/A
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Larry Johnson, NMOCD	
By Whom? Bruce Woodard	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.* This is an historic pit location. Celero acquired from Palisades and is in the process of closing.		
Describe Area Affected and Cleanup Action Taken.* Pit has been dewatered and visually impacted soil removed as per Investigation and Characterization Plan. Soil borings have been placed in and around pit.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 	<b><u>OIL CONSERVATION DIVISION</u></b>	
Printed Name: Bruce Woodard	Approved by District Supervisor:	
Title: Engineer	Approval Date:	Expiration Date:
E-mail Address: bwoodard@celeroenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: Phone: (432) 686-1883		

\* Attach Additional Sheets If Necessary

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised June 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**OPERATOR**

☐ Initial Report ☒ Final Report

Name of Company: Celero Energy II, LP	Contact: Bruce Woodard	
Address: 400 W. Illinois, Suite 1601, Midland, TX 79701	Telephone No. 432-686-1883	
Facility Name: Drickey Queen Unit Salt Water Plant #3	Facility Type: Pit at Facility	
Surface Owner State	Mineral Owner	Lease No.

**LOCATION OF RELEASE**

Unit Letter H	Section\ 16	Township 14S	Range 31E	Feet from the	North/South Line	Feet from the	East/West Line	County Chaves
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Latitude 33.13221° Longitude 103.80971°

**NATURE OF RELEASE**

Type of Release Produced Water	Volume of Release Unknown	Volume Recovered None
Source of Release	Date and Hour of Occurrence Unknown	Date and Hour of Discovery N/A
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Larry Johnson, NMOCD	
By Whom? Bruce Woodard	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

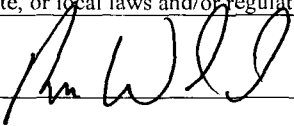
This is an historic pit location. Celero acquired from Palisades and is in the process of closing.

Describe Area Affected and Cleanup Action Taken.\*

Pit has been dewatered and visually impacted soil removed as per Investigation and Characterization Plan. Soil borings have been placed in and around pit. A clay liner was installed at 4 feet bgs with dimensions of 95 feet by 115 feet to preclude further vertical migration of chlorides.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

**OIL CONSERVATION DIVISION**

Signature: 	Approved by District Supervisor:	
Printed Name: Bruce Woodard	Approval Date:	Expiration Date:
Title: Engineer	Conditions of Approval:	
E-mail Address: bwoodard@celeroenergy.com	Attached <input type="checkbox"/>	
Date: Phone: (432) 686-1883		

Attach Additional Sheets If Necessary

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State of New Mexico  
Energy Minerals and Natural Resources

Form C-144  
June 1, 2004

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

For drilling and production facilities, submit to appropriate NMOCD District Office.  
For downstream facilities, submit to Santa Fe office

**Pit or Below-Grade Tank Registration or Closure**

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☒

Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator Celero Energy II, LP Telephone: (432) 686-1883 e-mail address: hwoodard@celeroenergy.com  
Address: 400 West Illinois, Suite 1601, Midland, Texas 79701  
Facility or well name: Drickey Queen Unit Saltwater Plant # 3 API #: \_\_\_\_\_ U/L or Qtr/Qtr H Sec 16 T-14-S R-31-E  
County: Chaves Latitude 33.13221 N Longitude 103.80971 W NAD: 1927 ☒ 1983 ☐  
Surface Owner: Federal ☐ State ☒ Private ☐ Indian ☐

Pit	Below-grade tank	
Type: Drilling <input type="checkbox"/> Production <input type="checkbox"/> Disposal <input type="checkbox"/> Workover <input type="checkbox"/> Emergency <input checked="" type="checkbox"/>	Volume: _____ bbl Type of fluid: _____	
Lined <input type="checkbox"/> Unlined <input checked="" type="checkbox"/>	Construction material: _____	
Liner type: None Thickness <u>Unknown</u> mil Clay <input type="checkbox"/>	Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not: _____	
Pit Volume 5,000 bbl		
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet	(20 points)
	50 feet or more, but less than 100 feet	(10 points)
	100 feet or more	( 0 points) 0
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes	(20 points)
	No	( 0 points) 0
Distance to surface water: (Horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet	(20 points)
	200 feet or more, but less than 1000 feet	(10 points) 10
	1000 feet or more	( 0 points)
<b>Ranking Score (Total Points)</b>		<b>10</b>

If this is a pit closure: (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☐ offsite ☐ If offsite, name of facility \_\_\_\_\_. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface \_\_\_\_\_ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments: This registration is for information purposes only. This pit was constructed in the 1960's and were inventoried, but never registered in 1997.  
This pit is out of service and a work plan for closure is being prepared.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐, or an (attached) alternative OCD-approved plan ☐. See above ☒

Date: 6-15-2007

Printed Name/Title Bruce Woodard, Engineer

Signature 

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:

Printed Name/Title \_\_\_\_\_

Signature \_\_\_\_\_

Date: \_\_\_\_\_



Date: