

**1RP-1663**

**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 Rock Queen Unit Gulf State #1 P&A Well, Unit Letter H, Section 23, Township 13 South, Range 31 East, Chaves County, New Mexico, Operated by Celero Energy II, LP (NMOCD 1RP#1663)**

Dear Mr. von Gonten:

Tetra Tech was contacted by Celero Energy (Celero) to assist in the closure of a pit at the Rock Queen Unit Gulf State #1 P&A Well, located in Unit Letter H, Section 23, Township 13 South, Range 31 East, Chaves County, New Mexico (Site). The pit coordinates are N 33.17690° W 103.78598°. Both the State of New Mexico C-141 and C-144 (Initial and Final) are shown in Appendix C. 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 Gulf State #1 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 480 cubic yards of soil were excavated and transported to Gandy-

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Marley, Inc for disposal. The pit was excavated to a point where the subsoil would support a soil boring rig.

### **Groundwater and Regulatory**

Neither the New Mexico State Engineer's Office database nor the USGS database show any wells in Section 23, Township 13 South, Range 31 East. Monitor wells installed near this site had depths of groundwater of greater than 100 feet.

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 24, 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 62 feet by 68 feet. One soil boring (SB-1) was installed in the center of the pit. The remaining boreholes (SB-2 through SB-7) 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 A.

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 26, 2007, Gandy-Marley Corporation of Lovington, New Mexico was onsite to install a 1 foot thick clay liner for the pit. The pit area was further extended out approximately 50 feet north, 35 feet west, and 25 feet east 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 were placed back into the center of the original excavation in order to bring the original 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 upto grade. A copy of the sieve analysis/permeability data for the clay is included in Appendix B.

### **Proposed Monitor Well**

One monitor well will be installed at the site to evaluate groundwater quality in the vicinity of the closed pit area. During the installation of the monitor well, the entire screened interval will be placed entirely below the water table. If the sampling data indicates the necessity for additional monitoring wells, they will be installed accordingly, in order to complete delineation.

### **Conclusions**

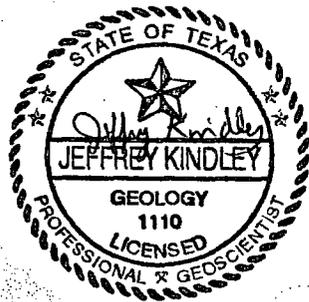
Between October and December 2007, the pit area was excavated to dimensions of 115 feet by 135 feet. Approximately 480 cubic yards of soil were excavated and transported offsite for disposal at Gandy-Marley of Lovington, New Mexico. A clay liner was placed at 4 feet bgs in the excavation in order to



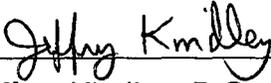
**TETRA TECH**

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, NM

**FIGURES**

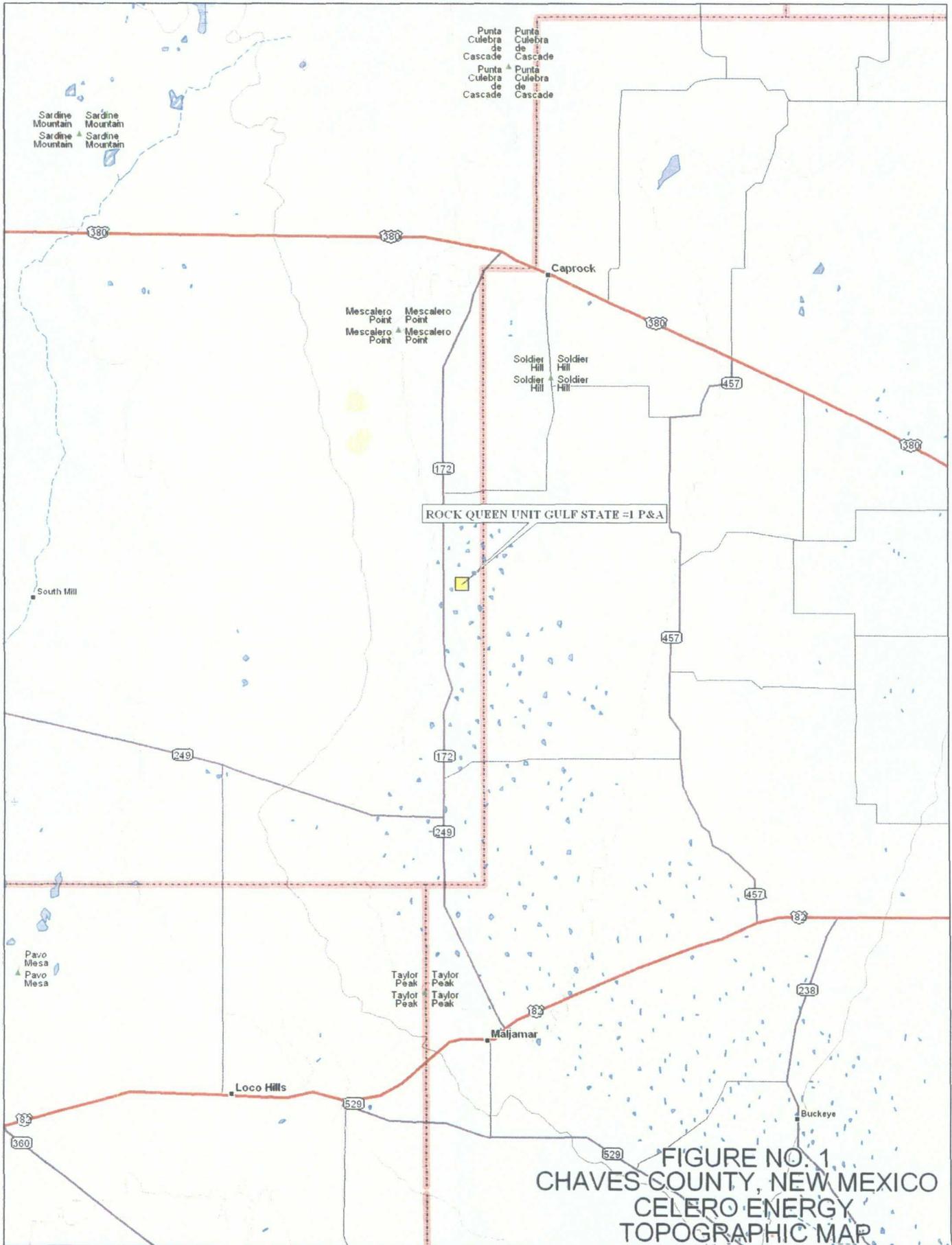
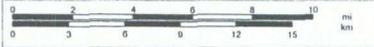


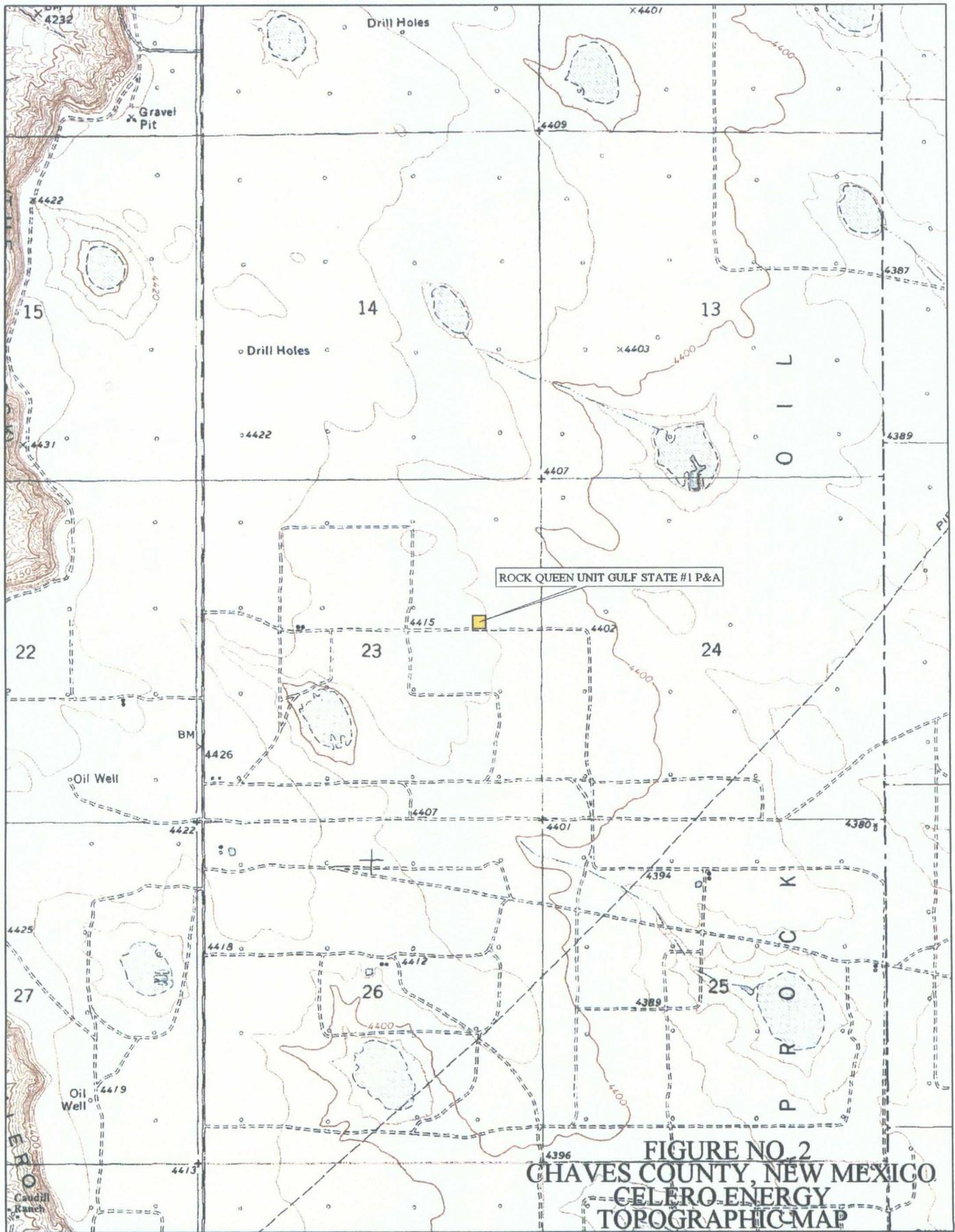
FIGURE NO. 1  
 CHAVES COUNTY, NEW MEXICO  
 CELERO ENERGY  
 TOPOGRAPHIC MAP



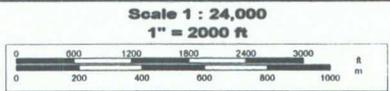
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Scale 1 : 400,000  
 1" = 6.31 mi





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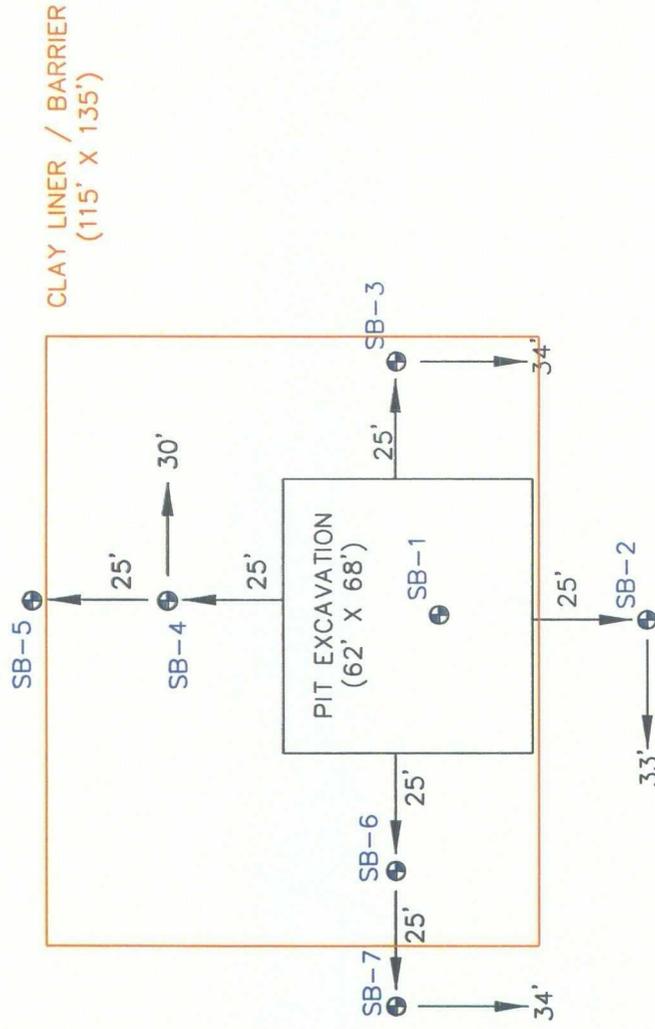


FIGURE NO. 3

CHAVES COUNTY, NEW MEXICO

CELERO ENERGY  
GULF STATE TRACT #1  
SOIL BORING / CLAY LINER LOCATIONS

TETRA TECH  
MIDLAND, TEXAS

DATE: 11/2/07  
OWN. BY: RC  
FILE: C:\C\060\137  
GULF STATE #1

NOT TO SCALE

**TABLE**

Table 1  
 Celero Energy  
 Gulf State Tract #1  
 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	10/24/2007	(3-5')	<50.0	<1.00	<0.0100	<0.0100	<0.0100	<0.0100	292
	10/24/2007	(8-10')	-	-	-	-	-	-	1510
	10/24/2007	(13-15')	-	-	-	-	-	-	7780
	10/24/2007	(18-20')	-	-	-	-	-	-	6450
	10/24/2007	(28-30')	-	-	-	-	-	-	5560
	10/24/2007	(38-40')	-	-	-	-	-	-	9860
	10/24/2007	(48-50')	-	-	-	-	-	-	10000
	10/24/2007	(58-60')	-	-	-	-	-	-	8160
	10/24/2007	(68-70')	-	-	-	-	-	-	6920
	10/24/2007	(78-80')	-	-	-	-	-	-	6220
SB-2	10/24/2007	(88-90')	-	-	-	-	-	-	5510
	10/24/2007	(98-100')	-	-	-	-	-	-	3500
	10/24/2007	(8-10')	-	-	-	-	-	-	974
	10/24/2007	(18-20')	-	-	-	-	-	-	<100
	10/24/2007	(28-30')	-	-	-	-	-	-	954
	10/24/2007	(38-40')	-	-	-	-	-	-	148
	10/24/2007	(48-50')	-	-	-	-	-	-	<100
	10/24/2007	(8-10')	-	-	-	-	-	-	1580
	10/24/2007	(18-20')	-	-	-	-	-	-	1350
	10/24/2007	(28-30')	-	-	-	-	-	-	342
SB-3	10/24/2007	(38-40')	-	-	-	-	-	-	107
	10/24/2007	(48-50')	-	-	-	-	-	-	<100
	10/24/2007	(8-10')	-	-	-	-	-	-	597
	10/24/2007	(18-20')	-	-	-	-	-	-	4900
	10/24/2007	(28-30')	-	-	-	-	-	-	7330
	10/24/2007	(38-40')	-	-	-	-	-	-	6710
	10/24/2007	(48-50')	-	-	-	-	-	-	6850
	10/24/2007	(8-10')	-	-	-	-	-	-	414
	10/24/2007	(18-20')	-	-	-	-	-	-	1290
	10/24/2007	(28-30')	-	-	-	-	-	-	217
SB-4	10/24/2007	(38-40')	-	-	-	-	-	-	<100
	10/24/2007	(48-50')	-	-	-	-	-	-	<100
	10/24/2007	(8-10')	-	-	-	-	-	-	1930
	10/24/2007	(18-20')	-	-	-	-	-	-	5160
	10/24/2007	(28-30')	-	-	-	-	-	-	
	10/24/2007	(38-40')	-	-	-	-	-	-	
	10/24/2007	(48-50')	-	-	-	-	-	-	
	10/24/2007	(8-10')	-	-	-	-	-	-	
	10/24/2007	(18-20')	-	-	-	-	-	-	
	10/24/2007	(28-30')	-	-	-	-	-	-	
SB-5	10/24/2007	(38-40')	-	-	-	-	-	-	
	10/24/2007	(48-50')	-	-	-	-	-	-	
	10/24/2007	(8-10')	-	-	-	-	-	-	
	10/24/2007	(18-20')	-	-	-	-	-	-	
	10/24/2007	(28-30')	-	-	-	-	-	-	
	10/24/2007	(38-40')	-	-	-	-	-	-	
	10/24/2007	(48-50')	-	-	-	-	-	-	
	10/24/2007	(8-10')	-	-	-	-	-	-	
	10/24/2007	(18-20')	-	-	-	-	-	-	
	10/24/2007	(28-30')	-	-	-	-	-	-	
SB-6	10/24/2007	(38-40')	-	-	-	-	-	-	
	10/24/2007	(48-50')	-	-	-	-	-	-	
	10/24/2007	(8-10')	-	-	-	-	-	-	
	10/24/2007	(18-20')	-	-	-	-	-	-	
	10/24/2007	(28-30')	-	-	-	-	-	-	
	10/24/2007	(38-40')	-	-	-	-	-	-	
	10/24/2007	(48-50')	-	-	-	-	-	-	
	10/24/2007	(8-10')	-	-	-	-	-	-	
	10/24/2007	(18-20')	-	-	-	-	-	-	
	10/24/2007	(28-30')	-	-	-	-	-	-	

Table 1  
 Celero Energy  
 Gulf State Tract #1  
 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-6	10/24/2007	(28-30')	-	-	-	-	-	-	3520
	10/24/2007	(38-40')	-	-	-	-	-	-	1950
	10/24/2007	(48-50')	-	-	-	-	-	-	788
SB-7	10/24/2007	(8-10')	-	-	-	-	-	-	110
	10/24/2007	(18-20')	-	-	-	-	-	-	<100
	10/24/2007	(28-30')	-	-	-	-	-	-	134
	10/24/2007	(38-40')	-	-	-	-	-	-	102
	10/24/2007	(48-50')	-	-	-	-	-	-	<100

(-) Not Analyzed

**APPENDIX A  
LABORATORY ANALYTICAL**

## Summary Report

Tim Reed  
Highlander Environmental Services  
1910 N. Big Spring Street  
Midland, TX, 79705

Report Date: November 9, 2007

Work Order: 7102944



Project Name: Gulf State #1  
Project Number: 3137

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
141051	SB-1 (3-5')	soil	2007-10-24	00:00	2007-10-29
141052	SB-1 (8-10')	soil	2007-10-24	00:00	2007-10-29
141053	SB-1 (13-15')	soil	2007-10-24	00:00	2007-10-29
141054	SB-1 (18-20')	soil	2007-10-24	00:00	2007-10-29
141055	SB-1 (28-30')	soil	2007-10-24	00:00	2007-10-29
141056	SB-1 (38-40')	soil	2007-10-24	00:00	2007-10-29
141057	SB-1 (48-50')	soil	2007-10-24	00:00	2007-10-29
141058	SB-1 (58-60')	soil	2007-10-24	00:00	2007-10-29
141059	SB-1 (68-70')	soil	2007-10-24	00:00	2007-10-29
141060	SB-1 (78-80')	soil	2007-10-24	00:00	2007-10-29
141061	SB-1 (88-90')	soil	2007-10-24	00:00	2007-10-29
141062	SB-1 (98-100')	soil	2007-10-24	00:00	2007-10-29
141063	SB-2 (8-10')	soil	2007-10-24	00:00	2007-10-29
141064	SB-2 (18-20')	soil	2007-10-24	00:00	2007-10-29
141065	SB-2 (28-30')	soil	2007-10-24	00:00	2007-10-29
141066	SB-2 (38-40')	soil	2007-10-24	00:00	2007-10-29
141067	SB-2 (48-50')	soil	2007-10-24	00:00	2007-10-29
141068	SB-3 (8-10')	soil	2007-10-24	00:00	2007-10-29
141069	SB-3 (18-20')	soil	2007-10-24	00:00	2007-10-29
141070	SB-3 (28-30')	soil	2007-10-24	00:00	2007-10-29
141071	SB-3 (38-40')	soil	2007-10-24	00:00	2007-10-29
141072	SB-3 (48-50')	soil	2007-10-24	00:00	2007-10-29
141073	SB-4 (8-10')	soil	2007-10-24	00:00	2007-10-29
141074	SB-4 (18-20')	soil	2007-10-24	00:00	2007-10-29
141075	SB-4 (28-30')	soil	2007-10-24	00:00	2007-10-29
141076	SB-4 (38-40')	soil	2007-10-24	00:00	2007-10-29
141077	SB-4 (48-50')	soil	2007-10-24	00:00	2007-10-29
141078	SB-5 (8-10')	soil	2007-10-24	00:00	2007-10-29
141079	SB-5 (18-20')	soil	2007-10-24	00:00	2007-10-29
141080	SB-5 (28-30')	soil	2007-10-24	00:00	2007-10-29
141081	SB-5 (38-40')	soil	2007-10-24	00:00	2007-10-29
141082	SB-5 (48-50')	soil	2007-10-24	00:00	2007-10-29
141083	SB-6 (8-10')	soil	2007-10-24	00:00	2007-10-29
141084	SB-6 (18-20')	soil	2007-10-24	00:00	2007-10-29
141085	SB-6 (28-30')	soil	2007-10-24	00:00	2007-10-29
141086	SB-6 (38-40')	soil	2007-10-24	00:00	2007-10-29
141087	SB-6 (48-50')	soil	2007-10-24	00:00	2007-10-29

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
141088	SB-7 (8-10')	soil	2007-10-24	00:00	2007-10-29
141089	SB-7 (18-20')	soil	2007-10-24	00:00	2007-10-29
141090	SB-7 (28-30')	soil	2007-10-24	00:00	2007-10-29
141091	SB-7 (38-40')	soil	2007-10-24	00:00	2007-10-29
141092	SB-7 (48-50')	soil	2007-10-24	00:00	2007-10-29

Sample - Field Code	BTEX				TPH DRO	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
141051 - SB-1 (3-5')	<0.0100	<0.0100	<0.0100	<0.0100	<50.0	<1.00

Sample: 141051 - SB-1 (3-5')

Param	Flag	Result	Units	RL
Chloride		292	mg/Kg	2.00

Sample: 141052 - SB-1 (8-10')

Param	Flag	Result	Units	RL
Chloride		1510	mg/Kg	2.00

Sample: 141053 - SB-1 (13-15')

Param	Flag	Result	Units	RL
Chloride		7780	mg/Kg	2.00

Sample: 141054 - SB-1 (18-20')

Param	Flag	Result	Units	RL
Chloride		6450	mg/Kg	2.00

Sample: 141055 - SB-1 (28-30')

Param	Flag	Result	Units	RL
Chloride		5560	mg/Kg	2.00

Sample: 141056 - SB-1 (38-40')

Param	Flag	Result	Units	RL
Chloride		9860	mg/Kg	2.00

Sample: 141057 - SB-1 (48-50')

Param	Flag	Result	Units	RL
Chloride		10000	mg/Kg	2.00

Sample: 141058 - SB-1 (58-60')

Param	Flag	Result	Units	RL
Chloride		8160	mg/Kg	2.00

Sample: 141059 - SB-1 (68-70')

Param	Flag	Result	Units	RL
Chloride		6920	mg/Kg	2.00

Sample: 141060 - SB-1 (78-80')

Param	Flag	Result	Units	RL
Chloride		6220	mg/Kg	2.00

Sample: 141061 - SB-1 (88-90')

Param	Flag	Result	Units	RL
Chloride		5510	mg/Kg	2.00

Sample: 141062 - SB-1 (98-100')

Param	Flag	Result	Units	RL
Chloride		3500	mg/Kg	2.00

Sample: 141063 - SB-2 (8-10')

Param	Flag	Result	Units	RL
Chloride		974	mg/Kg	2.00

Sample: 141064 - SB-2 (18-20')

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

Sample: 141065 - SB-2 (28-30')

Param	Flag	Result	Units	RL
Chloride		954	mg/Kg	2.00

Sample: 141066 - SB-2 (38-40')

Param	Flag	Result	Units	RL
Chloride		148	mg/Kg	2.00

Sample: 141067 - SB-2 (48-50')

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

Sample: 141068 - SB-3 (8-10')

Param	Flag	Result	Units	RL
Chloride		1580	mg/Kg	2.00

Sample: 141069 - SB-3 (18-20')

Param	Flag	Result	Units	RL
Chloride		1350	mg/Kg	2.00

Sample: 141070 - SB-3 (28-30')

Param	Flag	Result	Units	RL
Chloride		342	mg/Kg	2.00

Sample: 141071 - SB-3 (38-40')

Param	Flag	Result	Units	RL
Chloride		107	mg/Kg	2.00

Sample: 141072 - SB-3 (48-50')

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

Sample: 141073 - SB-4 (8-10')

Param	Flag	Result	Units	RL
Chloride		597	mg/Kg	2.00

Sample: 141074 - SB-4 (18-20')

continued ...

sample 141074 continued ...

Param	Flag	Result	Units	RL
Chloride		4900	mg/Kg	2.00

Sample: 141075 - SB-4 (28-30')

Param	Flag	Result	Units	RL
Chloride		7330	mg/Kg	2.00

Sample: 141076 - SB-4 (38-40')

Param	Flag	Result	Units	RL
Chloride		6710	mg/Kg	2.00

Sample: 141077 - SB-4 (48-50')

Param	Flag	Result	Units	RL
Chloride		6850	mg/Kg	2.00

Sample: 141078 - SB-5 (8-10')

Param	Flag	Result	Units	RL
Chloride		414	mg/Kg	2.00

Sample: 141079 - SB-5 (18-20')

Param	Flag	Result	Units	RL
Chloride		1290	mg/Kg	2.00

Sample: 141080 - SB-5 (28-30')

Param	Flag	Result	Units	RL
Chloride		217	mg/Kg	2.00

Sample: 141081 - SB-5 (38-40')

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

Sample: 141082 - SB-5 (48-50')

---

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

---

Sample: 141083 - SB-6 (8-10')

---

Param	Flag	Result	Units	RL
Chloride		1930	mg/Kg	2.00

---

Sample: 141084 - SB-6 (18-20')

---

Param	Flag	Result	Units	RL
Chloride		5160	mg/Kg	2.00

---

Sample: 141085 - SB-6 (28-30')

---

Param	Flag	Result	Units	RL
Chloride		3520	mg/Kg	2.00

---

Sample: 141086 - SB-6 (38-40')

---

Param	Flag	Result	Units	RL
Chloride		1950	mg/Kg	2.00

---

Sample: 141087 - SB-6 (48-50')

---

Param	Flag	Result	Units	RL
Chloride		788	mg/Kg	2.00

---

Sample: 141088 - SB-7 (8-10')

---

Param	Flag	Result	Units	RL
Chloride		110	mg/Kg	2.00

---

Sample: 141089 - SB-7 (18-20')

---

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

---

Sample: 141090 - SB-7 (28-30')

---

Param	Flag	Result	Units	RL
Chloride		134	mg/Kg	2.00

---

Sample: 141091 - SB-7 (38-40')

Param	Flag	Result	Units	RL
Chloride		102	mg/Kg	2.00

Sample: 141092 - SB-7 (48-50')

Param	Flag	Result	Units	RL
Chloride		<100	mg/Kg	2.00

**APPENDIX B  
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 87108

505.889.7752  
505.889.6258(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): 21536.00  
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>): 14884.53  
Assumed particle density: 2.65

---

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

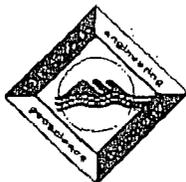
Laboratory analysis by: D. O'Dowd  
Data entered by: D. O'Dowd  
Checked by: J. Hines



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.

DATE RECEIVED: 9/16/05

PROJECT #: \_\_\_\_\_

DBS&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: Joleen Hines

5840 OSUNA RD NE, ALBUQUERQUE, NM 87109

(505) 889-7752 FAX (505) 889-0258

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 C**  
**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: Rock Queen Unit Gulf State #1 P & A Well	Facility Type: Pit at P & A Well

Surface Owner Private	Mineral Owner	Lease No.
-----------------------	---------------	-----------

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	23	13S	31E					Chaves

Latitude 33.17690° Longitude 103.78598°

#### 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.\*

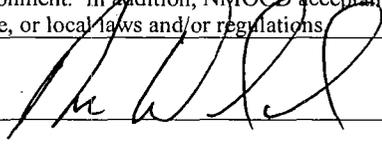
This is an historic pit location. Celero acquired from Palisades and is in the process of closing.

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.

#### 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

District I  
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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: Rock Queen Unit Gulf State #1 P & A Well	Facility Type: Pit at P & A Well
Surface Owner Private	Mineral Owner
Lease No.	

**LOCATION OF RELEASE**

Unit Letter	Section\	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	23	13S	31E					Chaves

Latitude 33.17690° Longitude 103.78598°

**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.

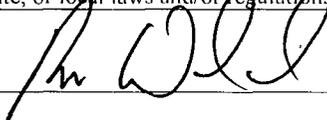
Describe Area Affected and Cleanup Action Taken.\*

Pit has been dewatered and visually impacted soil removed as per Investigation and Characterization Plan. Soil borings have been placed in and around pit. Pit was capped with 1 foot clay layer at 4 feet below ground surface. Site was backfilled with excavated and clean soils.

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:



Printed Name: Bruce Woodard

Approved by District Supervisor:

Title: Engineer

Approval Date:

Expiration Date:

E-mail Address: bwoodard@celeroenergy.com

Conditions of Approval:

Attached

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  
1400 Rio Brazos Road, Aricebo, NM 87210  
District IV  
1226 S. St. Francis Dr., Santa Fe, NM 87505

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: (832) 686-4883 e-mail address: bwoodard@celeroenergy.com  
Address: 400 West Blinn, Suite 1401, Midland, Texas 79701  
Facility or well name: Black Queen Unit Gulf State #1 P&A API #: 30-0054822 U/L or Qtr/Tr: H Sec: 23 T-13-S R-31-E  
County: Chaves Latitude: 33.17696 N Longitude: 103.78598 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"/> Lined <input type="checkbox"/> Unlined <input checked="" type="checkbox"/> Liner type: None Thickness (inches) Soil Clay <input type="checkbox"/> Pit Volume 2,500 bbl	Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not _____		
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet 50 feet or more, but less than 100 feet 100 feet or more	(20 points) (10 points) ( 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 No	(20 points) ( 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 200 feet or more, but less than 1000 feet 1000 feet or more	(20 points) (10 points) ( 0 points)	0
	<b>Ranking Score (Total Points)</b>		<b>0</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  off-site  If off-site, name of facility: \_\_\_\_\_ (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Contaminant 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 at the former Gulf State #1 well site and was never inventoried or registered. This pit is out of service and a work plan for closure is being prepared.  
This pit was constructed by previous operators of the properties. Well was drilled by RO Cottier in 1958 and P&A'd by FI-RO Corporation in 2005. API # 300050822

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 well 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.

Approved: \_\_\_\_\_  
Printed Name/Title: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
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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

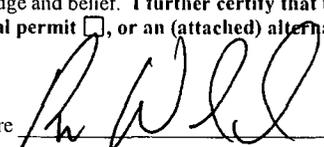
Operator: Celero Energy II, LP Telephone: (432) 686-1883 e-mail address: bwoodward@celeroenergy.com  
Address: 400 West Illinios, Suite 1601, Midland, Texas 79701  
Facility or well name: Rock Queen Unit Gulf State #1 P&A API #: 30-005-0822 U/L or Qtr/Qtr H Sec 23 T 13-S R 31-E  
County: Chaves Latitude 33.17690 N Longitude 103.78598 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"/> Lined <input type="checkbox"/> Unlined <input checked="" type="checkbox"/> Liner type: None Thickness Unknown Clay <input type="checkbox"/> Pit Volume <u>2,500</u> bbl	Volume: <u>    </u> bbl Type of fluid: <u>    </u> Construction material: <u>    </u> Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not.	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.) approximately 110 feet	Less than 50 feet 50 feet or more, but less than 100 feet 100 feet or more	(20 points) (10 points) ( 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 No	(20 points) ( 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 200 feet or more, but less than 1000 feet 1000 feet or more	(20 points) (10 points) ( 0 points)     0
<b>Ranking Score (Total Points)</b>		<b>0</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 Gandy-Marley Landfill, Lovington, NM. (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: Pit was constructed at the former Gulf State #1 well site and was never inventoried or registered. The pit was out of service and a work plan completed for closure. The pit was constructed by previous operators of the properties. Well was drilled by RD Collier in 1958 and P&A'd by FI-RO Corp. in 2005. In September 2007 the site was excavated and approximately 480 cubic yards of soil were removed to Gandy Marley, Inc for disposal. The pit was excavated to a depth so it would support a drill rig. On October 24, 2007, one soil boring was placed within the pit and six along the perimeter to delineate the chlorides. See attached map/table showing depths and concentrations of chlorides remaining within the pit. A one foot clay liner measuring approximately 102 feet by 143 feet was placed in the pit to a depth of 4.0 feet below ground level to prevent further vertical migration of the chlorides. The site was then backfilled with clean soil and brought up to surface grade.

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 .

Date: \_\_\_\_\_  
Printed Name/Title Bruce Woodward, 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: \_\_\_\_\_