## 1R - 1594

# GWIMPACT REPORT

06 / 18 / 2007



### Highlander Environmental Corp.

Midland, Texas

**CERTIFIED MAIL RETURN RECIEPT NO.** 7005 1160 0005 3780 6023

June 18, 2007

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

> NOTIFICATION OF GROUNDWATER IMPACT RE: CELERO ENERGY II, LP, ROCK QUEEN UNIT SECTIONS 25, 26 AND 36, T-13-S, R-31-E **CHAVES COUNTY, TEXAS**

Mr. von Gonten:

Celero Energy II, LP (Celero) notifies the Director of the New Mexico Oil Conservation Division (OCD), Environmental Bureau of groundwater impact at the above-referenced site in accordance with NM Rule 116. Celero retained Highlander Environmental (Highlander) of Midland, Texas to investigate this site as part of a due diligence in an acquisition of property operated by Palisades Asset Holding Company, LLC (Palisades). This production was originally developed in the mid-1950's. The primary surface owner in this Unit is the State of New Mexico. with the exception of one section of fee ownership. Highlander installed four monitoring wells and one background well at pit locations at the following locations:

> Rock Queen Unit Tract 1 Tank Battery, MW-1 Rock Queen Unit Tract 1 Tank Battery, MW-2 (Background) Rock Queen Unit Tract 11 Tank Battery Rock Queen Unit Tract 13 Tank Battery Rock Queen Unit Salt Water Plant #1

The four monitoring wells exhibited elevated chloride concentrations. These sites will be further investigated as discussed below.

#### **Topography**

The properties are located above Mescalero Ridge, a major topographic feature which marks the edge of the Caprock. Mescalero Ridge is at an approximate elevation of 4400 feet above mean sea level (MSL). Most of the drainage east of Mescalero Ridge, on the Caprock, is

towards the east-southeast, with numerous intermittent playas shown interspersed in the production.

#### Hydrology

Chaves County is located in the southeastern corner of New Mexico. The area is located in the High Plains Valley section of the Great Plains physiographic province. Rocks of Quaternary, Tertiary, and Triassic age are exposed and contain the principal aquifers. The most prominent aquifer is the Ogallala formation, which underlies the Llano Estacado and forms outliers south of it. Below the Cenozoic rocks are sandstones and shales of the Dockum group of Late Triassic age, from which small quantities of water are obtained. No usable groundwater is obtained from rocks older than the Triassic.

The Ogallala formation consists chiefly of sediments deposited by streams that had their headwaters in the mountainous regions to the west and northwest. The Ogallala formation rests unconformably upon an erosional surface of the underlying Triassic and Cretaceous rocks. The Ogallala is made of beds and lenses of clay, silt, sand, and gravel. Caliche occurs as a secondary deposit in many places in the formation.

Uncontaminated water from the Ogallala formation is high in silica (49 to 73 ppm), and contains moderate concentrations of calcium and magnesium. The dissolved solids content is relatively low, being typically less than 1,100 ppm. Water wells east of Mescalero Ridge derive their water from the Ogallala. The reported depth to groundwater in this area ranges from 100' to 200'. Water wells west of Mescalero Ridge derive water from the Triassic Dockum or Quaternary alluvium. No reported depths to groundwater were found for this area.

#### **Monitor Well Installation**

As part of the due diligence in the acquisition of this property, four pit locations were selected for evaluation of potential groundwater impact. On May 24-25, 2007, one monitor well each was installed at each of the four locations listed above. Additionally, an additional background monitor well was installed northeast of the Rock Queen Unit Tract 1 tank battery. The monitor wells were completed to EPA and industry standards. The wells were developed and evaluated.

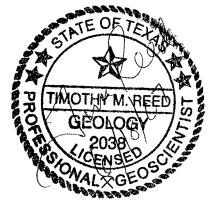
Based upon the drilling logs and development data, the saturated thickness in this area is highly variable, and the potential yield from each of the monitor wells is minimal. Several of the wells, which were fully penetrating wells, bailed off and recovered slowly. The hydraulic gradient is suspected to be towards the southwest, towards Mescalero Ridge, which marks the edge of the Ogallala. The hydraulic gradient will be confirmed once the top of casing elevations have been surveyed. Based upon field observations, Mr. Chris Williams with the OCD Hobbs District office was notified verbally of potential groundwater impact.

#### **Agreed Compliance Order**

Celero, Highlander and the OCD are currently involved in the drafting of an Agreed Compliance Order to assess and close open pits. Once the pit closures are underway and the source areas eliminated, additional groundwater delineation will be performed and Corrective Action Plans will be presented for remediation of the groundwater in this area.



Please accept this notification for the above-referenced site. Should you have any questions or concerns regarding this site, please do not hesitate to contact me at (432) 682-4559.



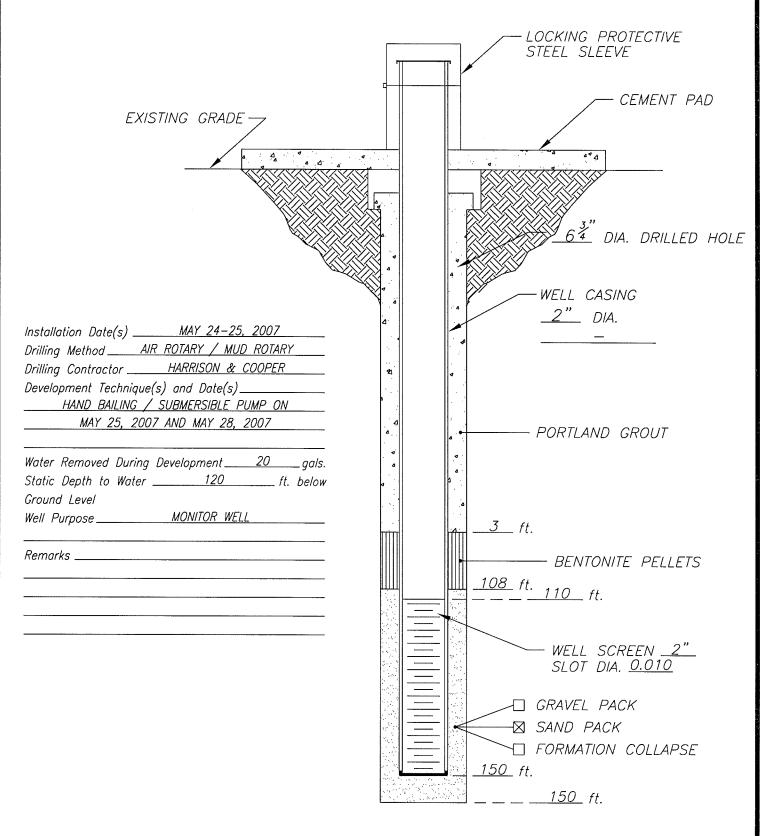
Highlander Environmental Corp.

Timothy M. Reed, P.G.

Vice President

cc:

Mr. Larry Johnson-NMOCD-Hobbs Mr. Bruce Woodard — Celero Energy II,LP



DATE: 5/24-25/07

Highlander Environmental CLIENT: CELERO

PROJECT: ROCK QUEEN UNIT TRACT 1 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.

Boring/Well:

**MW-1** 

Project Number: 2972

Client:

**Site Location:** 

Celero Energy Rock Queen Tract 1 Tank Battery Chaves County, New Mexico

Location:

Total Depth
Date Installed:

153

05/24/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Buff limestone
5-10		Tan/buff calcareous fine grain sand.
10-15		Tan/buff calcareous fine grain sand.
15-20		Tan/buff calcareous fine grain sand.
20-25		Tan/buff calcareous fine grain sand.
25-30		Tan/buff calcareous fine grain sand.
30-35		Tan/buff calcareous fine grain sand.
35-40		Tan/buff calcareous fine grain sand.
40-45		Tan fine grain sand - v.f.sand
45-50		Tan fine grain sand - v.f.sand
50-55		Tan fine grain sand - v.f.sand
55-60		Tan fine grain sand - v.f.sand
63-65		Tan fine grain sand - v.f.sand
68-70		Tan fine grain sand - v.f.sand
73-75		Tan fine grain sand - v.f.sand
78-80		Tan fine grain sand - v.f.sand
83-85		Tan fine grain sand - v.f.sand
88-90		Tan fine grain sand - v.f.sand
93-95		Tan fine grain sand - v.f.sand
98-100		Tan fine grain sand - v.f.sand
103-105		Tan fine grain sand - v.f.sand
108-110		Tan fine grain sand - v.f.sand
113-115		Tan fine grain sand - v.f.sand
118-120		Tan fine grain sand - v.f.sand
123-125		Dark brown well sorted sand
128-130		Dark brown well sorted sand

**Boring/Well:** Project Number: 2972

**MW-1** 

Client:

Celero Energy

**Site Location:** 

Rock Queen Tract 1 Tank Battery Chaves County, New Mexico

**Location:** 

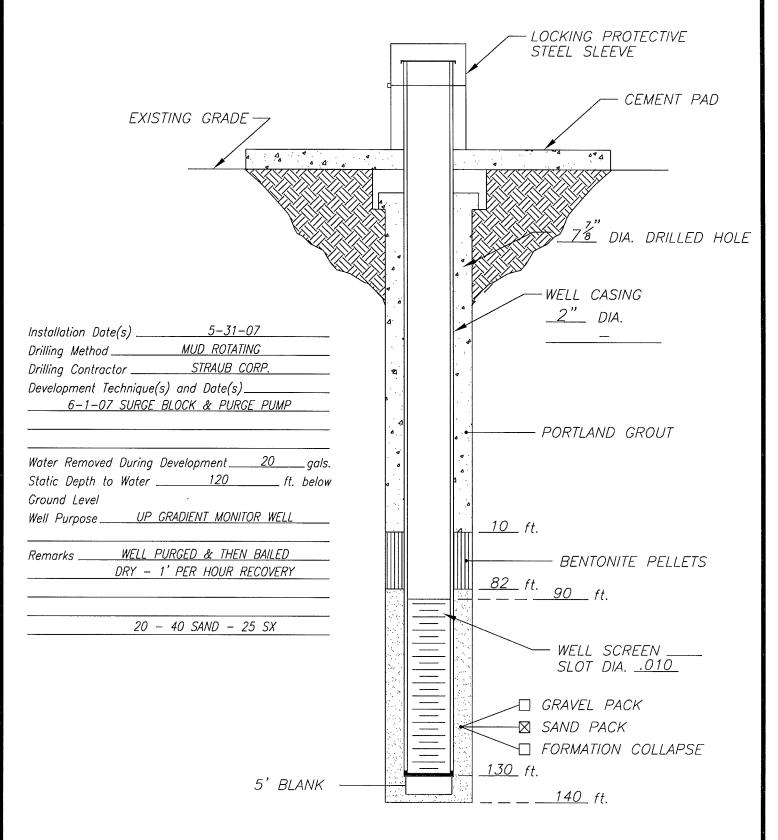
153

Total Depth Date Installed: 05/24/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
133-135		Red clayey sand
138-140		Red clayey sand
143-145		Red clayey sand
148-150		Red/tan clayey sand

Total Depth is 153 feet

Groundwater encountered at 119 feet



DATE: 6/1/07

Highlander

Environmental

CLIENT: CELERO ENERGY

PROJECT: ROCK QUEEN UNIT TRACT 1 TB
LOCATION: CHAVES COUNTY, NEW MEXICO

WELL NO.

Boring/Well: Project Number: 2972

MW-2

Client:

Celero Energy

**Site Location:** 

**Rock Queen Tract 1 Tank Battery** 

**Location:** 

**Chaves County, New Mexico** 

**Total Depth** 

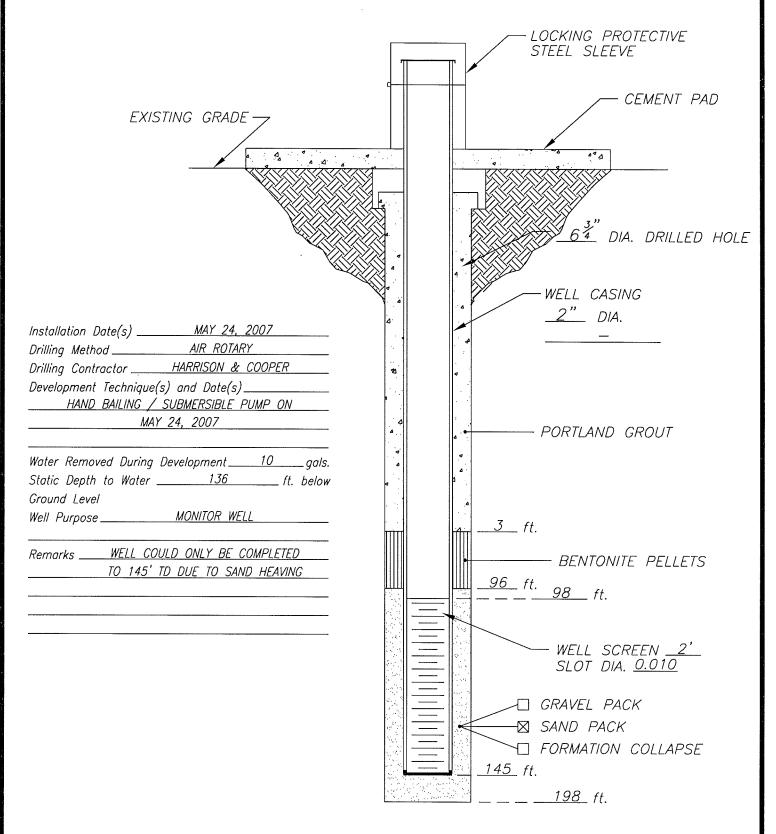
140

**Date Installed:** 06/01/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Buff limestone
5-10		Tan/buff calcareous fine grain sand.
10-15		Tan/buff calcareous fine grain sand.
15-20		Tan/buff calcareous fine grain sand.
20-25		Tan/buff calcareous fine grain sand.
25-30		Tan/buff calcareous fine grain sand.
30-35		Tan/buff calcareous fine grain sand.
35-38		Tan/buff calcareous fine grain sand.
38-45		Tan fine grain sand - v.f. sand
45-50		Tan fine grain sand - v.f. sand
50-55		Tan fine grain sand - v.f. sand
55-60		Tan fine grain sand - v.f. sand
63-65		Tan fine grain sand - v.f. sand
68-70		Tan fine grain sand - v.f. sand
73-75		Tan fine grain sand - v.f. sand
78-80		Tan fine grain sand - v.f. sand
83-85		Tan fine grain sand - v.f. sand
88-90		Tan fine grain sand - v.f. sand
93-95		Tan fine grain sand - v.f. sand
98-100		Tan fine grain sand - v.f. sand
100-106		Tan fine grain sand - v.f. sand
106-124		Tan fine grain sand and light brown clay
124-130		Tan sand and shale
130-131		Gray and red clay
130-140		Red Clay

Total Depth is 140 feet

Groundwater encountered at 110 feet



DATE: 5/24/07

Highlander

Environmental

CLIENT: CELERO

PROJECT: INJECTION PLANT #1

LOCATION: CHAVES COUNTY, NM

WELL NO.

Boring/Well: MW-1 Project Number: 2972

Client: Celero Energy Site Location: Injection Plant #1

**Location:** Chaves County, New Mexico

Total Depth 198 Date Installed: 05/24/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Buff limestone with chert intermixed with tan sand.
5-10		Buff limestone with chert intermixed with tan sand.
10-15		Buff/tan sandy limestone intermixed with chert.
15-20		Tan calcareous fine grain sand.
20-25		Tan calcareous fine grain sand.
25-30		Tan well sorted calcareous sand.
30-35		Tan well sorted calcareous sand.
35-40		Tan well sorted calcareous sand.
40-45		Tan well sorted calcareous sand.
45-50		Tan well sorted calcareous sand.
50-55		Tan fine grain sand (moist)
55-60		Tan fine grain sand (moist)
63-65		Tan fine grain sand (moist)
68-70		Tan fine grain sand (moist)
73-75		Tan fine grain sand (very moist)
78-80		Tan fine grain sand
83-85		Tan fine grain sand
88-90		Tan fine grain sand
93-95		Tan fine grain sand
98-100		Tan fine grain sand
103-105		Tan fine grain sand
108-110		Tan fine grain sand
113-115		Tan fine grain sand
118-120		Tan fine grain sand
123-125		Tan fine grain sand
128-130		Tan fine grain sand

Boring/Well: **MW-1** Project Number: 2972

Client:

**Site Location:** 

Celero Energy Injection Plant #1

**Location:** 

**Chaves County, New Mexico** 

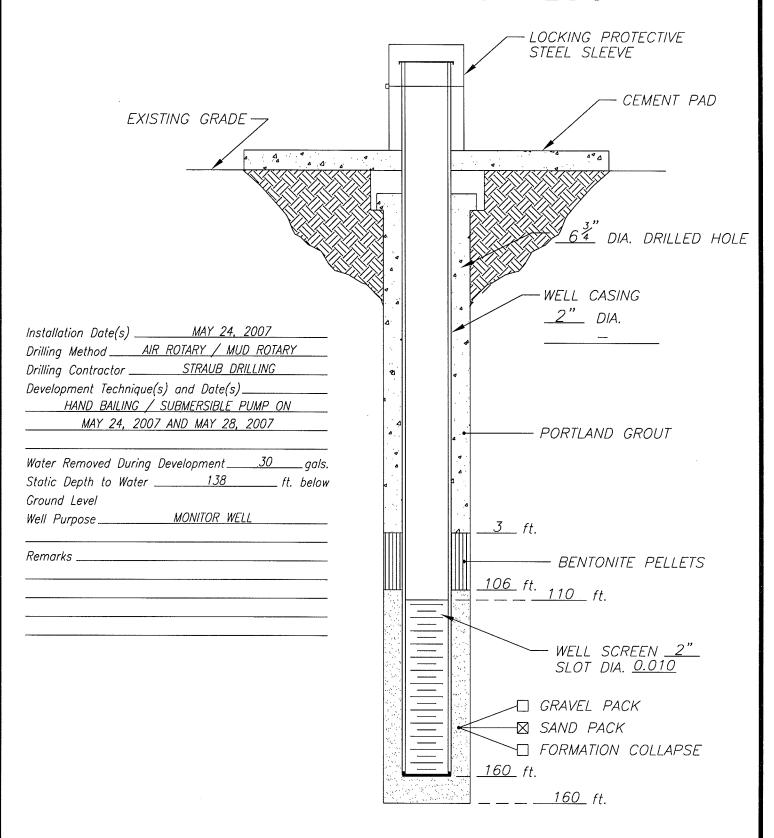
198

Total Depth Date Installed: 05/24/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
133-135		Tan fine grain sand
138-140		Tan fine grain sand
143-145		Dark brown sand
148-150		Red well sorted sand
153-155		Red clayey sand
158-160		Tan fine grain sand
163-165		Dark brown clayey sand
168-170		Dark brown clayey sand
173-175		Light red sandy clay
178-180		No sample
183-185		Red sandy clay
188-190		Red sandy clay
193-198		Red sandy clay

Total Depth is 198 feet

Groundwater encountered at 134 feet



DATE: 5/24/07

Highlander

Environmental

CLIENT: CELERO

PROJECT: ROCK QUEEN UNIT TRACT 11 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.

**Boring/Well: MW-1** Project Number: 2972

Client:

Celero Energy Rock Queen Tract 11 Tank Battery Chaves County, New Mexico **Site Location:** 

Location:

**Total Depth** 160 **Date Installed:** 05/24/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Buff limestone
5-10		Tan/buff calcareous fine grain sand.
10-15		Tan/buff calcareous fine grain sand.
15-20		Tan/buff calcareous fine grain sand.
20-25		Tan/buff calcareous fine grain sand.
25-30		Tan/buff calcareous fine grain sand.
30-35		Tan/buff calcareous fine grain sand.
35-40		Tan/buff calcareous fine grain sand.
40-45		Tan fine grain sand - v.f. sand
45-50		Tan fine grain sand - v.f. sand
50-55		Tan fine grain sand - v.f. sand
55-60		Tan fine grain sand - v.f. sand
63-65		Tan fine grain sand - v.f. sand
68-70		Tan fine grain sand - v.f. sand
73-75		Tan fine grain sand - v.f. sand
78-80		Tan fine grain sand - v.f. sand
83-85		Tan fine grain sand - v.f. sand
88-90		Tan fine grain sand - v.f. sand
93-95		Tan fine grain sand - v.f. sand
98-100		Tan fine grain sand - v.f. sand
103-105	***	Tan fine grain sand - v.f. sand
108-110		Tan fine grain sand - v.f. sand
113-115		Tan fine grain sand - v.f. sand
118-120		Tan fine grain sand - v.f. sand
123-125		Dark brown well sorted sand
128-130		Dark brown well sorted sand

Boring/Well: **MW-1** Project Number: 2972

Client:

**Site Location:** 

Celero Energy Rock Queen Tract 11 Tank Battery Chaves County, New Mexico

**Location:** 

**Total Depth** 

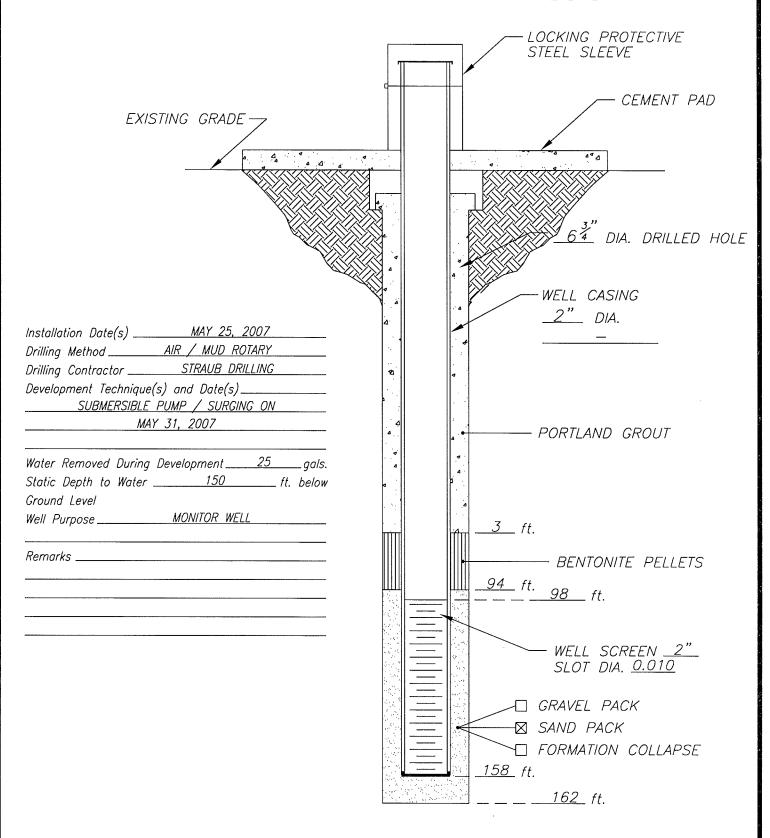
160

Date Installed: 05/24/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
133-135		Red clayey sand
138-140		Red clayey sand
143-145		Red clayey sand
148-150		Red sandy clay

Total Depth is 150 feet

Groundwater encountered at 138 feet



DATE: 5/25/07

Highlander Environmental CLIENT: CELERO

PROJECT: ROCK QUEEN UNIT TRACT 13 TB

LOCATION: CHAVES COUNTY, NM

WELL NO.

Boring/Well: MW-Project Number: 2972

MW-1

Client:

**Site Location:** 

Celero Energy Rock Queen Tract 13 Tank Battery Chaves County, New Mexico

Location:

Total Depth
Date Installed:

160

05/25/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5		Buff to tan sandy limestone
5-10		Buff to tan sandy limestone
10-15		Buff to tan sandy limestone with chert
15-20		Buff sandy limestone with chert
20-25		Buff to tan calcareous sand
25-30		Buff to tan calcareous sand
30-35		Buff to tan calcareous sand
35-40	<b></b>	Buff to tan calcareous sand
40-45		Buff to tan calcareous sand
45-50		Tan fine sand - v.f. sand
50-55		Tan fine sand - v.f. sand
55-60		Tan fine sand - v.f. sand
63-65	84. SU	Tan fine sand - v.f. sand
68-70		Tan fine sand - v.f. sand
73-75		Tan fine sand - v.f. sand
78-80		Tan fine sand - v.f. sand
83-85		Tan fine sand - v.f. sand
88-90		Tan fine sand - v.f. sand
93-95		Tan fine sand - v.f. sand
98-100		Tan fine sand - v.f. sand
103-105		Tan fine sand - v.f. sand
108-110		Tan fine sand - v.f. sand
113-115		Tan fine sand - v.f. sand
118-120		Tan fine sand - v.f. sand
123-125		Tan fine sand - v.f. sand
128-130		Tan fine sand - v.f. sand

Boring/Well:

MW-1

Project Number: 2972 Client: Celer

Celero Energy

Site Location:

Rock Queen Tract 13 Tank Battery

Location:

**Chaves County, New Mexico** 

**Total Depth** 

160

**Date Installed:** 05/25/07

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
133-135		Tan fine sand - v.f. sand
138-140		Tan fine sand - v.f. sand
143-145		Tan fine sand - v.f. sand
148-150		Chert layer intermixed with red sand
153-155		Chert layer intermixed with red sand
158-160		Red sand

Total Depth is 160 feet

Groundwater encountered at 117 feet