

30-039-06784

# PATINA

## OIL & GAS CORPORATION

October 22, 2004

Mr. Denny Foust  
Environmental Geologist/Deputy  
Oil Conservation Division  
1000 Rio Brazos Road  
Aztec, NM 87410



RE: Champlin # 1 Spill (4/21/04)

Dear Denny:

Attached you will find a copy of a sight diagram and laboratory results on the Champlin # 1. On April 21, 2004 a spill occurred involving 238 barrels, of which, 82 barrels were recovered. Several remedial techniques for the site were researched and excavation of the impacted soil seemed to be the most effective and appropriate.

### Site Characterization

The site is located in the Carson National Forest in Rio Arriba County, New Mexico in the SW/SW of Section 35, Township 27N, Range 4West. The top two feet of soil is a sandy loam with soil below two feet being medium to fine sand. A string of clay was encountered at approximately thirty feet below ground surface. Bedrock was not encountered during the excavation process.

### Excavation

A crew, complete with a trackhoe and backhoe was dispatched to the location. The hydrocarbon impacted soil was excavated and placed on a plastic liner that was bermed around the outer perimeter. A total of 1,393 cubic yards of impacted soil were excavated. Perforated pipe was placed at the bottom of the pile of soil to facilitate the providing of oxygen to the hydrocarbon degrading microbes within the soil.

During the latter portion of the excavation, sidewall and bottom-hole samples were collected for analysis with a Hanby Kit. These samples were analyzed on location. When the Hanby Kit sample results indicated that the soil in the excavation was below 500ppm TPH and the PID readings were below 100ppm, excavation was stopped and samples were collected to be analyzed by an independent laboratory. The lab samples were collected from numerous locations on sidewalls and the bottom of the

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excavation and composited into one sample for each area. The samples were then placed into laboratory furnished containers, labeled, documented on a chain of custody sheet, and put on ice for transport to the laboratory. A portion of each sample was placed into an appropriate container, allowed to reach ambient temperature, and a head space analysis was conducted using a PID meter.

Sample results are summarized in the table below.

### Excavation Sample Results

Area Sampled	TPH Results	PID Readings
North Wall	3.7 ppm	1.9 ppm
South Wall	16 ppm	8.3 ppm
West Wall	14 ppm	12.1 ppm
East Wall	6.5 ppm	4.9 ppm
Bottom Hole	ND	0.8 ppm

### Additional Ranking Criteria

The site is located more than 1000 feet from any surface water body, more than 1000 feet from any private domestic fresh water well or spring and the depth to ground water is approximately 750 feet. The depth to ground water was estimated from data gathered from the State Engineers Office in relation to a water well in the next section adjoining section 27N.

Depth to Ground Water	Wellhead Protection Area	Distance to Surface Water Body
> 100 feet (actually 750 feet)	No domestic or other fresh water well or spring within 1000 feet	>1000 horizontal feet to any surface water body

### Remediation

Immediately upon excavation, hydrocarbon impacted soil was mixed with a nitrogen rich fertilizer and stirred. Several weeks later, a biocatalyst, mixed with water, was applied to the soil (injected into the soil pile). The soil was kept at approximately 15 to 20% moisture content. As mentioned previously, slotted pipe had been placed at the bottom of the remediation pile. This slotted pipe was connected to a natural gas powered air blowing unit which ran continuously for the duration of the project.

On September 14, 2004 samples of the remediation pile were collected from numerous locations and depths within the pile. Samples labeled 1-3 and 1-3A were collected from the first three feet of the pile. Samples labeled 3-5 and 3-5A were collected from the 3 to 5 foot depth of the soil pile. Samples from each section were composited and the samples were then placed into laboratory furnished containers, labeled, documented on a chain of custody sheet, and put on ice for transport to the laboratory. A portion of each sample was placed into an appropriate container, allowed to reach ambient temperature, and a head space analysis was conducted using a PID meter. Sample results are listed below.

**Final Sample Results September 14, 2004**

<b>Area Sampled</b>	<b>TPH Results</b>	<b>PID Readings</b>
1-3 (Collected from 1 to 3 ft.)	3000	0.6
1-3A (3 to 5 ft.)	3600	1.1
3-5 (Collected from 3 to 5 ft.)	2400	0.4
3-5A (3 to 5 ft.)	2300	0.5

On October 13, 2004 the remediated soil was placed back into the excavation and the site returned to full use. It should be noted that the air injection unit had continued to function until October 13, 2004. This would have allowed for additional remediation to take place between September 14 and October 13.

Based on laboratory results and meeting the additional ranking criteria levels found in the New Mexico Guidelines For Remediation Of Leaks, Spills and Releases, I am requesting that this site be considered closed with no further remedial action necessary.

Should you have any questions regarding this remediation project, please feel free to contact me

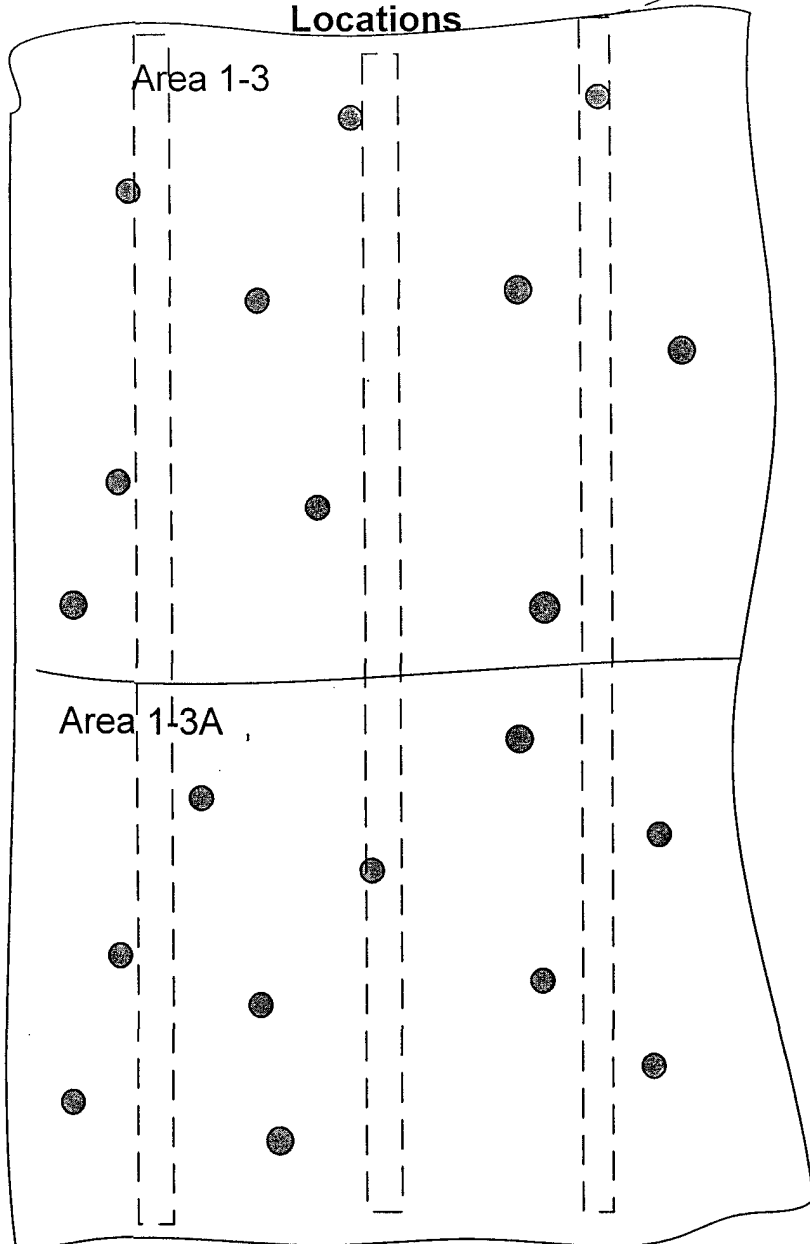
Sincerely,



John Nussbaumer

# Final Sampling Locations

Slotted Pipe



● Indicates sample points.  
 The remediation pile was divided into two sections. Samples were composited into one sample for the first three feet in each section and into one sample for the 3 to 5' zone for each section. Lower results from deeper sample points indicate SVE system was very effective blowing oxygen into the lower half of the pile.

**Champlin #1**  
**Rio Arriba County, NM**  
**SW/SW, Sec 35, T27N, R4W**  
**San Juan Basin**  
**Patina Oil & Gas Corp.**  
**Final Sampling Locations**  
**Within Remediation Pile**

Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Project ID Champlin  
Collection Date: 9/14/2004

Lab Order: 04-6907  
Date Received: 9/16/2004  
Units: mg/Kg

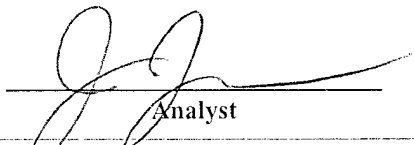
Total Recoverable Petroleum Hydrocarbons (TRPH)  
TRPH


Method: E418.1

Prep Method:

Lab ID	Client ID	Matrix	Date Prepared	Date Analyzed	Results	LQL	DF
04-6907-01A	Champlin 1-3	Soil	9/20/2004	9/20/2004	3000	83	25
04-6907-02A	Champlin 1-3A	Soil	9/20/2004	9/20/2004	3600	83	25
04-6907-03A	Champlin 3-5	Soil	9/20/2004	9/20/2004	2400	33	10
04-6907-04A	Champlin 3-5A	Soil	9/20/2004	9/20/2004	2300	33	10

Comments Blank value subtracted

  
Analyst

  
Approved

Qualifiers: J - Indicates an estimated value when the compound is detected, but is below the LQL  
U - Compound analyzed for but not detected  
X - See case narrative

Definitions: DF - Dilution Factor  
LQL - Lower Quantitation Limit

Print Date: 9/20/2004

# Evergreen Analytical, Inc.

4036 Youngfield Street, Wheat Ridge, Colorado 80033-3862  
(303) 425-6021

Client Project ID Champlin #1 NM  
Collection Date: 4/28/2004

Lab Order: 04-2931  
Date Received: 5/3/2004  
Units: mg/Kg

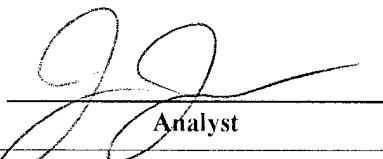
## Total Recoverable Petroleum Hydrocarbons (TRPH) TRPH

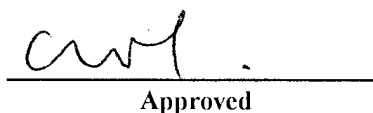
Method: E418.1

Prep Method:

Lab ID	Client ID	Matrix	Date Prepared	Date Analyzed	Results	LQL	DF
04-2931-01A	Champlin WW	Soil	5/4/2004	5/4/2004	14	3.3	1
04-2931-02A	Champlin EW	Soil	5/4/2004	5/4/2004	6.5	3.3	1
04-2931-03A	Champlin SW	Soil	5/4/2004	5/4/2004	16	3.3	1
04-2931-04A	Champlin NW	Soil	5/4/2004	5/4/2004	3.7	3.3	1
04-2931-05A	Champlin BH	Soil	5/4/2004	5/4/2004	U	3.3	1

Comments Blank value subtracted

  
Analyst

  
Approved

Qualifiers: J - Indicates an estimated value when the compound is detected, but is below the LQL  
U - Compound analyzed for but not detected  
X - See case narrative

Definitions: DF - Dilution Factor  
LQL - Lower Quantitation Limit

Print Date: 5/4/2004