

**1R -** 381

# **REPORTS**

**DATE:**

2006



**PLAINS  
PIPELINE**

2006 MAY 26 AM 11 08'

May 24, 2006

Mr. Ed Martin  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

IR-381

Re: Plains Pipeline Soil Over Excavation and Backfill Work Plan  
8-Inch Moore to Jal #2 Release Site  
NW ¼, SE ¼ of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico

Dear Mr. Martin:

Please find attached for your approval the Soil Over Excavation and Backfill Work Plan, dated May 2006, for the 8-Inch Moore to Jal #2 release site located in Section 16 of Township 17 South and Range 37 East of Lea County, New Mexico. The Soil Over Excavation and Backfill Work Plan details site activities conducted to date and future activities for soil closure of the site.

Should you have any questions or comments, please contact me at (505) 441-0965.

Sincerely,

Camille Reynolds  
Remediation Coordinator  
Plains All American Pipeline

Cc: Larry Johnson, NMOCD, Hobbs Office

Enclosure

May 23, 2006

Mr. Edwin E. Martin  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Re: Soil Over Excavation Report  
Plains Pipeline, L.P.  
8" Moore to Jal #2 (Rcf #2002-10273)  
NW/4 of the SE/4 of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico  
NMOCD Ref. 1R-0381

Mr. Martin:

The 8" Moore to Jal #2 release site is located approximately 9.5 miles southeast of Lovington in Lea County, New Mexico. The release occurred on property owned by the State of New Mexico and is utilized as pasture land. The site is located in a rural area within the West Lovington Oil Field, with no residences or surface water within a 1,000-foot radius of the facility.

In October 2002, a release of approximately twenty-five (25) barrels of crude oil occurred at the site due to corrosion (internal and/or external) of the pipeline. Approximately six thousand (6,000) square feet (ft<sup>2</sup>) of surface area was impacted by the release. Surficial soil saturated by the release was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm for treatment.

The details of the soil remediation, sampling activities, analytical results, and backfill work plan are described in the attached Soil Over Excavation Report and Backfill Work Plan. If you have any questions feel free to contact me at (432) 288-3490 or by E-mail at [jgraham@talonlpe.com](mailto:jgraham@talonlpe.com). Thank you very much.

TALON/LPE



Jason M. Graham  
Project Manager

Cc: Camille Reynolds, Plains All American Pipeline, L.P.  
Jeff Dann, Plains All American Pipeline, L.P.

# **8" Moore to Jal #2 Soil Over Excavation Report and Backfill Work Plan**

**Plains Ref: 2002-10273  
NW¼ of the SE¼ of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico**

**~9.5 Miles Southeast of  
Lovington, Lea County, New Mexico  
Latitude: N32° 49' 56.6"                      Longitude: W103° 15' 8.31"**

**May 2006**

**Prepared For:**



**PLAINS  
ALL AMERICAN  
PIPELINE L.P.**

**333 Clay Street, Suite 600  
Houston, TX 77002**

**Prepared By:  
Talon/LPE  
318 East Taylor Street  
Hobbs, New Mexico 88240**



## Distribution List

Name	Title	Company or Agency	Mailing Address	e-mail
Ed Martin	Environmental Engineer	NMOCD	1220 South St. Francis Drive Santa Fe, NM 87505	emartin@state.nm.us
Larry Johnson	Environmental Engineer	NMOCD	1625 French Dr. Hobbs, NM 88231	lwjohnson@state.nm.us
Camille Reynolds	Remediation Coordinator	Plains All American Pipeline	3112 West U.S. Hwy 82 Lovington, NM 88260	cjreynolds@paalp.com
Jeff Dann	Senior Environmental Specialist	Plains All American Pipeline	P. O. Box 4648 Houston, TX 77210-4648	jpdann@paalp.com
File		Talon/LPE	318 East Taylor Street Hobbs, New Mexico 88240	lsanchez@llano-permian.com

NMOCD - New Mexico Oil Conservation Division

## SOILS REMEDIATION OVER EXCAVATION REPORT

### Introduction

The 8" Moore to Jal #2 release site is located approximately 9.5 miles southeast of Lovington in Lea County, New Mexico, at an elevation of approximately 3,770 feet above mean sea level. The release occurred on property owned by the State of New Mexico and is utilized as pasture land. The site is located in a rural area within the West Lovington Oil Field, with no residences or surface water within a 1,000-foot radius of the facility (Figure 1).

In October 2002, a release of approximately twenty-five (25) barrels of crude oil occurred at the site due to corrosion (internal and/or external) of the pipeline. Approximately six thousand (6,000) square feet (ft<sup>2</sup>) of surface area was impacted by the release. Surficial soil saturated by the release was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm for treatment.

In an effort to delineate the extent of impacted soil remaining at the site, delineation activities were performed by Environmental Plus, Inc. (EPI) at the site to depths ranging from twenty (20) to forty (40) feet below ground surface (bgs) in November 2002. Field PID measurements were collected from the soil delineation samples collected at discrete intervals. The field analysis indicated organic vapor concentrations exceeded one hundred (100) parts per million (ppm) to a depth of forty (40) feet bgs. These samples were not submitted for laboratory analysis.

EPI commenced excavation activities at the site in June 2003 in order to remove soil impacted above the New Mexico Oil Conservation Division (NMOCD) remedial thresholds. Approximately one thousand and twenty-two (1,220) cubic yards of soil were excavated and processed through a shaker to separate the rock from the soil. After the soil and rock had been separated, the soil (approximately five hundred and seventy-five (575) cubic yards) was spread out into two land treatment areas and the rock was stockpiled on site.

Upon the completion of site excavation activities in June 2003, composite samples were collected by EPI from the north, south and east sidewalls, as well as the floor of the excavation. Laboratory analysis of the samples confirmed all analytes were below the NMOCD remedial thresholds with the exception of Total Petroleum Hydrocarbons (TPH) in the north sidewall sample which was only slightly above the one hundred (100) mg/kg threshold (195 mg/kg – SW-846 Method 8015). In June 2005, two (2) confirmation grab samples were collected by Talon/LPE from the west sidewall of the excavation. Laboratory analysis of these samples confirmed all analytes were below NMOCD remedial thresholds (Table 2).

EPI installed one (1) monitor well in July of 2004 and three (3) monitoring wells in October of 2004 (Figure 2). Soil samples were collected from MW-1, 2, 3 and 4 at various horizons during the boring process of the well installation. The majority of the samples collected exceeded the NMOCD thresholds for the various analytes. Field analysis of soil samples collected at discreet intervals indicated organic vapor concentrations exceeded 100 parts per million (ppm) at least to a depth of seventy-seven (77) feet bgs in soil boring MW-1 (Table 1).

As a result of the presence of phase separated hydrocarbons (PSH) in MW-1, EPI performed PSH recovery activities from October of 2004 to April of 2005. In an effort to accelerate the PSH recovery at the 8" Moore to Jal #2 site, Talon/LPE began bi-weekly PSH recovery upon commencement of the PSH recovery activities in May. Approximately ten (10) to twenty (20) gallons of PSH are recovered every week as a result of the bi-weekly recovery events since the middle of May 2005.

EPI sampled the land treatment areas on December 15, 2004, in conjunction with the weekly site visit. Sampling results indicated hydrocarbon levels in the land treatment area soils were above the NMOCD remedial thresholds in two (2) of the four (4) quadrants in the land treatment area (Table 3). The land treatment areas have been turned to aerate the soils and accelerate the TPH degradation by Talon/LPE since May of 2005. The soils have been treated to below NMOCD standard (Table 3) and will not be turned again prior to the implementation of the restoration activities outlined in the "Backfill Work Plan" section of this Report.

### **Implementation of Excavation Activities Work Plan**

The Soil Remediation Work Plan submitted to Ed Martin on June 24, 2005 and was implemented in January 2006. The excavation activities are summarized below.

### **Excavation Activities**

On January 16, 2006, due to the evidence of the excavation confirmation composite sampling (Table 2), the north sidewall of the excavation was cut back an additional one foot (1') (Figure 4). The east wall is located adjacent to the railroad right-of-way. At that point, a PID was used to determine if any portion of the north sidewall had remaining impacted soil that required excavation. Upon completion of the excavation the, PID readings on the over excavated wall was below the NMOCD limit of one hundred (100) ppm. The materials removed during the excavation activities would be placed in a separate area on six millimeter (6-mil) poly until the time that the excavation is backfilled.

Once no elevated readings were detected with the PID on the excavated sidewalls, grab confirmation samples were collected for laboratory confirmation. No excavation activities were performed on the excavation floor, west side wall, east sidewall or south sidewall. Prior sampling activities have shown the east, west and south sidewalls to be below the NMOCD Remedial Threshold of one hundred (100) mg/kg. In addition to the side wall confirmation samples, grab confirmation samples were collected on the excavation floor in a grid pattern to re-analyze the floor concentrations (Samples NF-01, SF-01, EF-01, WF-01, CF-01). All samples collected during the over excavation activities were delivered to Environmental Labs of Texas, in Odessa, Texas, under Chain-of-Custody protocol to be analyzed by EPA SW-846 method 8021B for BTEX and 8015M for TPH. The results for all the excavation samples can be found in Table 2 and are discussed in the following section, "Analytical Results".

## **Analytical Results**

### **North Wall**

Two (2) conformation samples were collected from the north wall. The sample collected from the west side of the north wall (NW-2) was below the method detection limit (MDL) of 0.025 mg/kg for benzene, toluene, ethylbenzene, and total xylenes. NW-2 was slightly above the NMOCD regulatory limit of one hundred (100) mg/kg at one hundred sixty nine (169mg/kg) for TPH. Sample NE-1, collected from the east side of the north wall, was below the MDL of 0.025 mg/kg for all BTEX constituents and one hundred (100) mg/kg for TPH. The area of impact (NW-2) that is above NMOCD regulatory limits will be excavated another two (2) feet during the installation of the liner and prior to backfilling.

### **Excavation Floor**

No over excavation activities were performed on the excavation floor; however, five (5) samples were collected from the excavation floor to obtain a more complete evaluation of the concentration distribution on the base of the excavation. The highest concentration from the excavation floor analytical results as well as the highest concentration from the land treatment area are evaluated later in this report for their migration potential ("Modeling Activities").

All five (5) of the excavation floor samples (NF-01, SF-01, EF-01, WF-01 and CF-01) were below the method detection limit (MDL) of 0.025 mg/kg for benzene, toluene, ethylbenzene, and total xylenes. Of the five (5) floor samples only two (2), SF-01 and CF-01, returned TPH concentration above the NMOCD regulatory limit of one hundred (100) mg/kg, 259 mg/kg and 186 mg/kg respectively.

### **Soil Disposal Activities**

No disposal activities are proposed at this time. All soils onsite will be placed back in the excavation, on top of a twenty millimeter (20 mil) black-on-black rock grade polyethylene liner, as backfill. These activities are outlined in the "Restoration Activities Work Plan" section of this report.

### **Land Treatment Cells**

The highest concentration of TPH in the soils at the land treatment cells is 186 mg/kg in the northwest quadrant (Table 2). These soils are turned quarterly, with no further action taken.

### **Modeling Activities**

RISC 4 Modeling Software was utilized to calculate the mass loading and volatilization losses at the groundwater interface. For modeling purposes the highest laboratory analyzed TPH concentration of 12,200 mg/kg was utilized to represent the worse case scenario. This TPH concentration was present in boring MW-1 at forty (40) to forty two (42) feet bgs advanced on

July 27, 2004. Benzene and BTEX concentrations in both media are below the NMOCD remedial threshold; however, the benzene concentration from the same boring was utilized as the basis for the migration calculations.

For comparison purposes fate and transport models were completed for a lined and unlined excavation.

### **FATE AND TRANSPORT MODEL INPUT SUMMARY – Without Liner**

Unsaturated zone model linked with saturated zone model

Simulation time (years). 50

#### **Vadose Zone Source Parameters**

Thickness of contamination (m) 25.  
Depth to top of contamination (m). 1.5  
Length of source (m) 44.  
Width of source (m). 18.

#### **Unsaturated Zone Properties**

Total Porosity in vadose zone (cm<sup>3</sup>/cm<sup>3</sup>) 0.60  
Residual water content (cm<sup>3</sup>/cm<sup>3</sup>) 0.17  
Fraction organic carbon (g oc/g soil). 5.00E-02  
Soil bulk density (g/cm<sup>3</sup>). 1.7  
Infiltration Rate (cm/yr). 1.0  
Saturated conductivity (m/d) 1.00E-04  
Van Genuchten's N. 1.1  
Thickness of vadose zone (m) 10.

#### **Aquifer Properties**

Effective porosity (cm<sup>3</sup>/cm<sup>3</sup>) 0.25  
Fraction organic carbon (g oc/g soil). 2.00E-03  
Hydraulic conductivity (m/d) 10.  
Soil bulk density (g/cm<sup>3</sup>). 1.7  
Hydraulic gradient (m/m) 1.00E-03  
\*\*\*Longitudinal dispersivity (m). code calculated  
\*\*\*Transverse dispersivity (m). code calculated  
\*\*\*Vertical dispersivity (m). code calculated

**TPH Data for Unsaturated Zone Source**

Concentration of TPH in soil (mg/kg) 1.22E+04  
 Molecular weight of TPH (g/mol). 1.00E+02

**CHEMICAL DATA FOR: Benzene**

Diffusion coefficient in air (cm<sup>2</sup>/s) 8.80E-02  
 Diffusion coefficient in water (cm<sup>2</sup>/s) 9.80E-06  
 Solubility (mg/l) 1.75E+03  
 Vapor pressure (mmHg) 95.  
 KOC (L/kg). 59.  
 Henry's Law coefficient (-). 0.23  
 Molecular weight (g/mol). 78.  
 Degradation rate, saturated zone (1/d). 9.60E-04  
 Degradation rate, vadose zone (1/d). 9.60E-04

Source Concentrations:

**Source conc. for unsaturated zone model (mg/kg). 92**

The modeling software produced the following results with regards to mass loading to groundwater and volatilization losses over a fifty (50) year period with no liner based upon a silty, sandy, gravel soil:

**CUMULATIVE LOSSES FROM THE VADOSE ZONE  
 Benzene**

Time (yr)	Mass Loading to Groundwater (kg)	Volatilization Losses (kg)
1.0	1.67E+01	3.37E+00
2.0	3.43E+01	6.74E+00
3.0	5.18E+01	1.01E+01
4.0	6.93E+01	1.34E+01
5.0	8.68E+01	1.68E+01
6.0	1.04E+02	2.01E+01
7.0	1.22E+02	2.35E+01
8.0	1.39E+02	2.68E+01
9.0	1.56E+02	3.01E+01
10.0	1.74E+02	3.34E+01
11.0	1.91E+02	3.67E+01

12.0	2.08E+02	4.00E+01
13.0	2.25E+02	4.33E+01
14.0	2.43E+02	4.66E+01
15.0	2.60E+02	4.99E+01
16.0	2.77E+02	5.32E+01
17.0	2.94E+02	5.64E+01
18.0	3.11E+02	5.97E+01
19.0	3.28E+02	6.29E+01
20.0	3.45E+02	6.62E+01
21.0	3.62E+02	6.94E+01
22.0	3.79E+02	7.27E+01
23.0	3.95E+02	7.59E+01
24.0	4.12E+02	7.91E+01
25.0	4.29E+02	8.23E+01
26.0	4.46E+02	8.56E+01
27.0	4.63E+02	8.88E+01
28.0	4.79E+02	9.20E+01
29.0	4.96E+02	9.52E+01
30.0	5.13E+02	9.83E+01
31.0	5.29E+02	1.02E+02
32.0	5.46E+02	1.05E+02
33.0	5.62E+02	1.08E+02
34.0	5.79E+02	1.11E+02
35.0	5.95E+02	1.14E+02
36.0	6.12E+02	1.17E+02
37.0	6.28E+02	1.20E+02
38.0	6.45E+02	1.24E+02
39.0	6.61E+02	1.27E+02
40.0	6.77E+02	1.30E+02
41.0	6.93E+02	1.33E+02
42.0	7.10E+02	1.36E+02
43.0	7.26E+02	1.39E+02
44.0	7.42E+02	1.42E+02
45.0	7.58E+02	1.45E+02
46.0	7.74E+02	1.48E+02
47.0	7.90E+02	1.52E+02
48.0	8.07E+02	1.55E+02
49.0	8.23E+02	1.58E+02
50.0	8.39E+02	1.61E+02

The same model was used with the same above parameters but using an impermeable liner. For modeling purposes, default parameters for clay were utilized as the impermeable layer in place of the silty, sandy, gravel soil. The results are as follows:

CUMULATIVE LOSSES FROM THE VADOSE ZONE  
Benzene

Time (yr)	Mass Loading to Groundwater (kg)	Volatilization Losses (kg)
-----	-----	-----
1.0	0.00E+00	1.37E-02
2.0	0.00E+00	2.73E-02
3.0	0.00E+00	4.10E-02
4.0	0.00E+00	5.47E-02
5.0	0.00E+00	6.84E-02
6.0	0.00E+00	8.20E-02
7.0	0.00E+00	9.57E-02
8.0	0.00E+00	1.09E-01
9.0	0.00E+00	1.23E-01
10.0	0.00E+00	1.37E-01
11.0	0.00E+00	1.50E-01
12.0	0.00E+00	1.64E-01
13.0	0.00E+00	1.78E-01
14.0	0.00E+00	1.91E-01
15.0	0.00E+00	2.05E-01
16.0	0.00E+00	2.19E-01
17.0	0.00E+00	2.32E-01
18.0	0.00E+00	2.46E-01
19.0	0.00E+00	2.60E-01
20.0	0.00E+00	2.73E-01
21.0	0.00E+00	2.87E-01
22.0	0.00E+00	3.01E-01
23.0	0.00E+00	3.14E-01
24.0	0.00E+00	3.28E-01
25.0	0.00E+00	3.42E-01
26.0	0.00E+00	3.55E-01
27.0	0.00E+00	3.69E-01
28.0	0.00E+00	3.83E-01
29.0	0.00E+00	3.96E-01
30.0	0.00E+00	4.10E-01
31.0	0.00E+00	4.24E-01
32.0	0.00E+00	4.37E-01
33.0	0.00E+00	4.51E-01
34.0	0.00E+00	4.65E-01
35.0	0.00E+00	4.78E-01
36.0	0.00E+00	4.92E-01
37.0	0.00E+00	5.06E-01
38.0	0.00E+00	5.19E-01
39.0	0.00E+00	5.33E-01



40.0	0.00E+00	5.46E-01
41.0	0.00E+00	5.60E-01
42.0	0.00E+00	5.74E-01
43.0	0.00E+00	5.87E-01
44.0	0.00E+00	6.01E-01
45.0	0.00E+00	6.15E-01
46.0	0.00E+00	6.28E-01
47.0	0.00E+00	6.42E-01
48.0	0.00E+00	6.56E-01
49.0	0.00E+00	6.69E-01
50.0	0.00E+00	6.83E-01

The fate and transport models estimate the mass loading of benzene from the soil to groundwater pathway with and without a confining layer (i.e 20 mil liner). The benzene loading to groundwater is reduced to zero (0) mg/kg per year after the liner is installed and backfilled. The model without the liner shows continued benzene loading to the groundwater. The benzene concentrations are below the NMOCD remedial threshold of 10 mg/kg in soils. The findings in this model suggests that installing a liner and placing the soils from the land treatment cells as suggested in the "Restoration Activities Work Plan", would eliminate the soil to groundwater pathway preventing additional groundwater impacts from occurring.

#### **Restoration Activities Work Plan**

Prior to the initiation of the restoration activities MW-1 will be vertically extended to a level above the top of the excavation, and the top of casing will be re-surveyed. With the monitoring well extended to a level accessible after the backfill activities, the bottom of the excavation will be filled with an even six inch (6") layer of sand. A twenty millimeter (20 mill) black-on-black rock grade polyethylene liner will then be placed on the sand covering the base of the excavation. A small hole will be cut through the liner to encompass MW-1 which will be left in the excavation. Clay packing material will be utilized to seal the opening in the liner around the monitor well casing. An additional six inch (6") layer of sand will be placed on top of the liner.

With the poly liner and protective sand cover in place, backfill of the excavated materials will begin. A layer of the rock material will first be carefully placed back in the excavation. Then a layer of the soils from the land treatment area will be placed on top of the first rock layer. The two layers will then be properly compacted. This alternating of layers and compacting activities will continue to the top of the excavation taking great care to insure the integrity of MW-1, the pipeline, and the poly liner. Only soils, no rock, will be place in the proximity of either the pipeline or MW-1. Clean backfill will be used during the backfill activities as needed to bring the excavation to surface grade.


#### **Conclusion and Recommendations**

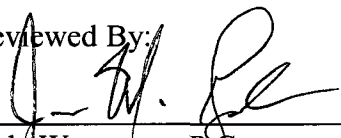
It is the opinion of Talon/LPE that the over excavation activities were successful in removing the remaining areas of hydrocarbon impact in the north wall of the 8" Moore to Jal #2 excavation. The area above the NMOCD regulatory limits at NW-2 along the north sidewall will be

excavated approximately two (2) feet during the installation of the liner. All analytical results from the confirmation samples collected following the over excavation activities were at or below the NMOCD remedial threshold for the respective constituents. From the results of the modeling activities, as well as the fact that neither the excavation floor or the soils from the land treatment cells exhibit benzene or BTEX concentration above the NMOCD remedial thresholds, it is the opinion of Talon/LPE that with the placement of the poly liner prior to backfill will isolate the source area and reduce the threat of further groundwater impact from the soils in the land treatment cells being placed into the excavation.

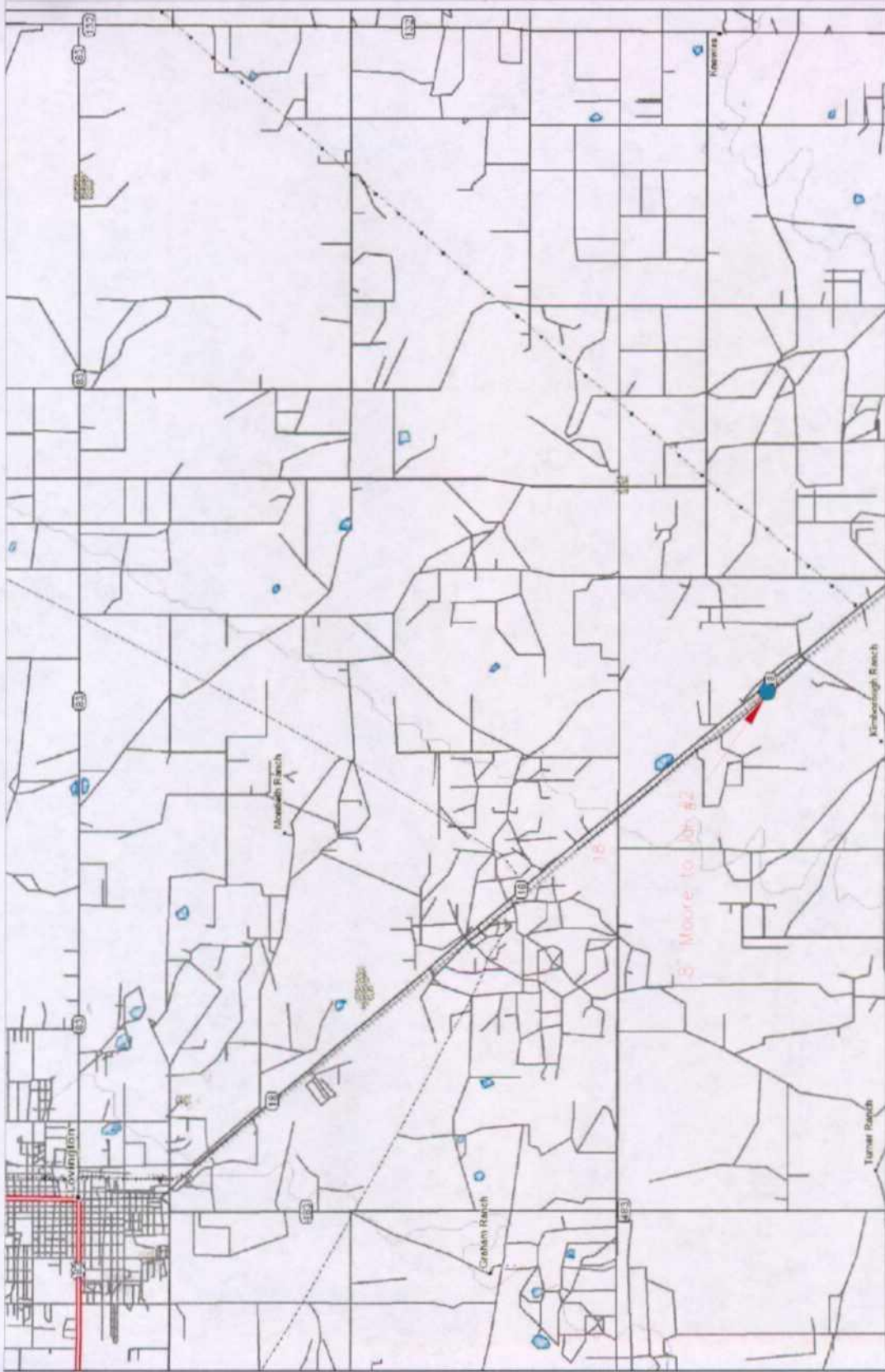
**Signatures**

Written By:

  
\_\_\_\_\_  
Jason M. Graham  
Project Manager  
Talon/LPE

Reviewed By:  for Kyle Waggoner  
\_\_\_\_\_  
Kyle Waggoner, P.G.  
Senior Project Manager  
Talon/LPE

**Figures**



<p>Figure 1 Site Location Map Plains Pipeline, L.P. 8" Moore to Job #2</p>	<p>Lebo County, New Mexico NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E N 32° 49' 56.6" W 103° 15' 8.31" Elevation: 3,770 feet amsl</p>	<p>DWG Date: March 2005</p>	<p>REVISED: June 2005</p>	<p>3.0 SHEET 1 of 1</p>
	<p>0 1.5 3.0 Miles</p>			

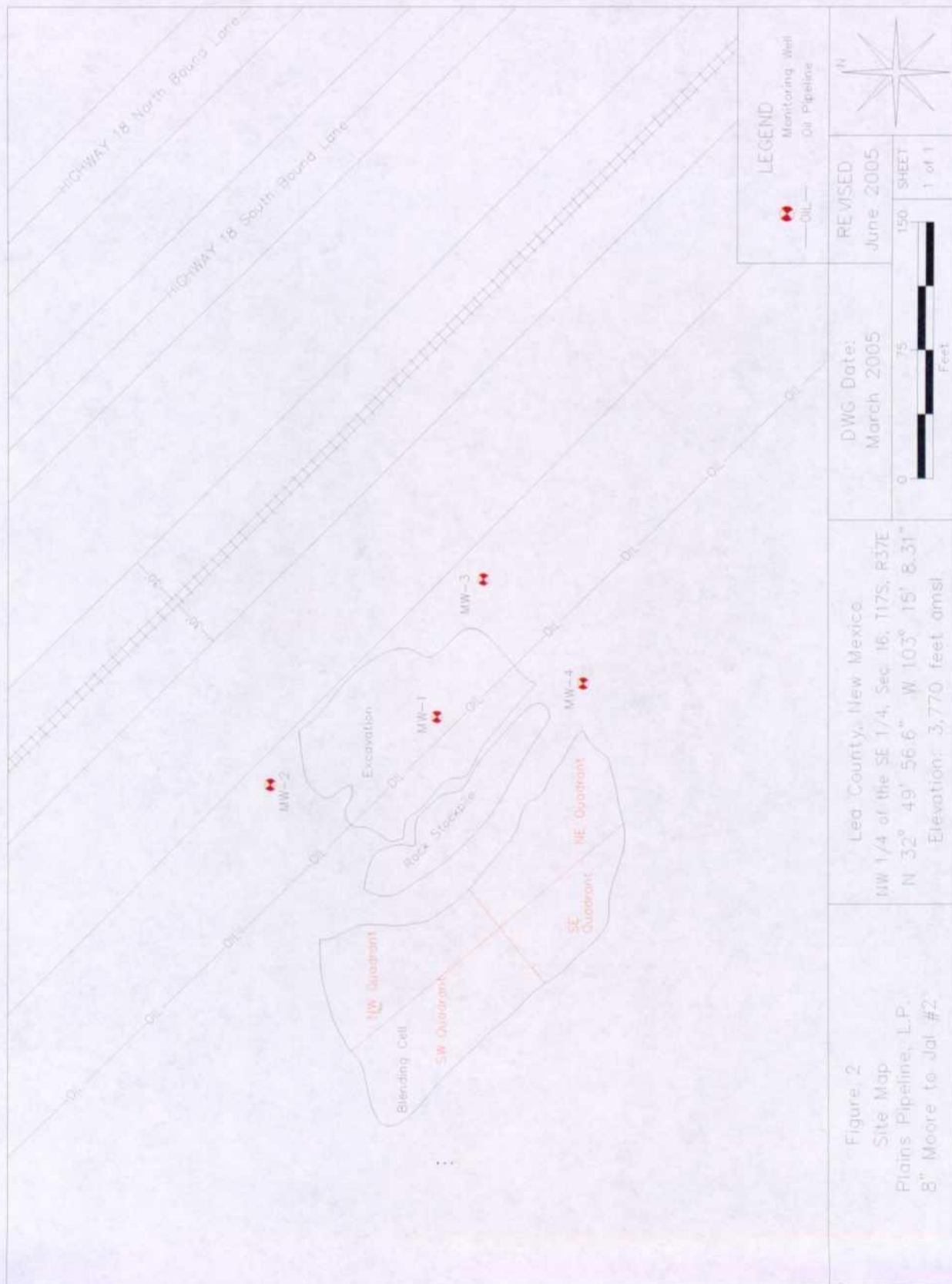


Figure 2  
 Site Map  
 Plains Pipeline, L.P.  
 8" Moore to Jot #2

Led County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E  
 N 32° 49' 56.6" W 103° 15' 8.31"  
 Elevation: 3,770 feet amsl

DWG Date:  
 March 2005

REVISED  
 June 2005



LEGEND  
 Monitoring Well  
 Oil Pipeline





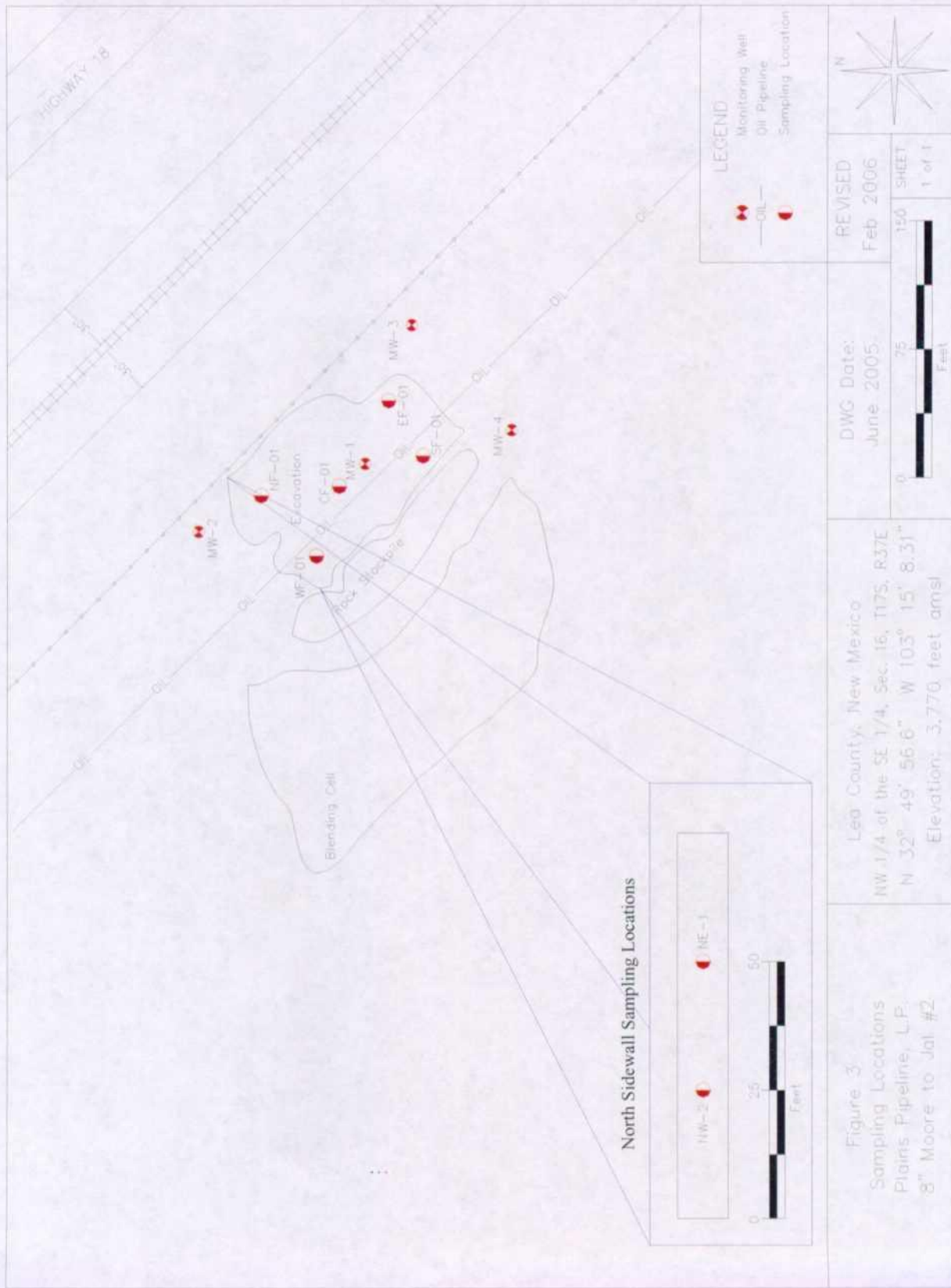


Figure 3  
 Sampling Locations  
 Plains Pipeline, L.P.  
 8" Moore to Jal #2

Lea County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E  
 N 32° 49' 56.6" W 103° 15' 8.31"  
 Elevation: 3,770 feet amsl

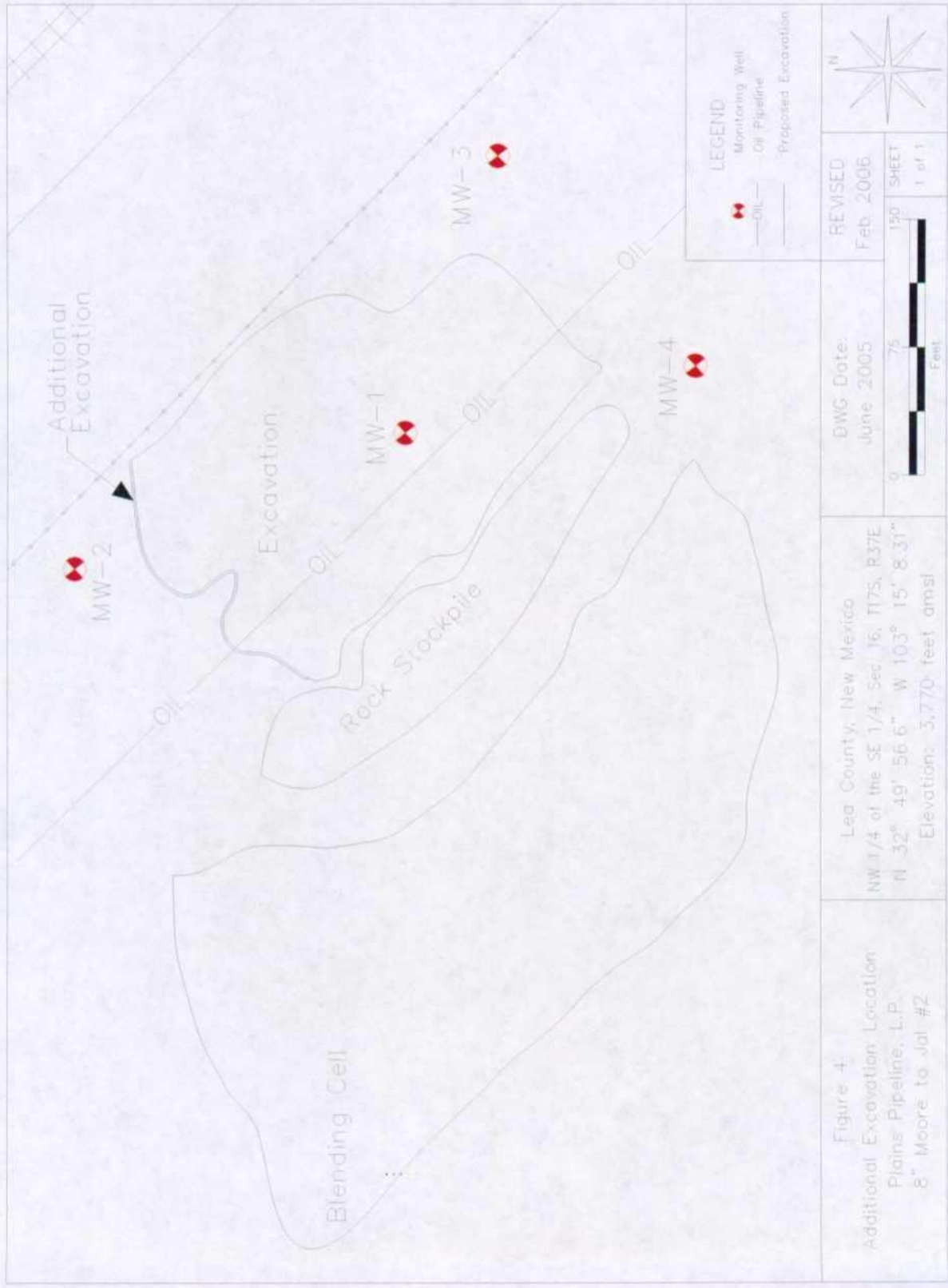
DWG Date:  
 June 2005

REVISD  
 Feb 2006

150 SHEET  
 1 of 1

LEGEND

Monitoring Well  
 Oil Pipeline  
 Sampling Location



**Tables**







MW-4 (65-70)	25-Oct-04	MW-4	42.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4 (70-75)		Con't	23.3	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.125	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
<b>NMOCD Remedial Thresholds</b>				<b>10</b>							<b>50</b>						<b>100</b>		

<sup>1</sup> Bolded values are in excess of the NMOCD Remediation Thresholds

<sup>2</sup> NA : Not Analyzed

<sup>3</sup> NS : Not Sampled

<sup>4</sup> Detected, but below the Reporting Limit; therefore, result is an estimated concentration (CLP-J Flag).



**Talon/LPE**

Table 2

318 East Taylor Street, Hobbs, New Mexico 88240  
Phone: 505/393-4261, FAX: 505/393-4658

SUMMARY OF EXCAVATION ANALYTICAL RESULTS (SOIL)

Plains All American Pipeline, L.P. - 8" Moore to Jal #2 - Ref #2002-10273

Sample ID	Sample Date	Sample Location	Field PID Analysis (ppm)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	m,p-Xylenes (mg/Kg)	o-Xylene (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)
SEMR31302NSW	13-Mar-02	North Sidewall	NA	<25	0.937	3.590	4.410	2.140	11.077	224	545	769
SEMR31302RAMP	13-Mar-02	Ramp	NA	<25	<25	<25	<25	<25	<125	<10	<10	<10
SEMR51302SP	13-May-02	Stockpile	NA	<1	<1	<1	<1	<1	NA	NA	NA	NA
SEMR51702BCC3'	17-May-02	Bottom -3'	NA	<25	<25	<25	<25	<25	<125	<10	<10	<10
SE103002StkPile	30-Oct-02	Stockpile	NA	0.002	0.006	0.003	0.007	0.004	0.022	NA	NA	NA
SLE8M211203NSWC	12-Nov-03	North Sidewall Composite (3'-4')	3.2	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	195	195
SLE8M211203SSWC	12-Nov-03	South Sidewall Composite (3'-4')	6.9	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	<10.0	<10.0

SLE8M2111203ESWC	12-Nov-03	East Sidewall Composite (3'-4')	8.5	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<10.0	<10.0	<10.0
SLE8M2111203BHC	12-Nov-03	Bottomhole Composite (4')	9.7	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<10.0	<10.0	<10.0
WW-N-01	3-Jun-05	West Sidewall - North End Grab (3'-4')	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<10.0	<10.0	<10.0
WW-S-01	3-Jun-05	West Sidewall - South End Grab (3'-4')	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<10.0	<10.0	<10.0
NE-1	16-Jan-06	North Sidewall - East End Grab (3'-4')	0.5	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<10.0	<10.0	<10.0
NW-2	16-Jan-06	North Sidewall - West End Grab (3'-4')	1.0	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	169	169.0	169.0
NF-01	26-Jan-06	North Floor	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	10.3	10.3	10.3
SF-01	26-Jan-06	South Floor	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	259.0	259.0	259.0
EF-01	26-Jan-06	East Floor	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	67.2	67.2	67.2
WF-01	26-Jan-06	West Floor	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	99.8	99.8	99.8
CF-01	26-Jan-06	Center Floor	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	186.0	186.0	186.0
<b>NMOCD Remedial Thresholds</b>													<b>10</b>	<b>50</b>	<b>100</b>			

<sup>1</sup> Bolded values are in excess of the NMOCD Remediation Thresholds

<sup>2</sup> NA : Not Analyzed

<sup>3</sup> NS : Not Sampled

<sup>4</sup> Detected, but below the Reporting Limit; therefore, result is an estimated concentration (CLP-J Flag).

# TALON/LPE

## Talon/LPE

Table 3

318 East Taylor Street, Hobbs, New Mexico 88240  
Phone: 505/393-4261, FAX: 505/393-4658

**SUMMARY OF LAND TREATMENT ANALYTICAL RESULTS (SOIL)**  
**Plains All American Pipeline, LP. - 8" Moore to Jal #2 - Ref #2002-10273**

Sample ID	Sample Date	Sample Location	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	m,p-Xylenes (mg/Kg)	o-Xylene (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)	
NW	Northwest Quadrant of Cell	15-Dec-04	NA	NA	NA	NA	NA	NA	<5	282.0	282.0	
		1-Jul-05	NA	NA	NA	NA	NA	NA	<10	420.0	420.0	
		29-Sep-05	NA	NA	NA	NA	NA	NA	NA	<10	25.3	25.3
		30-Dec-05	NA	NA	NA	NA	NA	NA	NA	<10	186.0	186.0
SW	Southwest Quadrant of Cell	15-Dec-04	NA	NA	NA	NA	NA	NA	<5	464.0	464.0	
		1-Jul-05	NA	NA	NA	NA	NA	NA	13.8	708.0	722.0	
		29-Sep-05	NA	NA	NA	NA	NA	NA	NA	<10	100.0	100.0
		30-Dec-05	NA	NA	NA	NA	NA	NA	NA	<10	146.0	146.0
NE	Northeast Quadrant of Cell	15-Dec-04	NA	NA	NA	NA	NA	NA	<5	31.2	31.2	
		1-Jul-05	NA	NA	NA	NA	NA	NA	<10	325.0	325.0	
		29-Sep-05	NA	NA	NA	NA	NA	NA	NA	<10	<10	<20
		30-Dec-05	NA	NA	NA	NA	NA	NA	NA	<10	103.0	103.0

SE	Southeast Quadrant of Cell	15-Dec-04	NA	NA	NA	NA	NA	NA	NA	NA	<5	18.1	18.1
		1-Jul-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.2	<b>789.0</b>
29-Sep-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	20.2	<b>20.2</b>	
30-Dec-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	167.0	<b>167.0</b>	
<b>NMOCD Remedial Thresholds</b>			<b>10</b>						<b>50</b>				<b>100</b>

<sup>1</sup> **Bolded** values are in excess of the NMOCD Remediation Thresholds

<sup>2</sup> NA : Not Analyzed

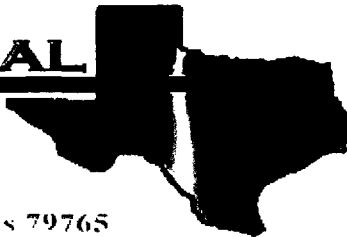
<sup>3</sup> NS : Not Sampled

<sup>4</sup> Detected, but below the Reporting Limit; therefore, result is an estimated concentration (CLP-J Flag).

**Laboratory Analytical Data**



**E** **NVIRONMENTAL**  
**LAB OF**



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: 8 inch Moore to Jal #2

Project Number: 2002-10273

Location: 15 miles North of Hobbs, NM

Lab Order Number: 6A18004

Report Date: 01/25/06

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NE-1 Site 2	6A18004-01	Soil	01/17/06 09:55	01/18/06 08:16
NW-2 Site 2	6A18004-02	Soil	01/17/06 10:05	01/18/06 08:16
SP-3 Site 2	6A18004-03	Soil	01/17/06 10:10	01/18/06 08:16

**ANALYTICAL REPORT FOR SAMPLES**

Plains All American EH & S	Project: 8 inch Moore to Jal #2	Fax: (432) 687-4914
1301 S. County Road 1150	Project Number: 2002-10273	Reported:
Midland TX, 79706-4476	Project Manager: Camille Reynolds	01/25/06 10:45

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 01/25/06 10:45

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>NE-1 Site 2 (6A18004-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA61902	01/19/06	01/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		95.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		83.0 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA61808	01/18/06	01/18/06	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		114 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		102 %	70-130		"	"	"	"	
<b>NW-2 Site 2 (6A18004-02) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA61902	01/19/06	01/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		89.8 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		84.0 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA61808	01/18/06	01/18/06	EPA 8015M	
<b>Diesel Range Organics &gt;C12-C35</b>	<b>169</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbon C6-C35</b>	<b>169</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		120 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		108 %	70-130		"	"	"	"	
<b>SP-3 Site 2 (6A18004-03) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EA61902	01/19/06	01/20/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		94.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		83.5 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA61808	01/18/06	01/18/06	EPA 8015M	
<b>Diesel Range Organics &gt;C12-C35</b>	<b>93.3</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbon C6-C35</b>	<b>93.3</b>	10.0	"	"	"	"	"	"	

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
01/25/06 10:45

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SP-3 Site 2 (6A18004-03) Soil</b>									
Surrogate: 1-Chlorooctane		120 %	70-130		EA61808	01/18/06	01/18/06	EPA 8015M	
Surrogate: 1-Chlorooctadecane		109 %	70-130		"	"	"	"	

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Reported:  
01/25/06 10:45

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>NE-1 Site 2 (6A18004-01) Soil</b>									
% Moisture	9.2	0.1	%	1	EA61901	01/18/06	01/19/06	% calculation	
<b>NW-2 Site 2 (6A18004-02) Soil</b>									
% Moisture	4.6	0.1	%	1	EA61901	01/18/06	01/19/06	% calculation	
<b>SP-3 Site 2 (6A18004-03) Soil</b>									
% Moisture	7.0	0.1	%	1	EA61901	01/18/06	01/19/06	% calculation	

Environmental Lab of Texas

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Page 4 of 9

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 01/25/06 10:45

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA61808 - Solvent Extraction (GC)**

**Blank (EA61808-BLK1)**

Prepared & Analyzed: 01/18/06

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	55.5		mg/kg	50.0		111	70-130			
Surrogate: 1-Chlorooctadecane	48.9		"	50.0		97.8	70-130			

**LCS (EA61808-BS1)**

Prepared & Analyzed: 01/18/06

Gasoline Range Organics C6-C12	474	10.0	mg/kg wet	500		94.8	75-125			
Diesel Range Organics >C12-C35	573	10.0	"	500		115	75-125			
Total Hydrocarbon C6-C35	1050	10.0	"	1000		105	75-125			
Surrogate: 1-Chlorooctane	61.3		mg/kg	50.0		123	70-130			
Surrogate: 1-Chlorooctadecane	52.4		"	50.0		105	70-130			

**Calibration Check (EA61808-CCV1)**

Prepared: 01/18/06 Analyzed: 01/19/06

Gasoline Range Organics C6-C12	462		mg/kg	500		92.4	80-120			
Diesel Range Organics >C12-C35	558		"	500		112	80-120			
Total Hydrocarbon C6-C35	1020		"	1000		102	80-120			
Surrogate: 1-Chlorooctane	63.3		"	50.0		127	70-130			
Surrogate: 1-Chlorooctadecane	51.6		"	50.0		103	70-130			

**Matrix Spike (EA61808-MS1)**

Source: 6A18004-01

Prepared & Analyzed: 01/18/06

Gasoline Range Organics C6-C12	509	10.0	mg/kg dry	551	ND	92.4	75-125			
Diesel Range Organics >C12-C35	624	10.0	"	551	ND	113	75-125			
Total Hydrocarbon C6-C35	1130	10.0	"	1100	ND	103	75-125			
Surrogate: 1-Chlorooctane	64.5		mg/kg	50.0		129	70-130			
Surrogate: 1-Chlorooctadecane	55.7		"	50.0		111	70-130			

**Matrix Spike Dup (EA61808-MSD1)**

Source: 6A18004-01

Prepared & Analyzed: 01/18/06

Gasoline Range Organics C6-C12	515	10.0	mg/kg dry	551	ND	93.5	75-125	1.17	20	
Diesel Range Organics >C12-C35	632	10.0	"	551	ND	115	75-125	1.27	20	
Total Hydrocarbon C6-C35	1150	10.0	"	1100	ND	105	75-125	1.75	20	
Surrogate: 1-Chlorooctane	64.6		mg/kg	50.0		129	70-130			
Surrogate: 1-Chlorooctadecane	56.5		"	50.0		113	70-130			

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 01/25/06 10:45

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA61902 - EPA 5030C (GC)**

**Blank (EA61902-BLK1)**

Prepared & Analyzed: 01/19/06

Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	36.7		ug/kg	40.0		91.8	80-120			
Surrogate: 4-Bromofluorobenzene	35.7		"	40.0		89.2	80-120			

**LCS (EA61902-BS1)**

Prepared: 01/19/06 Analyzed: 01/20/06

Benzene	1.28	0.0250	mg/kg wet	1.25		102	80-120			
Toluene	1.29	0.0250	"	1.25		103	80-120			
Ethylbenzene	1.23	0.0250	"	1.25		98.4	80-120			
Xylene (p/m)	2.38	0.0250	"	2.50		95.2	80-120			
Xylene (o)	1.33	0.0250	"	1.25		106	80-120			
Surrogate: a,a,a-Trifluorotoluene	38.4		ug/kg	40.0		96.0	80-120			
Surrogate: 4-Bromofluorobenzene	38.3		"	40.0		95.8	80-120			

**Calibration Check (EA61902-CCV1)**

Prepared: 01/19/06 Analyzed: 01/21/06

Benzene	46.4		ug/kg	50.0		92.8	80-120			
Toluene	46.1		"	50.0		92.2	80-120			
Ethylbenzene	43.4		"	50.0		86.8	80-120			
Xylene (p/m)	84.5		"	100		84.5	80-120			
Xylene (o)	47.6		"	50.0		95.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	34.7		"	40.0		86.8	80-120			
Surrogate: 4-Bromofluorobenzene	36.2		"	40.0		90.5	80-120			

**Matrix Spike (EA61902-MS1)**

Source: 6A17011-04

Prepared: 01/19/06 Analyzed: 01/21/06

Benzene	1.41	0.0250	mg/kg dry	1.46	ND	96.6	80-120			
Toluene	1.38	0.0250	"	1.46	ND	94.5	80-120			
Ethylbenzene	1.29	0.0250	"	1.46	ND	88.4	80-120			
Xylene (p/m)	2.48	0.0250	"	2.91	0.0282	84.3	80-120			
Xylene (o)	1.40	0.0250	"	1.46	ND	95.9	80-120			
Surrogate: a,a,a-Trifluorotoluene	34.5		ug/kg	40.0		86.2	80-120			
Surrogate: 4-Bromofluorobenzene	35.1		"	40.0		87.8	80-120			

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

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 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 01/25/06 10:45

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA61902 - EPA 5030C (GC)**

**Matrix Spike Dup (EA61902-MSD1)**

Source: 6A17011-04

Prepared: 01/19/06 Analyzed: 01/21/06

Benzene	1.37	0.0250	mg/kg dry	1.46	ND	93.8	80-120	2.94	20	
Toluene	1.38	0.0250	"	1.46	ND	94.5	80-120	0.00	20	
Ethylbenzene	1.30	0.0250	"	1.46	ND	89.0	80-120	0.676	20	
Xylene (p/m)	2.51	0.0250	"	2.91	0.0282	85.3	80-120	1.18	20	
Xylene (o)	1.41	0.0250	"	1.46	ND	96.6	80-120	0.727	20	
Surrogate: a,a,a-Trifluorotoluene	33.5		ug/kg	40.0		83.8	80-120			
Surrogate: 4-Bromofluorobenzene	35.2		"	40.0		88.0	80-120			



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 Reported:  
 01/25/06 10:45

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EA61901 - General Preparation (Prep)**

<b>Blank (EA61901-BLK1)</b>										Prepared: 01/18/06 Analyzed: 01/19/06
% Solids	100		%							
<b>Duplicate (EA61901-DUP1)</b>		<b>Source: 6A18001-01</b>								Prepared: 01/18/06 Analyzed: 01/19/06
% Solids	87.2		%		87.1			0.115	20	
<b>Duplicate (EA61901-DUP2)</b>		<b>Source: 6A18005-13</b>								Prepared: 01/18/06 Analyzed: 01/19/06
% Solids	92.2		%		91.8			0.435	20	

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
01/25/06 10:45

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:

*Raland K Tuttle*

Date:

1/25/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Page 9 of 9

6701 Aberdeen Avenue, Ste. 9  
Lubbock, Texas 79424  
Tel (806) 794-1296  
Fax (806) 794-1298  
1 (800) 378-1296  
email: lab@traceanalysis.com

# TraceAnalysis, Inc.

Company Name: **TALON/LPG** Phone #: **432-522-2133**  
Address: (Street, City, Zip) **49 EAST INDUSTRIAL RD.** Fax #: \_\_\_\_\_ e-mail: \_\_\_\_\_

Contact Person: **LOUIS SANCHEZ** Project Manager: **Camille Reynolds**  
Invoice to: (If different from above) **(SANCHEZ) Plains P/L** 2002-10273  
Project #: **L35PLAINS0085PL** Project Name: **8" MOORE TO JAL#2**

Project Location: **15 Miles North of Hobbs, N. Mex.** Sampler Signature: *Jan Alvarez*

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	MATRIX				PRESERVATIVE METHOD				SAMPLING DATE	TIME	
			WATER	SOIL	AIR	SLUDGE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH			ICE
-01	NE-1 SITE 2	1	✓							✓		1-17-06 9:55	
-02	SEW-001	1	✓							✓		" 10:10	
-03	SEW-002	1	✓							✓		" 10:10	
	SEW-003	1	✓							✓		" 11:30	
	NEW-004	1	✓							✓		" 11:50	
	NEW-005	1	✓							✓		" 12:00	
	SEW-006	1	✓							✓		" 12:10	
	SEW-007	1	✓							✓		" 12:15	
	SEW-008	1	✓							✓		" 13:00	

Relinquished by: *Jan Alvarez* Date: *1-17-06* Time: *14:16* Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received at Laboratory by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
*Camille Reynolds* 01-18-06 08:16 AM

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST  
LAB Order ID # \_\_\_\_\_

ANALYSIS REQUEST  
(Circle or Specify Method No.)

PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg 60108/200.7	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
TCLP Pesticides	
RCI	
GC/MS Vol 8260B/624	
GC/MS Semi Vol 8270C/625	
PCBs 8082/608	
Pesticides 8081A/608	
BOD, TSS, pH	
Moisture Content	
Turn Around Time if different from standard	

LAB USE ONLY  
Intact  Y /  N  
Headspace  Y /  N  
Temp *-2.5*  
Log-in Review \_\_\_\_\_

REMARKS: *16 hrs / sec 1*  
**COPY**  
 Dry Weight Basis Required  
 TRRP Report Required  
 Check if Special Reporting Limits Are Needed  
Carrier # \_\_\_\_\_

Submission of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

**Environmental Lab of Texas**  
**Variance / Corrective Action Report – Sample Log-In**

Client: Plains P/L

Date/Time: 01-18-06 @ 0816

Order #: 6A1B004

Initials: JMM

**Sample Receipt Checklist**

Temperature of container/cooler?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	-2,5	C
Shipping container/cooler in good condition?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Custody Seals intact on shipping container/cooler?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not present	
Custody Seals intact on sample bottles?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Not present	
Chain of custody present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sample Instructions complete on Chain of Custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Chain of Custody signed when relinquished and received?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Chain of custody agrees with sample label(s)	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Container labels legible and intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sample Matrix and properties same as on chain of custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Samples in proper container/bottle?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Samples properly preserved?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sample bottles intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Preservations documented on Chain of Custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Containers documented on Chain of Custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sufficient sample amount for indicated test?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
All samples received within sufficient hold time?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
VOC samples have zero headspace?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Not Applicable	

Other observations:

---



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**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

Corrective Action Taken:

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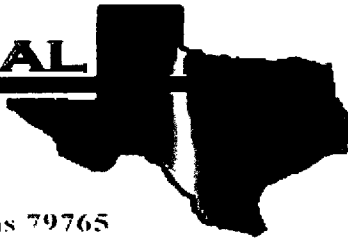


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**E** **N** **V** **I** **R** **O** **N** **M** **E** **N** **T** **A** **L** **L** **A** **B** **O** **F**



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: 8 inch Moore to Jal #2

Project Number: 2002-10273

Location: None Given

Lab Order Number: 6A30002

Report Date: 02/03/06

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914  
**Reported:**  
02/03/06 18:25

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NF-01	6A30002-01	Soil	01/26/06 19:20	01/27/06 17:10
SF-01	6A30002-02	Soil	01/26/06 19:25	01/27/06 17:10
EF-01	6A30002-03	Soil	01/26/06 19:30	01/27/06 17:10
WF-01	6A30002-04	Soil	01/26/06 19:35	01/27/06 17:10
CF-01	6A30002-05	Soil	01/26/06 19:40	01/27/06 17:10

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 02/03/06 18:25

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>NF-01 (6A30002-01) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EB60213	02/02/06	02/03/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		95.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		112 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA63114	01/31/06	02/01/06	EPA 8015M	
<b>Diesel Range Organics &gt;C12-C35</b>	<b>10.3</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbon C6-C35</b>	<b>10.3</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		128 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		122 %	70-130		"	"	"	"	
<b>SF-01 (6A30002-02) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EB60213	02/02/06	02/03/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		107 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.2 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA63114	01/31/06	02/01/06	EPA 8015M	
<b>Diesel Range Organics &gt;C12-C35</b>	<b>259</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbon C6-C35</b>	<b>259</b>	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		130 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		124 %	70-130		"	"	"	"	
<b>EF-01 (6A30002-03) Soil</b>									
Benzene	ND	0.0250	mg/kg dry	25	EB60213	02/02/06	02/03/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		102 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.2 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA63114	01/31/06	02/01/06	EPA 8015M	
<b>Diesel Range Organics &gt;C12-C35</b>	<b>67.2</b>	10.0	"	"	"	"	"	"	
<b>Total Hydrocarbon C6-C35</b>	<b>67.2</b>	10.0	"	"	"	"	"	"	

Environmental Lab of Texas

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Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 02/03/06 18:25

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**EF-01 (6A30002-03) Soil**

Surrogate: 1-Chlorooctane		119 %	70-130		EA63114	01/31/06	02/01/06	EPA 8015M	
Surrogate: 1-Chlorooctadecane		114 %	70-130		"	"	"	"	

**WF-01 (6A30002-04) Soil**

Benzene	ND	0.0250	mg/kg dry	25	EB60213	02/02/06	02/03/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		91.0 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.2 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA63114	01/31/06	02/01/06	EPA 8015M	
Diesel Range Organics >C12-C35	99.8	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	99.8	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		112 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		128 %	70-130		"	"	"	"	

**CF-01 (6A30002-05) Soil**

Benzene	ND	0.0250	mg/kg dry	25	EB60213	02/02/06	02/03/06	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		95.0 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.8 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA63114	01/31/06	02/01/06	EPA 8015M	
Diesel Range Organics >C12-C35	186	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	186	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		118 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		116 %	70-130		"	"	"	"	

Environmental Lab of Texas

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Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914  
Reported:  
02/03/06 18:25

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>NF-01 (6A30002-01) Soil</b>									
% Moisture	0.7	0.1	%	1	EA63103	01/30/06	01/31/06	% calculation	
<b>SF-01 (6A30002-02) Soil</b>									
% Moisture	0.5	0.1	%	1	EA63103	01/30/06	01/31/06	% calculation	
<b>EF-01 (6A30002-03) Soil</b>									
% Moisture	0.6	0.1	%	1	EA63103	01/30/06	01/31/06	% calculation	
<b>WF-01 (6A30002-04) Soil</b>									
% Moisture	2.0	0.1	%	1	EA63103	01/30/06	01/31/06	% calculation	
<b>CF-01 (6A30002-05) Soil</b>									
% Moisture	0.3	0.1	%	1	EA63103	01/30/06	01/31/06	% calculation	

Environmental Lab of Texas

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Page 4 of 9

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 02/03/06 18:25

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA63114 - Solvent Extraction (GC)**

**Blank (EA63114-BLK1)**

Prepared: 01/31/06 Analyzed: 02/01/06

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	61.5		mg/kg	50.0		123	70-130			
Surrogate: 1-Chlorooctadecane	55.1		"	50.0		110	70-130			

**LCS (EA63114-BS1)**

Prepared: 01/31/06 Analyzed: 02/01/06

Gasoline Range Organics C6-C12	489	10.0	mg/kg wet	500		97.8	75-125			
Diesel Range Organics >C12-C35	549	10.0	"	500		110	75-125			
Total Hydrocarbon C6-C35	1040	10.0	"	1000		104	75-125			
Surrogate: 1-Chlorooctane	64.9		mg/kg	50.0		130	70-130			
Surrogate: 1-Chlorooctadecane	58.3		"	50.0		117	70-130			

**Calibration Check (EA63114-CCV1)**

Prepared: 01/31/06 Analyzed: 02/02/06

Gasoline Range Organics C6-C12	487		mg/kg	500		97.4	80-120			
Diesel Range Organics >C12-C35	542		"	500		108	80-120			
Total Hydrocarbon C6-C35	1030		"	1000		103	80-120			
Surrogate: 1-Chlorooctane	65.0		"	50.0		130	70-130			
Surrogate: 1-Chlorooctadecane	58.5		"	50.0		117	70-130			

**Matrix Spike (EA63114-MS1)**

Source: 6A30007-07

Prepared: 01/31/06 Analyzed: 02/01/06

Gasoline Range Organics C6-C12	524	10.0	mg/kg dry	561	ND	93.4	75-125			
Diesel Range Organics >C12-C35	566	10.0	"	561	ND	101	75-125			
Total Hydrocarbon C6-C35	1090	10.0	"	1120	ND	97.3	75-125			
Surrogate: 1-Chlorooctane	64.7		mg/kg	50.0		129	70-130			
Surrogate: 1-Chlorooctadecane	59.5		"	50.0		119	70-130			

**Matrix Spike Dup (EA63114-MSD1)**

Source: 6A30007-07

Prepared: 01/31/06 Analyzed: 02/01/06

Gasoline Range Organics C6-C12	526	10.0	mg/kg dry	561	ND	93.8	75-125	0.381	20	
Diesel Range Organics >C12-C35	566	10.0	"	561	ND	101	75-125	0.00	20	
Total Hydrocarbon C6-C35	1090	10.0	"	1120	ND	97.3	75-125	0.00	20	
Surrogate: 1-Chlorooctane	63.3		mg/kg	50.0		127	70-130			
Surrogate: 1-Chlorooctadecane	59.4		"	50.0		119	70-130			

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 02/03/06 18:25

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EB60213 - EPA 5030C (GC)**

**Blank (EB60213-BLK1)**

Prepared & Analyzed: 02/02/06

Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	36.1		ug/kg	40.0		90.2	80-120			
Surrogate: 4-Bromofluorobenzene	35.8		"	40.0		89.5	80-120			

**LCS (EB60213-BS1)**

Prepared & Analyzed: 02/02/06

Benzene	0.0498	0.00100	mg/kg wet	0.0500		99.6	80-120			
Toluene	0.0512	0.00100	"	0.0500		102	80-120			
Ethylbenzene	0.0529	0.00100	"	0.0500		106	80-120			
Xylene (p/m)	0.0998	0.00100	"	0.100		99.8	80-120			
Xylene (o)	0.0512	0.00100	"	0.0500		102	80-120			
Surrogate: a,a,a-Trifluorotoluene	43.3		ug/kg	40.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	46.1		"	40.0		115	80-120			

**Calibration Check (EB60213-CCV1)**

Prepared: 02/02/06 Analyzed: 02/03/06

Benzene	48.7		ug/kg	50.0		97.4	80-120			
Toluene	50.4		"	50.0		101	80-120			
Ethylbenzene	48.5		"	50.0		97.0	80-120			
Xylene (p/m)	90.5		"	100		90.5	80-120			
Xylene (o)	46.0		"	50.0		92.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.5		"	40.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	33.3		"	40.0		83.2	80-120			

**Matrix Spike (EB60213-MS1)**

Source: 6A27003-01

Prepared: 02/02/06 Analyzed: 02/03/06

Benzene	1.25	0.0250	mg/kg dry	1.31	ND	95.4	80-120			
Toluene	1.30	0.0250	"	1.31	ND	99.2	80-120			
Ethylbenzene	1.35	0.0250	"	1.31	ND	103	80-120			
Xylene (p/m)	2.56	0.0250	"	2.62	ND	97.7	80-120			
Xylene (o)	1.31	0.0250	"	1.31	ND	100	80-120			
Surrogate: a,a,a-Trifluorotoluene	39.8		ug/kg	40.0		99.5	80-120			
Surrogate: 4-Bromofluorobenzene	47.7		"	40.0		119	80-120			

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 02/03/06 18:25

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EB60213 - EPA 5030C (GC)**

**Matrix Spike Dup (EB60213-MSD1)**

Source: 6A27003-01

Prepared: 02/02/06 Analyzed: 02/03/06

Benzene	1.15	0.0250	mg/kg dry	1.31	ND	87.8	80-120	8.30	20	
Toluene	1.22	0.0250	"	1.31	ND	93.1	80-120	6.34	20	
Ethylbenzene	1.26	0.0250	"	1.31	ND	96.2	80-120	6.83	20	
Xylene (p/m)	2.39	0.0250	"	2.62	ND	91.2	80-120	6.88	20	
Xylene (o)	1.20	0.0250	"	1.31	ND	91.6	80-120	8.77	20	
Surrogate: a,a,a-Trifluorotoluene	41.3		ug/kg	40.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	44.4		"	40.0		111	80-120			

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914  
 Reported:  
 02/03/06 18:25

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EA63103 - General Preparation (Prep)**

<b>Blank (EA63103-BLK1)</b>				Prepared: 01/30/06 Analyzed: 01/31/06						
% Solids	100		%							
<b>Duplicate (EA63103-DUP1)</b>				Prepared: 01/30/06 Analyzed: 01/31/06						
				Source: 6A27009-01						
% Solids	96.1		%		96.1			0.00	20	
<b>Duplicate (EA63103-DUP2)</b>				Prepared: 01/30/06 Analyzed: 01/31/06						
				Source: 6A27022-03						
% Solids	92.2		%		91.3			0.981	20	
<b>Duplicate (EA63103-DUP3)</b>				Prepared: 01/30/06 Analyzed: 01/31/06						
				Source: 6A30007-06						
% Solids	97.6		%		98.4			0.816	20	

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914  
Reported:  
02/03/06 18:25

### Notes and Definitions

DET Analyte DETECTED ...  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:

*Raland K Tuttle*

Date:

2/3/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.



**Environmental Lab of Texas**  
**Variance / Corrective Action Report – Sample Log-In**

Client: Plains P/L

Date/Time: 01-27-06 @ 1710

Order #: 6A 30002

Initials: JMM

**Sample Receipt Checklist**

Temperature of container/cooler?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	L.O	C
Shipping container/cooler in good condition?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Custody Seals intact on shipping container/cooler?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Not present	
Custody Seals intact on sample bottles?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Not present	
Chain of custody present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sample Instructions complete on Chain of Custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Chain of Custody signed when relinquished and received?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Chain of custody agrees with sample label(s)	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Container labels legible and intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sample Matrix and properties same as on chain of custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Samples in proper container/bottle?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Samples properly preserved?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sample bottles intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Preservations documented on Chain of Custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Containers documented on Chain of Custody?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
Sufficient sample amount for indicated test?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
All samples received within sufficient hold time?	<input checked="" type="radio"/> Yes	<input type="radio"/> No		
VOC samples have zero headspace?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Not Applicable	

Other observations:

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**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

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Corrective Action Taken:

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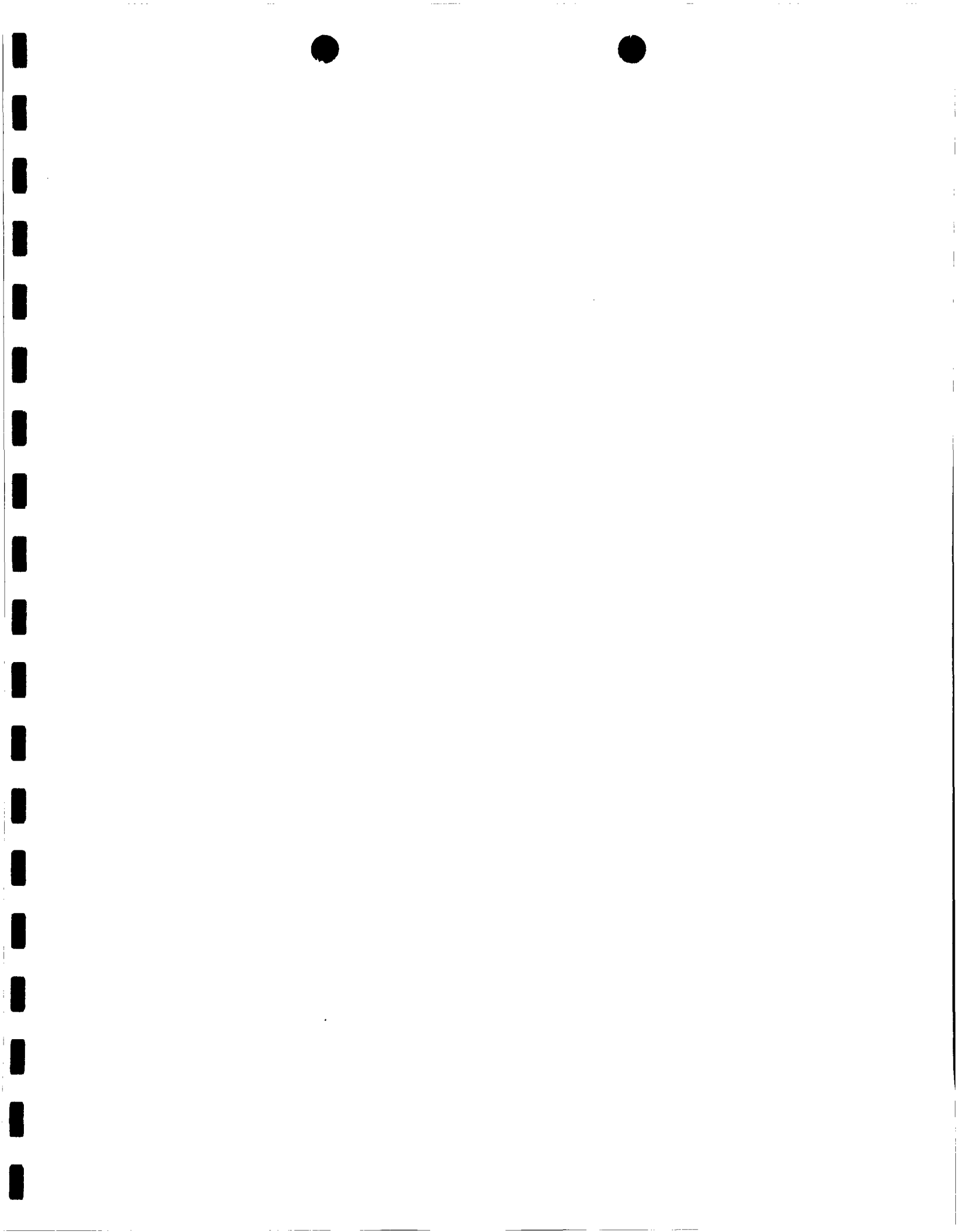
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C-141



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 October 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 <b>EOTT</b>	Contact <b>Frank Hernandez</b>
Address PO Box 1660 5805 East Highway 80 Midland, Texas 79702	Telephone No. 915.638.3799
Facility Name 8" Moore to Jal #2	Facility Type 8" Steel Pipeline

Surface Owner State of New Mexico	Mineral Owner	Lease No.
--------------------------------------	---------------	-----------

**LOCATION OF RELEASE**

Unit Letter 16	Section 16	Township T17S	Range R37E	Feet from the	North/South Line	Feet from the	East/West Line	County: Lea Lat. 32 49' 56.61"N Lon. 103 15' 08.47"W
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**NATURE OF RELEASE**

Type of Release Crude Oil	Volume of Release 25 bbls barrels	Volume Recovered 0 bbls barrels
Source of Release 8" Steel Pipeline	Date and Hour of Occurrence EOTT	Date and Hour of Discovery 10-22-02 @ 7:00 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Larry Johnson	
By Whom? Pat McCasland, EPI	Date and Hour 10-23-02 @ 7:00 AM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. NA	
If a Watercourse was Impacted, Describe Fully.* NA		
Describe Cause of Problem and Remedial Action Taken.* 8" Steel Pipeline Site will be delineated to determine the vertical and horizontal extents of contamination. Contaminated soil will be blended on site or disposed of.		
Describe Area Affected and Cleanup Action Taken.* 5,794 sqft ~160' x 40' Site will be delineated to determine the vertical and horizontal extents of contamination. Contaminated soil will be blended on site or disposed of. Remedial Goals: TPH 8015m = 100 mg/Kg, Benzene = 10 mg/Kg, and BTEX, i.e., the mass sum of Benzene, Ethyl Benzene, Toluene, and Xylenes = 50 mg/Kg.		
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: Frank Hernandez	Approved by District Supervisor:	
Title: District Environmental Supervisor	Approval Date:	Expiration Date:
Date: October 23, 2003      Phone: 915.638.3799	Conditions of Approval:	Attached <input type="checkbox"/>

\* Attach Additional Sheets If Necessary



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**  
Governor  
**Joanna Prukop**  
Cabinet Secretary

**Mark E. Fesmire, P.E.**  
Director  
Oil Conservation Division

April 12, 2006

Ms. Camille Reynolds  
Plains All American  
3112 West Highway 82  
Lovington, NM 88260

RE: 1005 Annual Groundwater Monitoring Report  
Plains Pipeline, L.P. 8" Moore to Jal #2 Site  
NW/4 SE/4 of Section 16, Township 17 South, Range 37 East  
Eea County, New Mexico  
Ref. #2002-10273  
NMOCD File Number 1R-0381

Dear Ms. Reynolds:

The New Mexico Oil Conservation Division has received and reviewed the above report submitted on behalf of Plains Pipeline, L.P. (Plains) by Talon/LPE. This report is accepted and approved with the following understandings and conditions:

1. Plains will continue to gauge the monitor wells bi-weekly to record water and PSH levels and recover PSH from the groundwater monitoring wells that are impacted with PSH.
2. Plains will sample the groundwater monitoring well network quarterly and submit the samples for quantification of BTEX. The samples will be analyzed for PAH annually.
3. Plains will install six additional groundwater-monitoring wells at the site to further delineate the lateral extent of groundwater impacts. Prior to installation, Plains will submit a plan describing the locations of these wells.
4. Plains will install a continuous recovery unit utilizing a pneumatic pump devoted to each well containing PSH.

NMOCD approval does not relieve Plains of liability should its operations at this site prove to have been harmful to public health or the environment. Nor does it relieve Plains of its responsibility to comply with the rules and regulations of any other governmental agency.

Plains 8" Moore to Jal #2  
2005 Annual Report Approval  
April 12, 2006  
Page 2 of 2

If you have any questions, contact me at (505) 476-3492 or [ed.martin@state.nm.us](mailto:ed.martin@state.nm.us)

NEW MEXICO OIL CONSERVATION DIVISION



Edwin E. Martin  
Environmental Bureau

Copy: NMOCD, Hobbs  
Jason Graham, Talon/LPE



**PLAINS  
ALL AMERICAN**

March 29, 2006

Mr. Ed Martin  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Re: Plains All American – Annual Monitoring Reports  
2 Sites in Lea County, New Mexico

Dear Mr. Martin:

Plains All American is an operator of crude oil pipelines and terminal facilities in the state of New Mexico. Plains All American actively monitors certain historical release sites exhibiting groundwater impacts, consistent with assessments and work plans developed in consultation with the New Mexico Oil Conservation Division (NMOCD). In accordance with the rules and regulations of the NMOCD, Plains All American hereby submits our Annual Monitoring reports for the following sites:

8<sup>th</sup> Moore to Jal #1  
8<sup>th</sup> Moore to Jal #2

Section 16, Township 17 South, Range 37 East, Lea County  
Section 16, Township 17 South, Range 37 East, Lea County

TalonLPE prepared these documents and has vouched for their accuracy and completeness, and on behalf of Plains All American, I have personally reviewed the documents and interviewed TalonLPE in order to verify the accuracy and completeness of these documents. It is based upon these inquiries and reviews that Plains All American submits the enclosed Annual Monitoring Reports for the above facilities.

If you have any questions or require further information, please contact me at (505) 441-0965.

Sincerely,

Camille Reynolds  
Remediation Coordinator  
Plains All American

CC: Larry Johnson, NMOCD, Hobbs, NM

Enclosures

# TALONLPE

March 22, 2006

Mr. Edwin E. Martin  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

*Report is on  
the L-Drive*

Re: Annual Groundwater Monitoring Report  
Plains Pipeline, L.P.  
8" Moore to Jal #2 (Rcf #2002-10273)  
NW/4 of the SE/4 of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico  
NMOCD Ref. 1R-0381

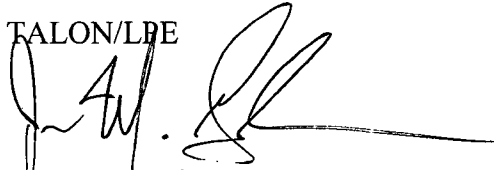
Mr. Martin:

The 8" Moore to Jal #2 release site is located approximately 9.5 miles southeast of Lovington in Lea County, New Mexico. The release occurred on property owned by the State of New Mexico and is utilized as pasture land. The site is located in a rural area within the West Lovington Oil Field, with no residences or surface water within a 1,000-foot radius of the facility.

In October 2002, a release of approximately twenty-five (25) barrels of crude oil occurred at the site due to corrosion (internal and/or external) of the pipeline. Approximately six thousand (6,000) square feet (ft<sup>2</sup>) of surface area was impacted by the release. Surficial soil saturated by the release was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm for treatment.

The details of the annual groundwater monitoring, phase separated hydrocarbon recovery activities, sampling activities, analytical results, and remediation work plan are described in the attached 2005 Annual Groundwater Monitoring Report. If you have any questions feel free to contact me at (505) 441-4835 or by E-mail at [jgraham@talonlpe.com](mailto:jgraham@talonlpe.com). Thank you very much.

TALON/LPE



Jason M. Graham  
Project Manager

AMARILLO  
921 North Bivins  
Amarillo, Texas 79107  
Phone 806-467-0607  
Fax 806-467-0622

AUSTIN  
3003 Tom Gary Cove  
Building C-100  
Round Rock, Texas 78664  
Phone 512-989-3428  
Fax 512-989-3487

MIDLAND  
#9 East Industrial Loop  
Midland, Texas 79701  
Phone 432-522-2133  
Fax 432-522-2180

NEW BRAUNFELS  
707 N. Walnut Ave.  
Suite 208  
New Braunfels, Texas 78130  
Phone 210-579-0235  
Fax 210-568-2191

TULSA  
1439 East 41st Street  
Tulsa, OK 74105  
Phone 918-742-0871  
Fax 918-742-0876

Cc: Camille Reynolds, Plains All American Pipeline, L.P.  
Jeff Dann, Plains All American Pipeline, L.P.

**TALONLPE**

# 8" Moore to Jal #2 Annual Groundwater Monitoring Report

Plains Ref: 2002-10273

NW¼ of the SE¼ of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico

~9.5 Miles Southeast (136°) of

Lovington, Lea County, New Mexico

Latitude: N32° 49' 56.6"

Longitude: W103° 15' 8.31"

March 2006

AMARILLO  
921 North Bivins  
Amarillo, Texas 79107  
Phone 806-467-0607  
Fax 806-467-0622

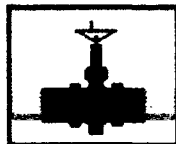
AUSTIN  
3003 Tom Gary Cove  
Building C-100  
Round Rock, Texas 78664  
Phone 512-989-3428  
Fax 512-989-3487

MIDLAND  
#9 East Industrial Loop  
Midland, Texas 79701  
Phone 432-522-2133  
Fax 432-522-2180

NEW BRAUNFELS  
707 N. Walnut Ave.  
Suite 208  
New Braunfels, Texas 78130  
Phone 210-579-0235  
Fax 210-568-2191

TULSA  
1439 East 41st Street  
Tulsa, OK 74105  
Phone 918-742-0871  
Fax 918-742-0876

Prepared For:



**PLAINS**  
ALL-AMERICAN  
PIPELINE, L.P.

333 Clay Street, Suite 600  
Houston, TX 77002

Prepared By:

**TalonLPE**

318 East Taylor Street  
Hobbs, New Mexico 88240



**Distribution List**

Name	Title	Company or Agency	Mailing Address	e-mail
Ed Martin	Environmental Engineer	NMOCD	1220 South St. Francis Drive Santa Fe, NM 87505	emartin@state.nm.us
Larry Johnson	Environmental Engineer	NMOCD	1625 French Dr. Hobbs, NM 88231	lwjohnson@state.nm.us
Camille Reynolds	Remediation Coordinator	Plains All American Pipeline	3112 West U.S. Hwy 82 Lovington, NM 88260	cjreynolds@paalp.com
Jeff Dann	Senior Environmental Specialist	Plains All American Pipeline	P. O. Box 4648 Houston, TX 77210-4648	jpdann@paalp.com
Daniel Bryant	Environmental Specialist	Plains All American Pipeline	P. O. Box 3119 Midland, TX 79702-3119	dmbryant@paalp.com
File		Talon/LPE	318 East Taylor Street Hobbs, New Mexico 88240	lsanchez@llano-permian.com

NMOCD - New Mexico Oil Conservation Division

## **ANNUAL GROUNDWATER MONITORING REPORT**

### **Introduction**

The 8" Moore to Jal #2 release site is located approximately 9.5 miles southeast of Lovington in Lea County, New Mexico, at an elevation of approximately 3,770 feet above mean sea level (reference Figures 1 and 2). The release occurred on property owned by the State of New Mexico and is utilized as pasture land. The site is located in a rural area within the West Lovington oil field, with no residences or surface water within a 1,000-foot radius of the facility.

In October 2002, a release of approximately 25 barrels of crude oil, of which there was no recovery, occurred at the site due to corrosion (internal and/or external) of the pipeline. Approximately 8,000 square feet (ft<sup>2</sup>) of surface area was impacted by the release. Surface soil saturated by the release was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm for treatment.

In an effort to delineate the extent of impacted soil at the site, three soil borings were advanced at the site to depths ranging from 20 to 40 feet below ground surface (bgs) in November 2002. Field analyses of soil samples collected at discreet intervals indicated organic vapor concentrations exceeded 100 parts per million (ppm) at least to a depth of 40 feet bgs in soil boring BH-3.

Excavation activities commenced at the site in June 2003 in order to remove soil impacted above the New Mexico Oil Conservation Division (NMOCD) remedial thresholds. Approximately 1,220 cubic yards of soil were excavated and run through a shaker to separate the rock from the soil. After the soil and rock had been separated, the soil (approximately 575 cubic yards) was spread out into a land treatment area and the rock was stockpiled on site (reference *Figure 3*). Upon the completion of excavation activities, composite samples were collected from the north sidewall, south sidewall, east sidewall and bottom of the excavation to document the successful removal of soil impacted above NMOCD remedial thresholds. Field analyses of these samples indicated organic vapor concentrations of <10.0 ppm for all samples. Laboratory analyses confirmed all analytes were below the NMOCD remedial thresholds, with the exception of the sample collected from the north sidewall. On June 3, 2005, TalonLPE collected a confirmation sample from the west wall, since one was previously uncollected. The samples WW-N and WW-S were determined to be below regulatory limits (reference *Table 5*).

### **Groundwater Monitoring Well Installation**

Based on field analyses of samples collected from the soil borings advanced during initial delineation activities, the NMOCD requested that a groundwater monitoring well be installed to determine if groundwater had been impacted by the release. One groundwater monitoring well, MW-1 was installed at the site in July 2004. This groundwater monitoring well was installed adjacent to the pipeline near the point of release (reference *Figure 3*) to a depth of 85 feet below ground surface (bgs) and screened from 65 to 85 feet bgs (reference *Appendix C*).

Due to the presence of phase separated hydrocarbons (PSH) in MW-1, three additional groundwater monitoring wells (MW-2, MW-3 and MW-4) were installed at the site in October 2004. These wells were installed to delineate the lateral extent of PSH and/or dissolved phase impacts to the groundwater.

Groundwater monitoring well MW-2 was installed approximately 106 feet north-northwest of groundwater monitoring well MW-1 (reference *Figure 3*) to a depth of 82.5 feet bgs and screened from 62.5 to 82.5 feet bgs (reference *Appendix C*). Groundwater monitoring well MW-3 was installed approximately 85 feet east-southeast of groundwater monitoring well MW-1 (reference *Figure 3*) to a depth of 83 feet bgs and screened from 63 to 83 feet bgs (reference *Appendix C*). Groundwater monitoring well MW-4 was installed approximately 90 feet south-southeast of groundwater monitoring well MW-1 (reference *Figure 3*) to a depth of 87 feet bgs and screened from 67 to 87 feet bgs (reference *Appendix C*).

### Groundwater Gradient and PSH Thickness

The monitoring wells were gauged prior to determine the depth to groundwater and the thickness of any PSH. Groundwater gradient appears to be in a southerly direction as indicated in *Figures 4a – 4d*. Except for minor fluctuations, groundwater levels and gradient have remained relatively constant. PSH levels in groundwater monitoring well MW-1 have remained consistent with an approximate thickness of six to seven feet. No measurable PSH was recorded from groundwater monitoring well MW-2 and MW-4. From January 2005 to September 2005, there was no measurable PSH in groundwater monitoring well MW-3, however, from September 2005 through December 2005, PSH was recorded in MW-3 and levels have risen from two-hundredths of a foot to seven-tenths of a foot. The PSH plume has remained stable, with the exception of MW-3 throughout the four quarters of 2005. A summary of groundwater elevations and PSH thickness is included in *Tables 1 and 2* and illustrated in *Figures 4a – 4f* and *5a – 5d*.

### PSH Recovery

Recovery of the PSH in the vicinity of groundwater monitoring well MW-1 was accomplished via hand bailing by EPI during the first four months of 2005. TalonLPE took over the project in May of 2005 and with the use of a portable submersible pump enhanced recovery was achieved. The first quarter of 2005 had total recovery of 112.00 gallons of PSH. It is suggested this amount was low due to hand bailing. The second quarter of 2005 saw a slight decrease in PSH recovery for April and May with 106 gallons of PSH recovered. However, recovery significantly increased in June, due to enhanced recovery techniques. The third quarter had the largest recovery period for all of 2005, with a total PSH recovery of 261.00 gallons. The last quarter of 2005 had a total recovery of 228.00 gallons of PSH. A total of 707.00 gallons (16.8 barrels) of PSH were recovered during Fiscal Year 2005 (reference *Table 1 and 2*). Recovered PSH was placed into the Plains Lovington Station sump, WHICH DUMPS INTO THE PLAINS PIPELINE SYSTEM.

### Groundwater Sampling

Groundwater monitoring wells MW-2, MW-3 and MW-4 were sampled on March 18, 2005, June 14, 2005, September 30, 2005 and December 30, 2005 with the samples being submitted for quantification of benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8260b and poly-aromatic hydrocarbons (PAH) using EPA Methods 610 & 8270C.

All wells were purged a minimum of three well volumes or dry prior to sampling. Groundwater samples were collected utilizing dedicated or disposable sample bailers. Samples were then placed on ice and shipped to an independent laboratory under chain-of-custody for analyses.

### **Groundwater Analytical Results**

Analytical results for the samples collected from groundwater monitoring well MW-2 on March 18, 2005 indicated benzene concentrations of 0.0404 mg/L, toluene concentrations of 0.0251 mg/L, ethylbenzene concentrations of 0.00231 mg/L and total xylene concentrations of 0.00744 mg/L. Samples collected from MW-2 on June 14, 2005 indicated benzene concentrations of 0.00109 mg/L, toluene concentrations of less than 0.001 mg/L, ethylbenzene concentrations of less than 0.001 mg/L and total xylene concentrations of less than 0.002mg/L. Samples collected from MW-2 on September 30, 2005 indicated benzene concentrations of 0.0428 mg/L, toluene concentrations of 0.0392 mg/L, ethylbenzene concentrations of 0.00561 mg/L and total xylene concentrations of 0.01265 mg/L. Samples collected from MW-2 on December 30, 2005 indicated benzene concentrations of less than 0.001 mg/L, toluene concentrations of less than 0.001 mg/L, ethylbenzene concentrations of less than 0.001 mg/L and total xylene concentrations of less than 0.001 mg/L. Analytical results for PAH analysis taken on December 30, 2005 were reported as non-detectable (ND) at or above each analytes respective Minimum Detectable Limit (MDL). Benzene was the only analyte reported above the New Mexico Water Quality Control Commission (NMWQCC) groundwater standard of 0.010 mg/L, during the first and third quarters only *reference Table 3 and 4.*

Analytical results for the sample collected from groundwater monitoring well MW-3 on March 18, 2005 indicated benzene concentrations of 1.23 mg/L, toluene concentrations of 0.338 mg/L, ethylbenzene concentrations of 0.0206 mg/L and total xylene concentrations of 0.251 mg/L. Samples collected from MW-3 on June 14, 2005 indicated benzene concentrations of 11.0 mg/L, toluene concentrations of 2.34 mg/L, ethylbenzene concentrations of 0.792 mg/L and total xylene concentrations of 1.65 mg/L. No groundwater samples were collected during the final two quarters of 2005 due to the presence of PSH. Benzene was the only analyte reported above the NMWQCC groundwater standard of .010 mg/L, during the first quarter. Benzene, toluene, ethylbenzene and total xylene were all above the NMWQCC groundwater standards of .010 mg/L for benzene, 0.750 mg/L for toluene, 0.750 mg/L for ethylbenzene and 0.620 mg/L for total xylenes respectively, during the second quarter *reference Table 3 and 4.*

Analytical results for the sample collected from groundwater monitoring well MW-4 on March 18, 2005 indicated benzene concentrations of 5.23 mg/L, toluene concentrations of 0.989 mg/L, ethylbenzene concentrations of 0.259 mg/L and total xylene concentrations of 0.468 mg/L. Samples collected from MW-4 on June 14, 2005 indicated benzene concentrations of 8.290 mg/L, toluene concentrations of 0.827 mg/L, ethylbenzene concentrations of 0.308.00 mg/L and total xylene concentrations of 0.3139 mg/L. Samples collected from MW-4 on September 30,

2005 indicated benzene concentrations of 5.36 mg/L, toluene concentrations of 0.148 mg/L, ethylbenzene concentrations of 0.153 mg/L and total xylene concentrations of less than 0.20 mg/L. Samples collected from MW-4 on December 30, 2005 indicated benzene concentrations of 0.00449 mg/L, toluene concentrations of less than 0.00005 mg/L, ethylbenzene concentrations of less than 0.00005 mg/L and total xylene concentrations of less than 0.00005 mg/L. Analytical results for PAH analysis taken on December 30, 2005 were reported at 0.0199 mg/L. Benzene and toluene were the only analytes reported above the NMWQCC groundwater standard of 0.01 mg/L and 0.75 µg/L respectively, during the first and second quarters. Benzene was above the standard during the third quarter. All parameters were below standards during the fourth quarter *reference Table 3 and 4.*

A summary of the groundwater analytical results are included in *Table 3* and *Table 4* and copies of analytical results and chain-of-custody forms are included in *Appendix A.*

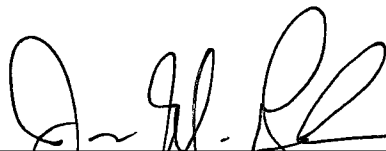
### **Recommendations**

Based on field monitoring and laboratory analytical results collected during 2005, the following activities are recommended for the site:

- 1) Continue to gauge the monitor wells on a bi-weekly basis to record water and PSH levels and recover PSH from the groundwater monitoring wells impacted with PSH.
- 2) Sample the groundwater monitoring well network on a quarterly basis and submit the samples for quantification of BTEX. The samples should be analyzed annually for the presence of PAH.
- 3) Install six additional groundwater monitoring wells at the site to further delineate the lateral extent of groundwater impacts (*reference Figure 6*).
- 4) Upon the installation of the proposed monitoring wells, emphasizing on the complete delineation of the site, evaluate the site-specific conditions and design and install a continuous recovery unit utilizing a pneumatic pump devoted to each PSH containing well.

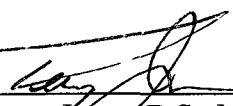
### **Signatures**

Written By:



Jason M. Graham. B.S  
Project Manager  
Talon/LPE

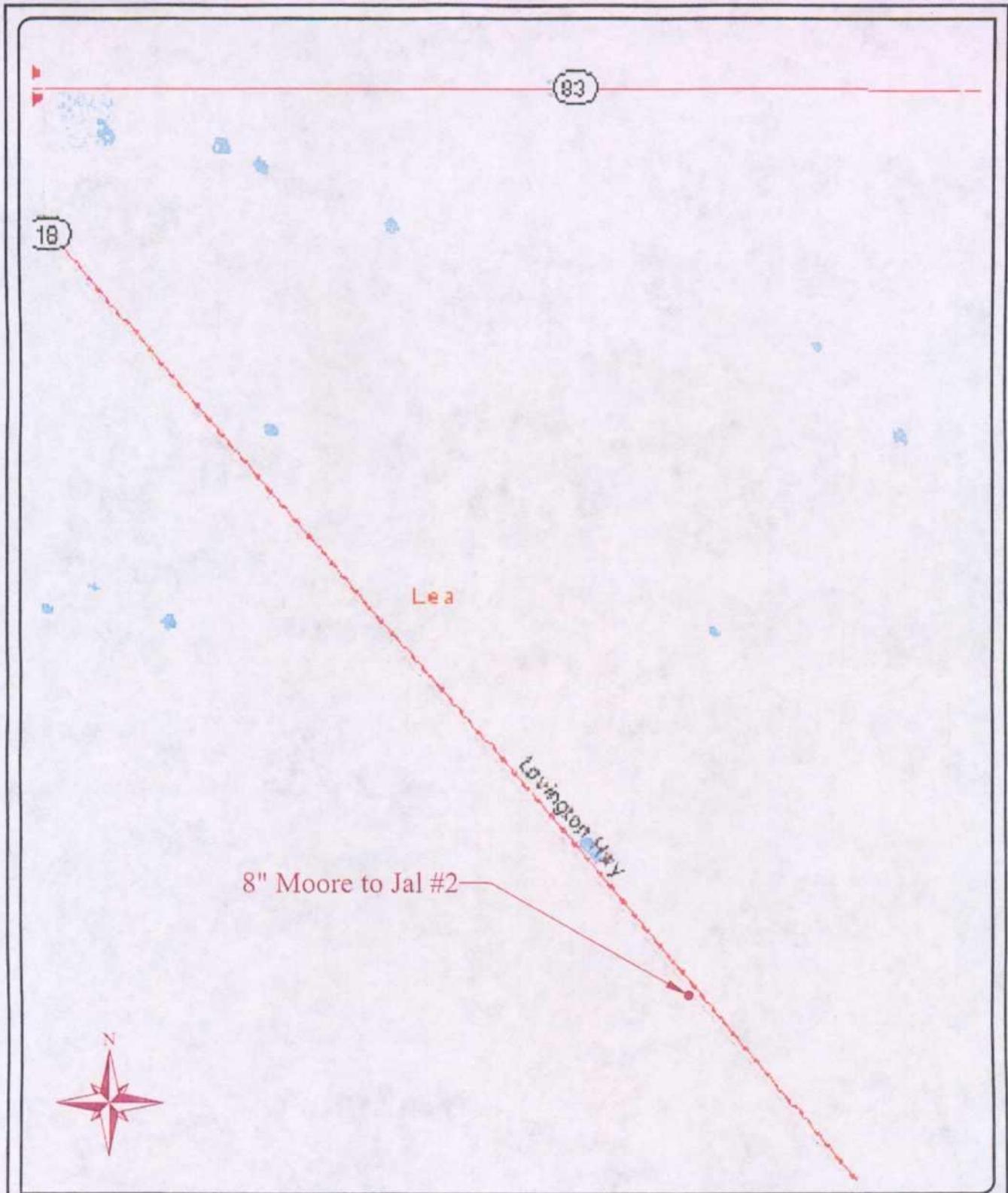
Reviewed By:



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Terry James B.S., M.S.  
Senior Project Manager  
Talon/LPE

**FIGURES**



**TALONLPE**

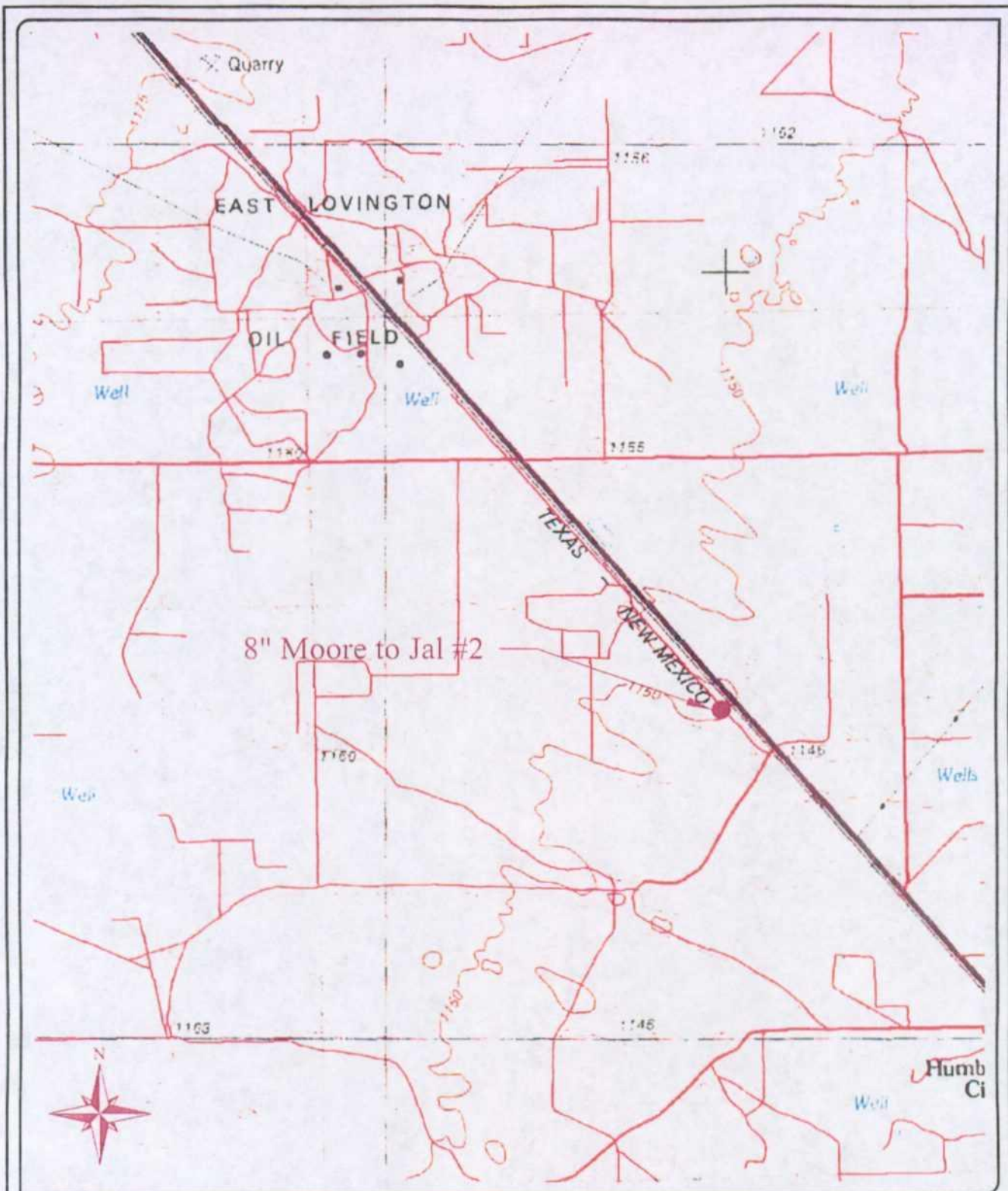
Date: 03/28/2006

Scale: NTS

Drawn By: TJS

Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 1 - Area Map

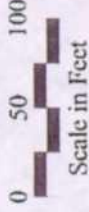




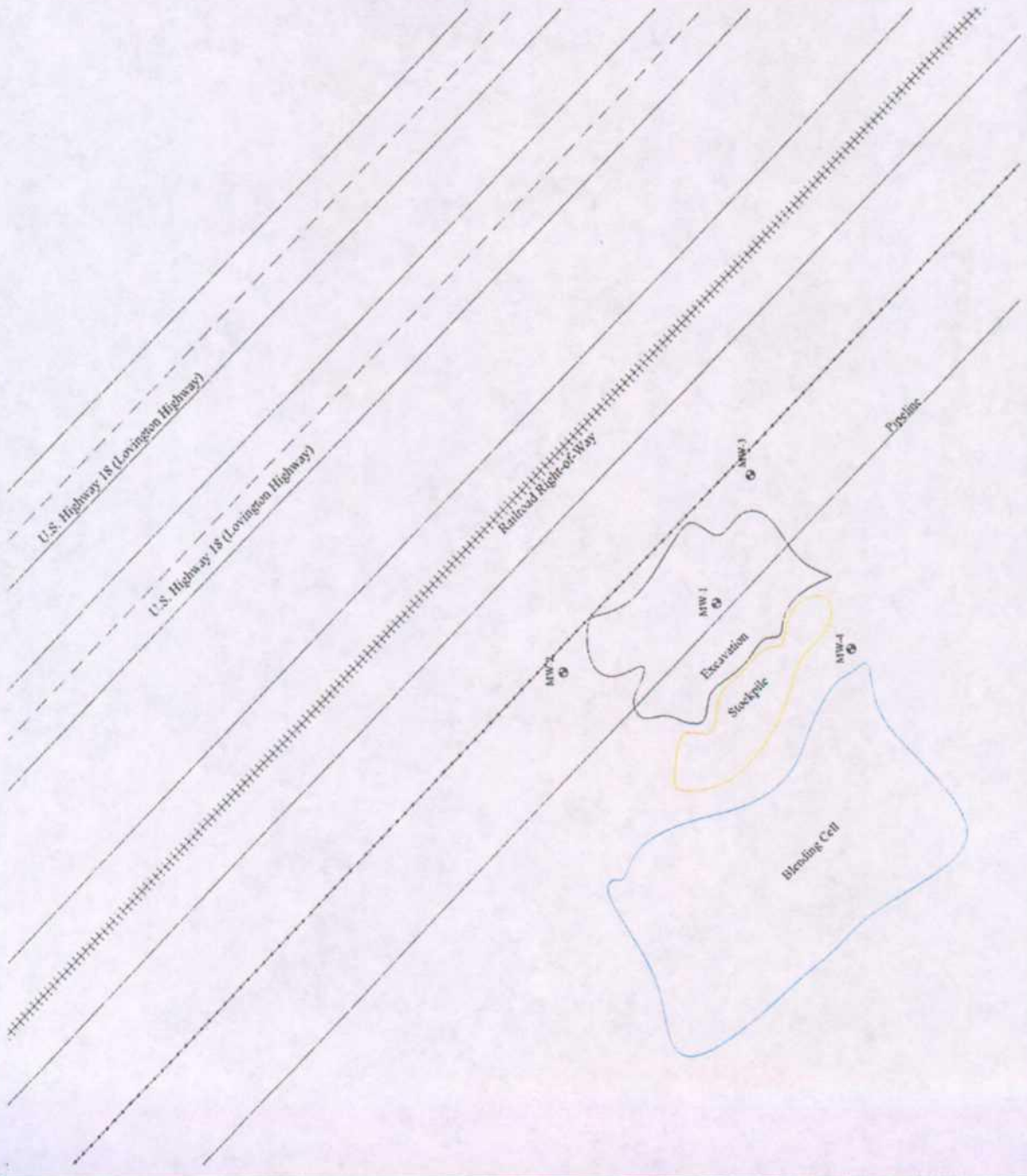
**TALONLPE**

Date: 03/28/2006  
 Scale: NTS  
 Drawn By: TJS

8" Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 2 - Site Location Map



- Legend**
- Monitor Well
  - Proposed Monitor Well
  - Soil Borings
  - Recovery Well
  - Vapor Recovery Well
  - Domestic Well
  - Plugged & Abandoned Well
  - Observation Well
  - Surface Soil Samples
  - Water Main
  - Gas line
  - Overhead Powerline
  - Sanitary Sewer
  - Storm Sewer
  - Telephone Line
  - Fence line
  - City Utilities
  - Underground Cable
  - Railroad Tracks
  - Groundwater Gradient Contour Line
  - Groundwater Gradient Contour Elevation
  - Monitor Well Gradient Direction



Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 3, Site Plan

Date: 03/16/2006

Scale: 1" = 100'

Drawn By: WDR

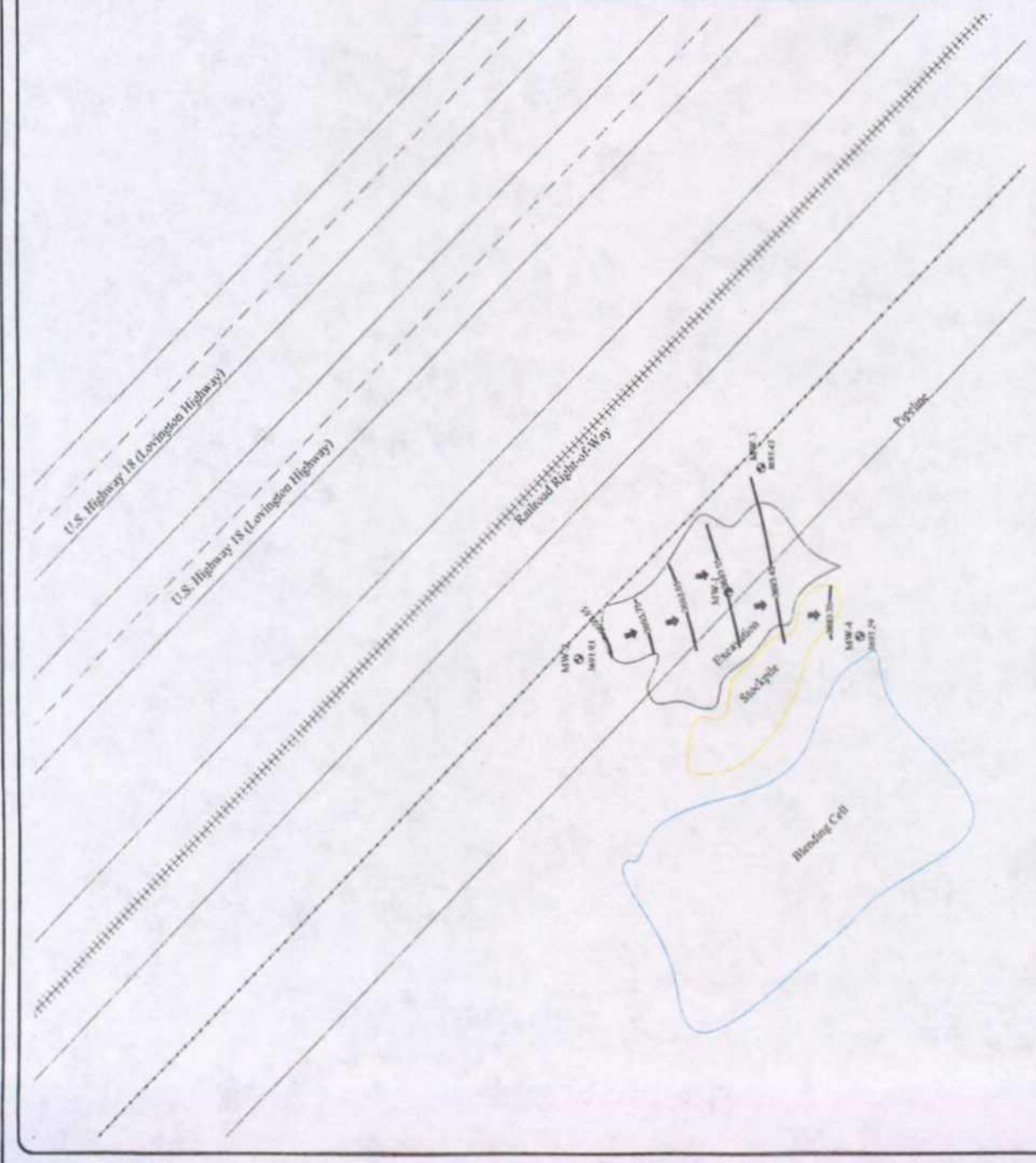






0 50 100  
Scale in Feet

- Legend**
- Monitor Well
  - Proposed Monitor Well
  - Soil Boring
  - Recovery Well
  - Vapor Recovery Well
  - Domestic Well
  - Plugged & Abandoned Well
  - Observation Well
  - Surface Soil Samples
  - Water Main
  - Gas line
  - Overhead Powerline
  - Sanitary Sewer
  - Storm Sewer
  - Telephone Line
  - Fence line
  - City Utilities
  - Underground Cable
  - Railroad Tracks
  - Groundwater Gradient Contour Line
  - Groundwater Gradient Contour Elevation
  - Monitor Well Gradient Direction



Moore to Jal #2

9.2 Miles SE of Lovington, NM  
Lea County, New Mexico

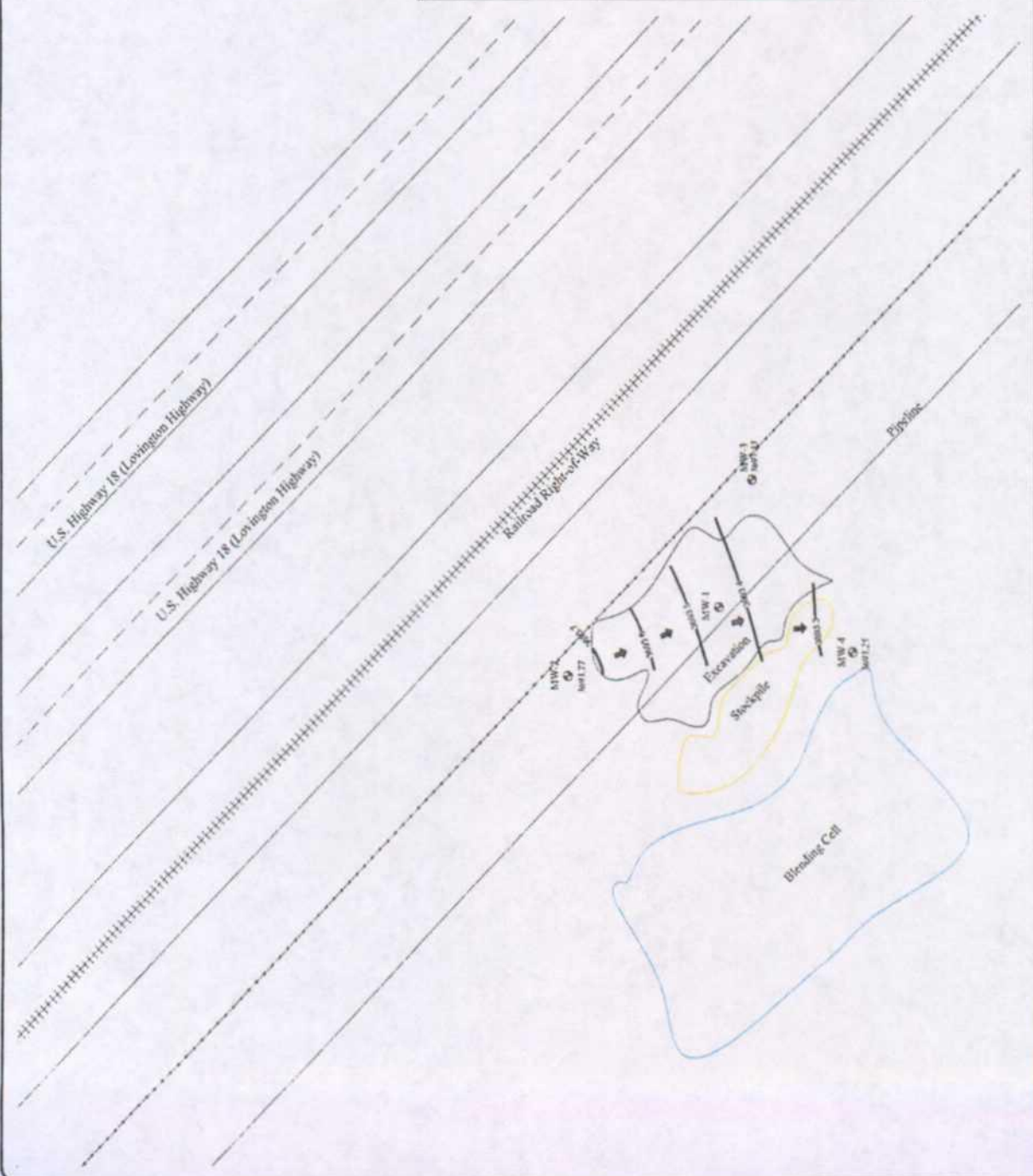
Figure 4a, Groundwater Gradient Map (3/18/05)

Date: 03/16/2006  
Scale: 1" = 100'  
Drawn By: WDR





Legend	
	- Monitor Well
	- Proposed Monitor Well
	- Soil Boring
	- Recovery Well
	- Vapor Recovery Well
	- Domestic Well
	- Plugged & Abandoned Well
	- Observation Well
	- Surface Soil Samples
	- Water Main
	- Gas line
	- Overhead Powerline
	- Sanitary Sewer
	- Storm Sewer
	- Telephone Line
	- Fence line
	- City Utilities
	- Underground Cable
	- Railroad Tracks
	- Groundwater Gradient Contour Line
	- Groundwater Gradient Contour Elevation
	- Monitor Well Gradient Direction



Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 4b, Groundwater Gradient Map (6/13/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR

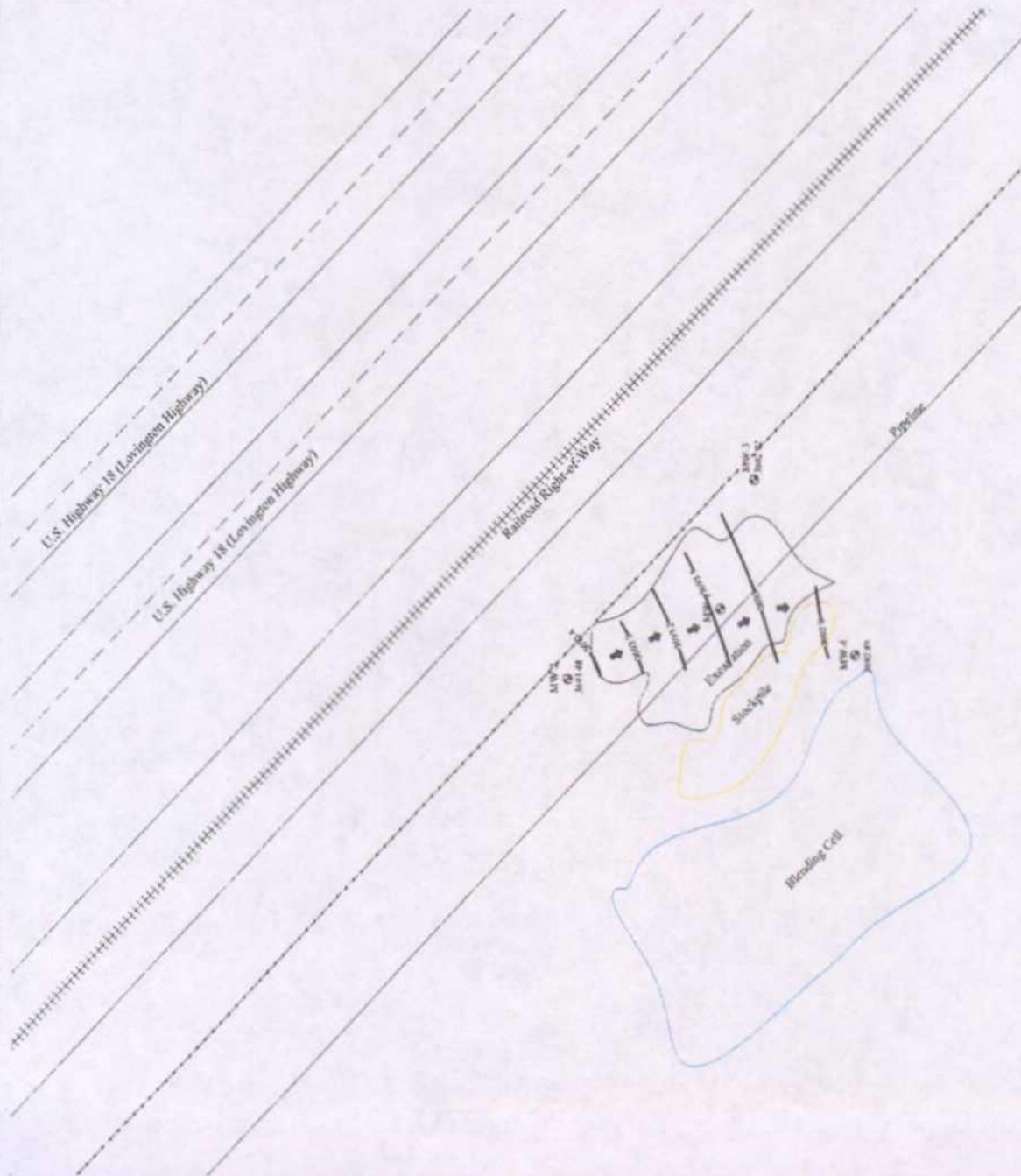






**Legend**

- Monitor Well
- Proposed Monitor Well
- Soil Boring
- Recovery Well
- Vapor Recovery Well
- Domestic Well
- Plugged & Abandoned Well
- Observation Well
- Surface Soil Samples
- Water Main
- Gas line
- Overhead Powerline
- Sanitary Sewer
- Storm Sewer
- Telephone Line
- Fence line
- City Utilities
- Underground Cable
- Railroad Tracks
- Groundwater Gradient Contour Line
- Groundwater Gradient Contour Elevation
- Monitor Well Gradient Direction



Moore to Jul #2

9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico

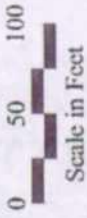
Figure 4c, Groundwater Gradient Map (9/29/05)

Date: 03/16/2006

Scale: 1" = 100'

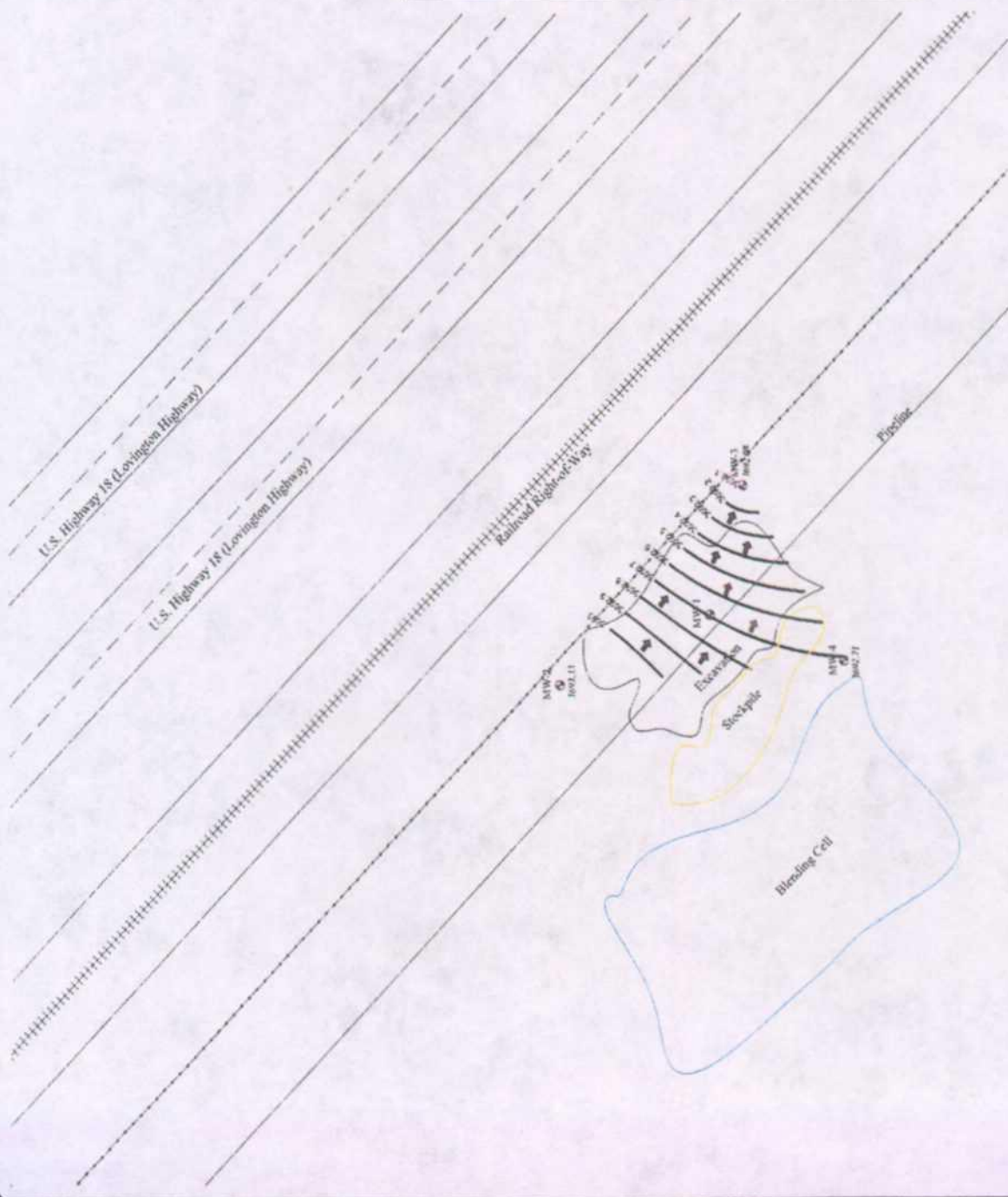
Drawn By: WDR

**TALONLPE**



**Legend**

- Monitor Well
- ◇ Proposed Monitor Well
- Soil Boring
- Recovery Well
- Vapor Recovery Well
- Domestic Well
- Plugged & Abandoned Well
- Observation Well
- Surface Soil Samples
- ▲ Water Main
- Gas line
- Overhead Powerline
- Sanitary Sewer
- Storm Sewer
- Telephone Line
- Fence line
- City Utilities
- Underground Cable
- Railroad Tracks
- Groundwater Gradient Contour Line
- Groundwater Gradient Contour Elevation
- 81.30
- Monitor Well Gradient Direction



Moore to Jal #2

9.2 Miles SE of Lovington, NM  
Lea County, New Mexico

Figure 4d, Groundwater Gradient Map (12/30/05)

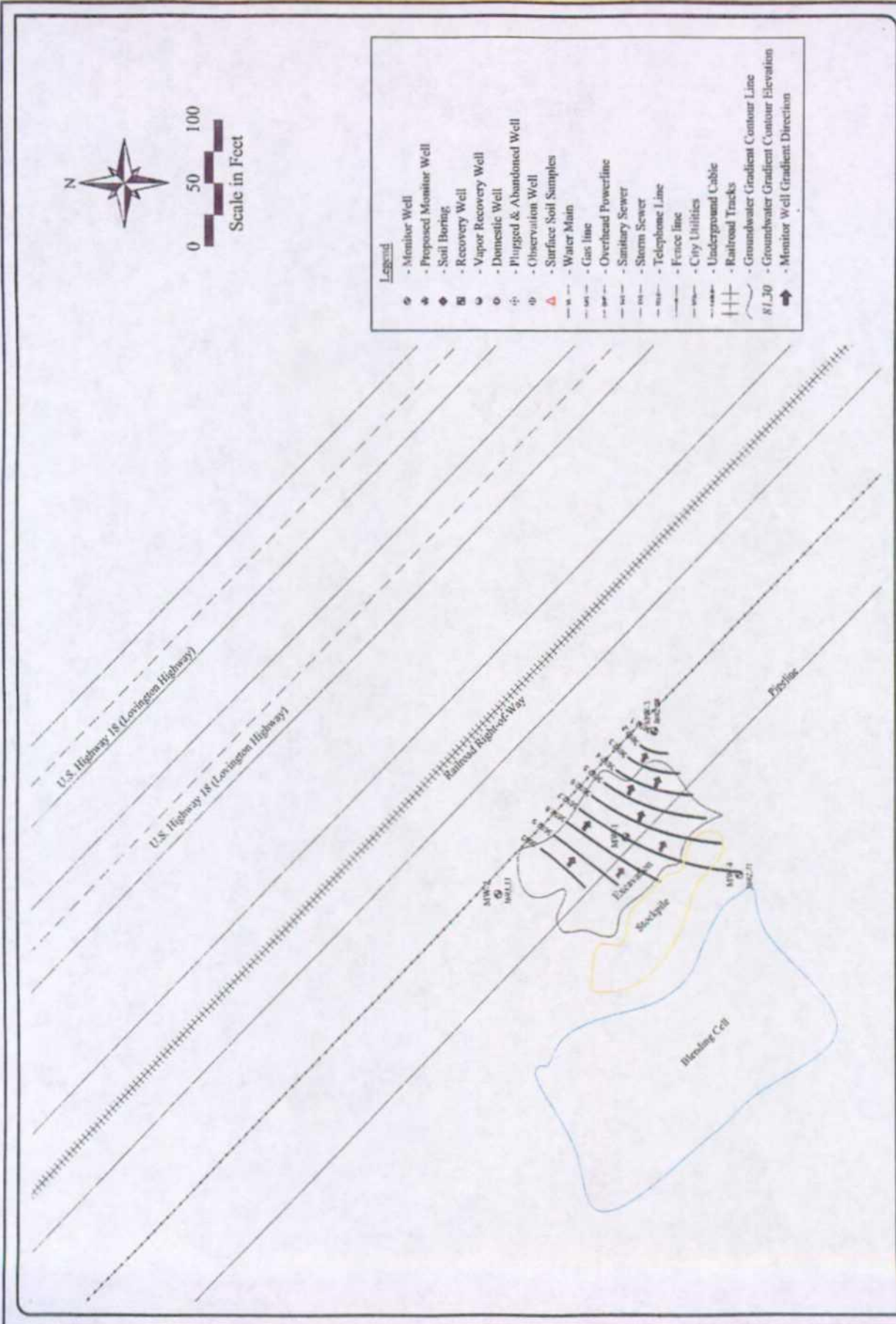
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**TALONLPE**

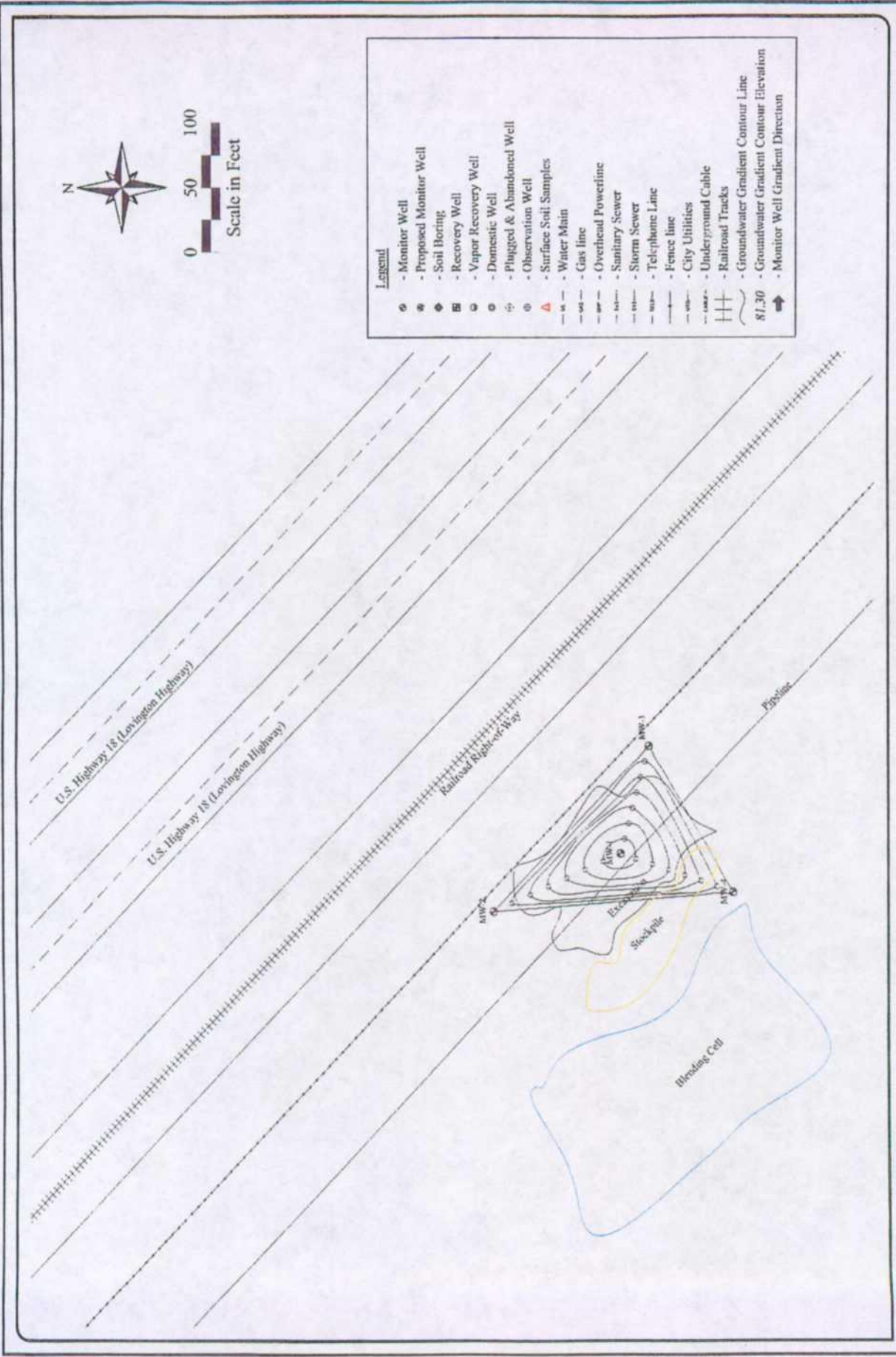




Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 4d, Groundwater Gradient Map (12/30/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR





- Legend**
- - Monitor Well
  - ⊙ - Proposed Monitor Well
  - ⊕ - Soil Boring
  - ⊖ - Recovery Well
  - ⊗ - Vapor Recovery Well
  - ⊘ - Domestic Well
  - ⊙ - Plugged & Abandoned Well
  - ⊕ - Observation Well
  - ⊖ - Surface Soil Samples
  - ▲ - Water Main
  - - Gas line
  - - Overhead Powerline
  - - Sanitary Sewer
  - - Storm Sewer
  - - Telephone Line
  - - Fence line
  - - City Utilities
  - - Underground Cable
  - - Railroad Tracks
  - - Groundwater Gradient Contour Line
  - 81.30 - Groundwater Gradient Contour Elevation
  - - Monitor Well Gradient Direction

Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 5b, PSH Plume Map (6/13/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR

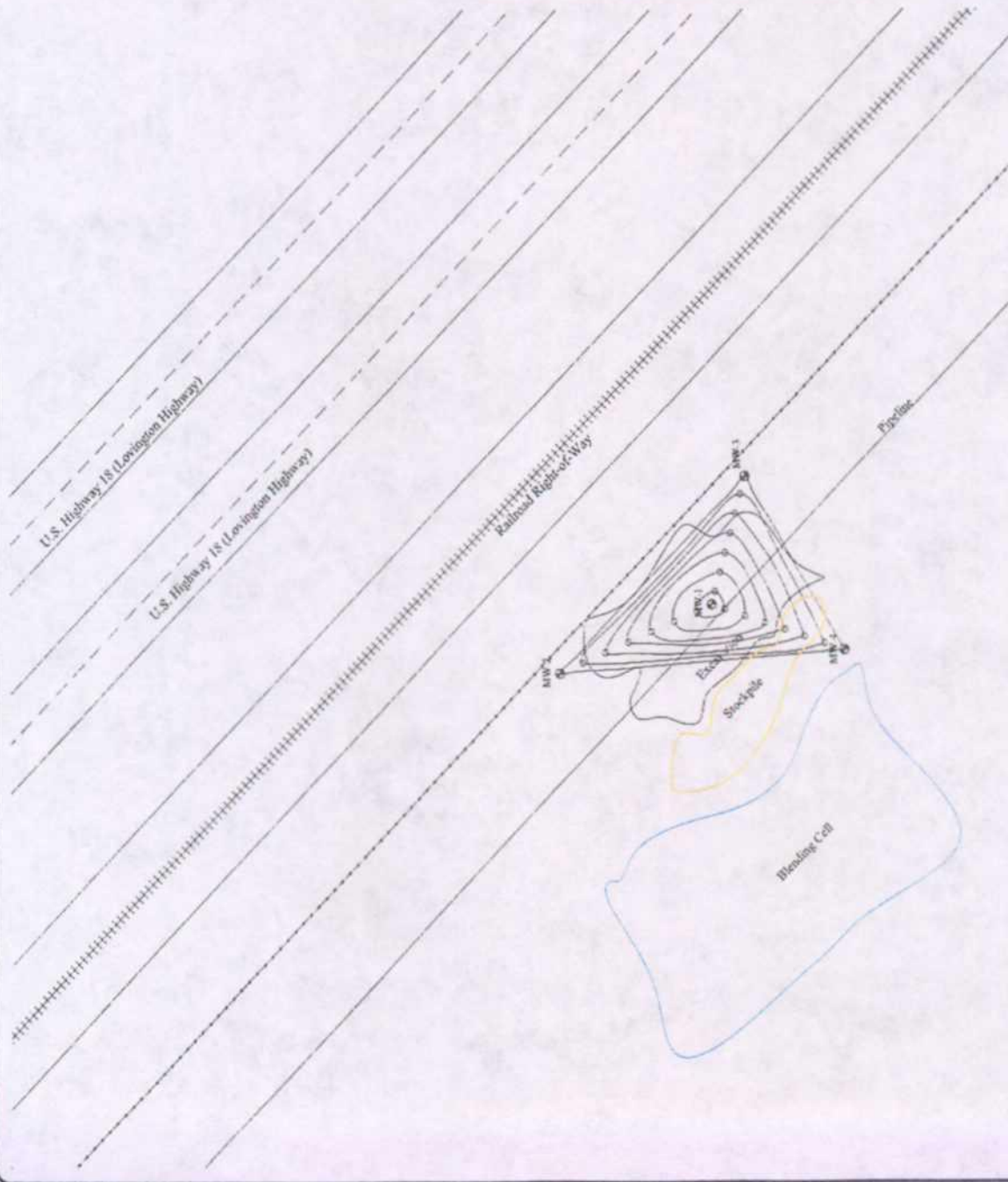






0 50 100  
Scale in Feet

- Legend**
- Monitor Well
  - Proposed Monitor Well
  - ◆ Soil Boring
  - ◻ Recovery Well
  - Vapor Recovery Well
  - Domestic Well
  - ⊕ Plugged & Abandoned Well
  - ⊕ Observation Well
  - ⊕ Surface Soil Samples
  - ▲ Water Main
  - Gas line
  - Overhead Powerline
  - Sanitary Sewer
  - Storm Sewer
  - Telephone Line
  - Fence line
  - City Utilities
  - Underground Cable
  - Railroad Tracks
  - Groundwater Gradient Contour Line
  - Groundwater Gradient Contour Elevation
  - Monitor Well Gradient Direction



Moore to Jal #2

9.2 Miles SE of Lovington, NM  
Lea County, New Mexico

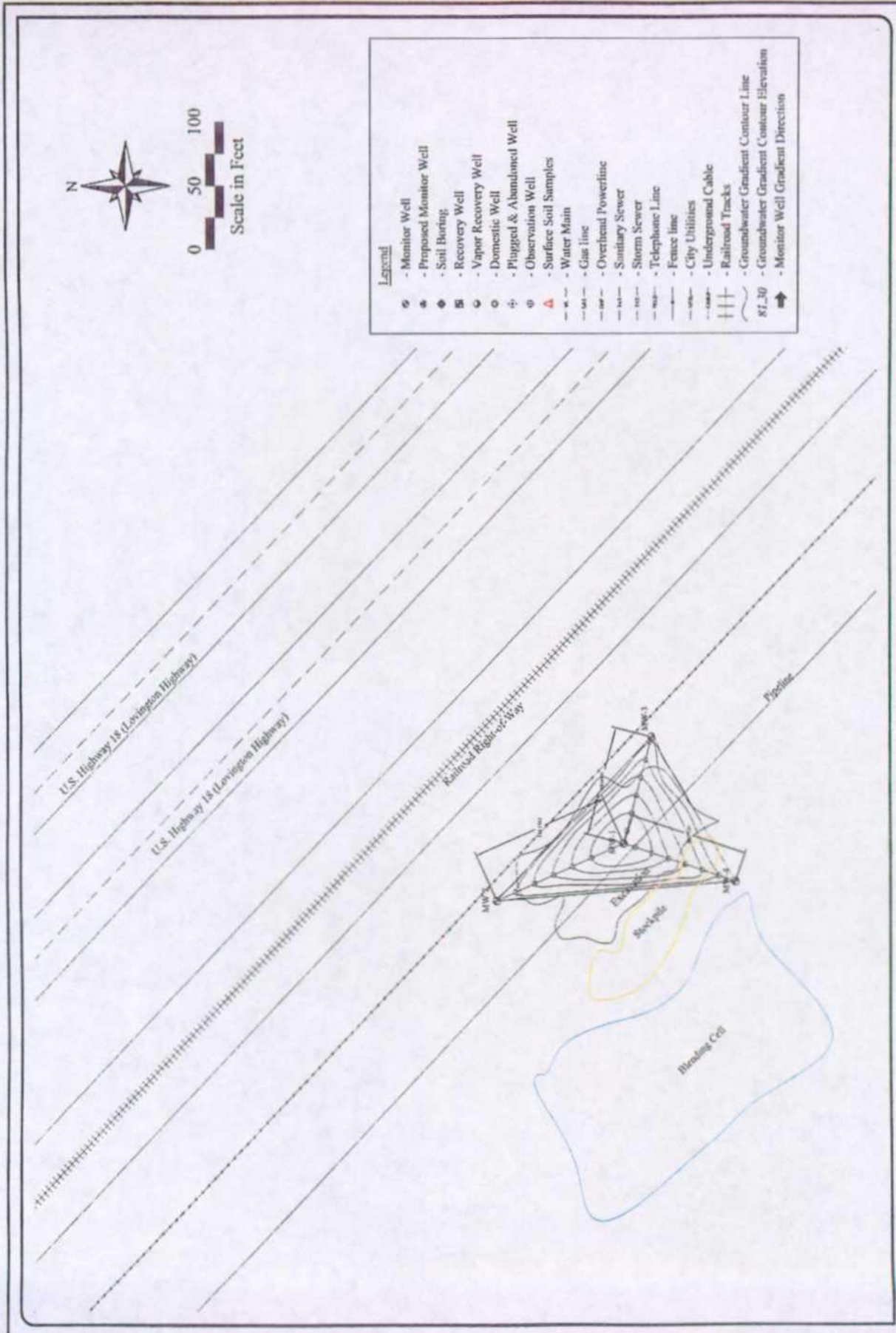
Figure 5c, PSH Plume Map (9/29/05)

Date: 03/16/2006

Scale: 1" = 100'

Drawn By: WDR

**TALONLPE**



Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 5d, PSH Plume Map (12/30/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR





Table 5e, 2005  
MW-1 PSH THICKNESS (ft)

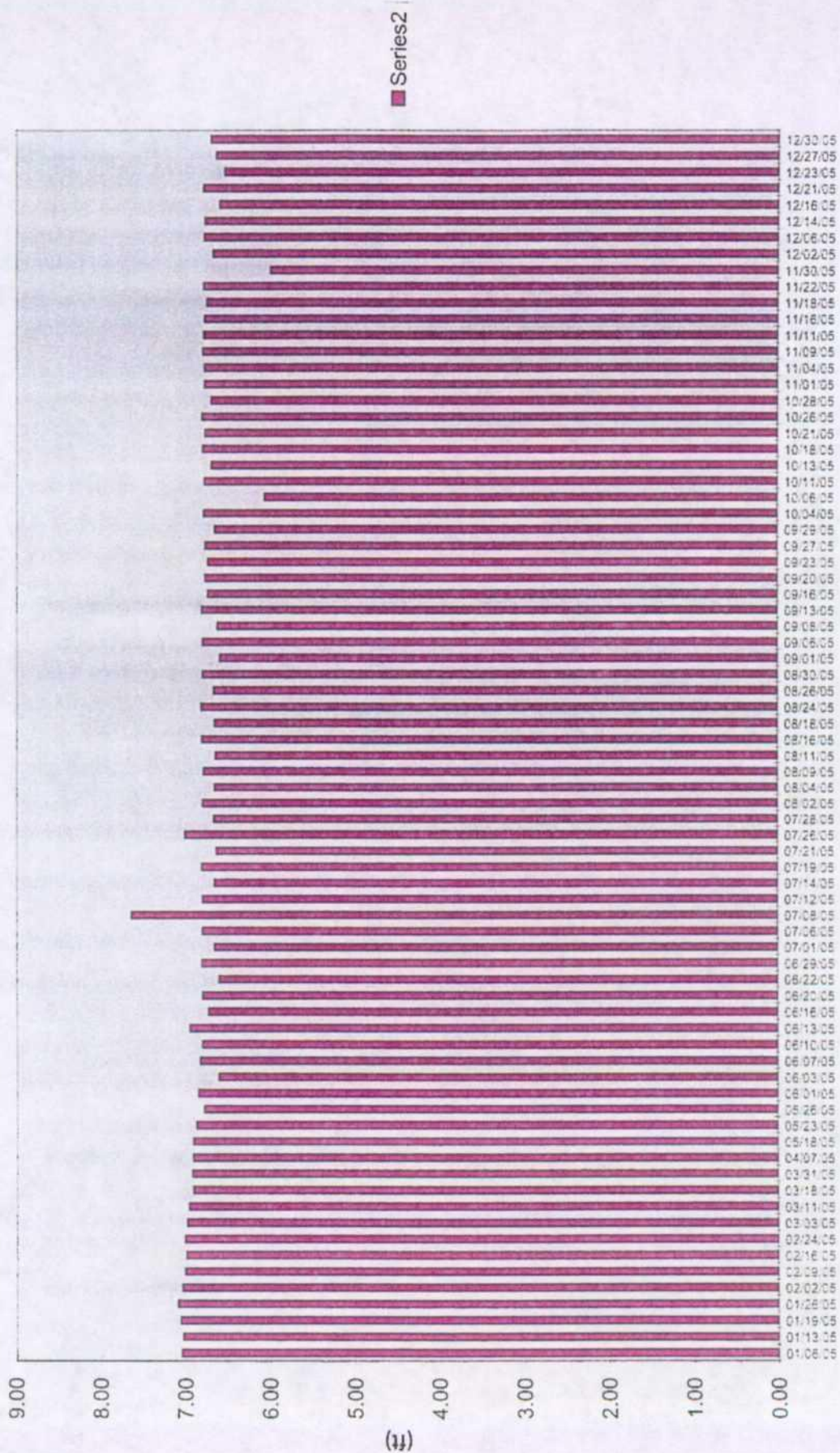
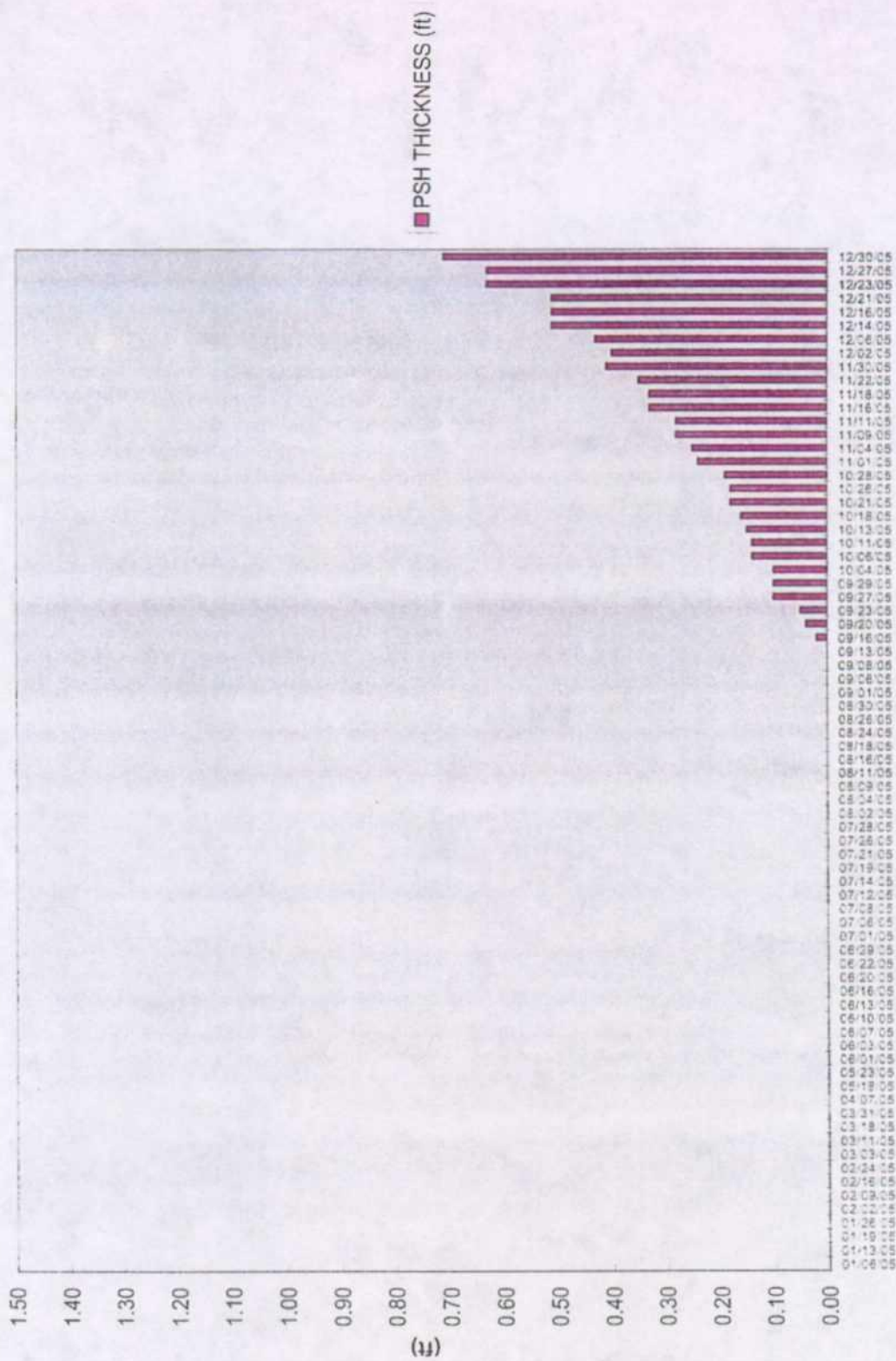
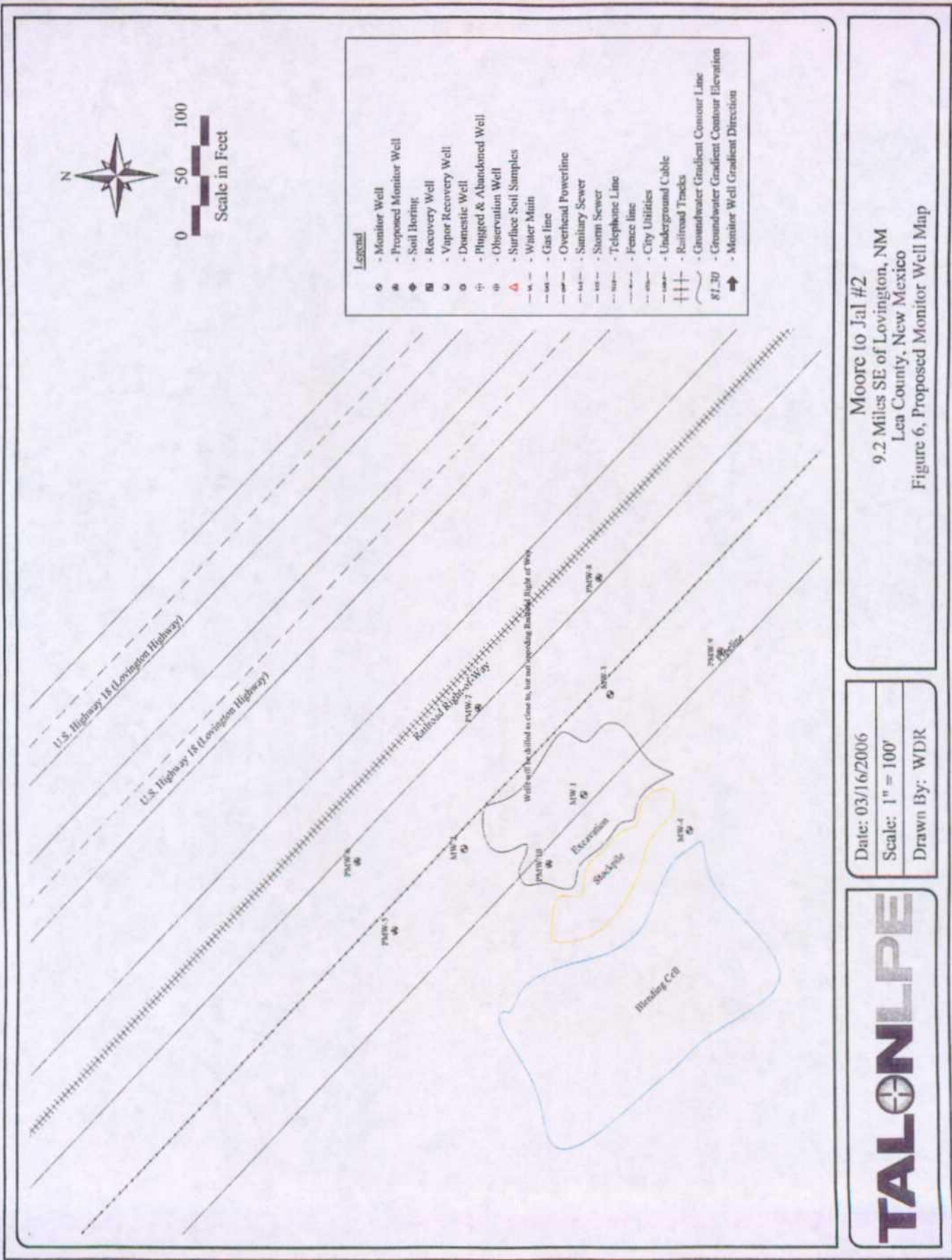


Figure 5f, 2005  
MW-3 PSH THICKNESS (ft)







Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 Figure 6, Proposed Monitor Well Map

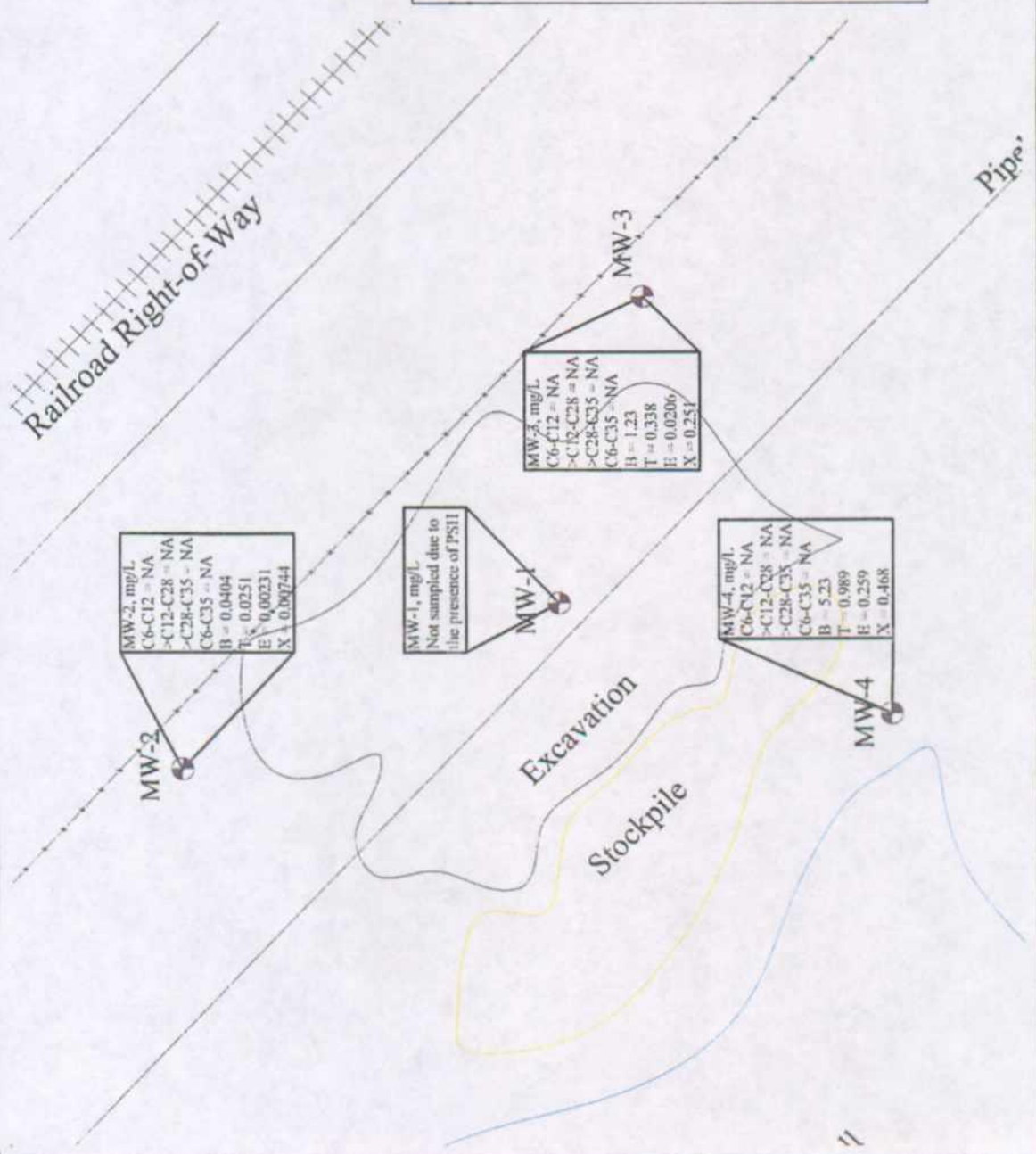
Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR





0 50 100  
Scale in Feet

Legend	
●	Monitor Well
○	Proposed Monitor Well
◆	Soil Boring
⊕	Recovery Well
⊖	Vapor Recovery Well
⊙	Domestic Well
⊕	Plugged & Abandoned Well
⊖	Observation Well
▲	Surface Soil Samples
—	Water Main
—	Gas line
—	Overhead Powerline
—	Sanitary Sewer
—	Storm Sewer
—	Telephone Line
—	Fence line
—	City Utilities
—	Underground Cable
—	Railroad Tracks
—	Groundwater Gradient Contour Line
—	Groundwater Gradient Contour Elevation
→	Monitor Well Gradient Direction

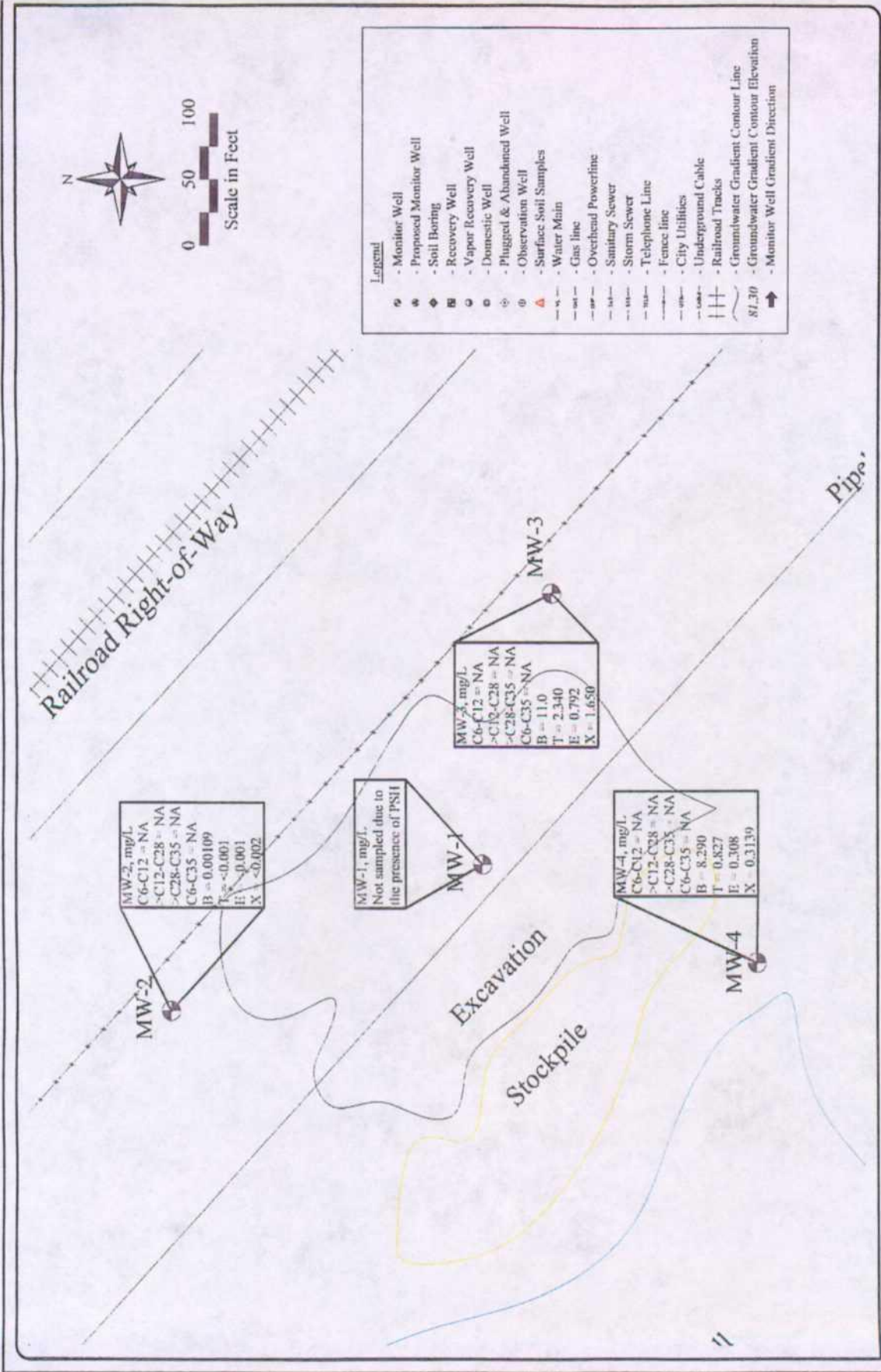


Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 7a, Groundwater BTEX Concentration Map (3/18/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR



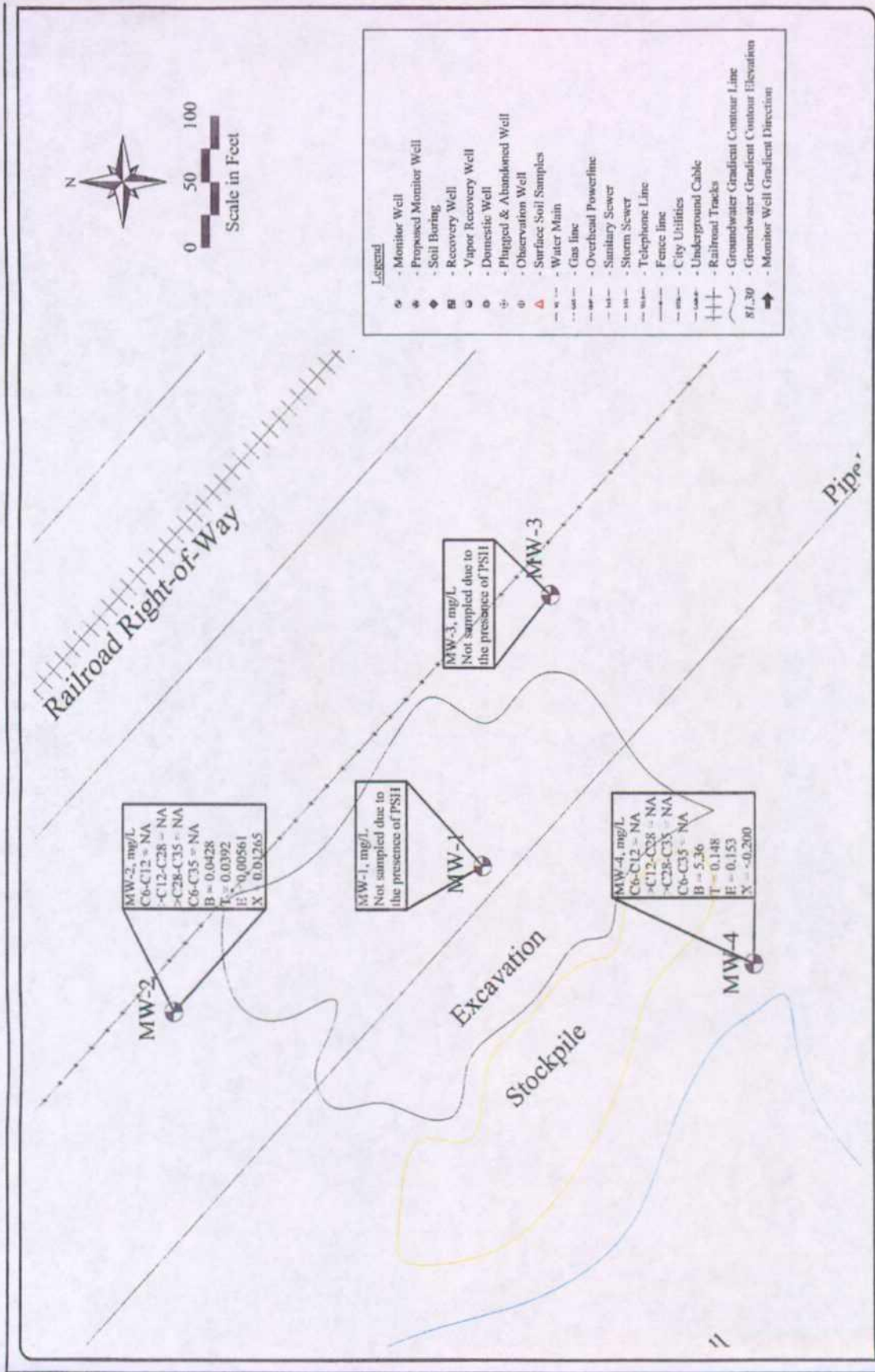




**TALONLPE**

Date: 03/16/2006  
Scale: 1" = 100'  
Drawn By: WDR

Moore to Jal #2  
9.2 Miles SE of Lovington, NM  
Lea County, New Mexico  
7b, Groundwater BTEX Concentration Map (6/14/05)

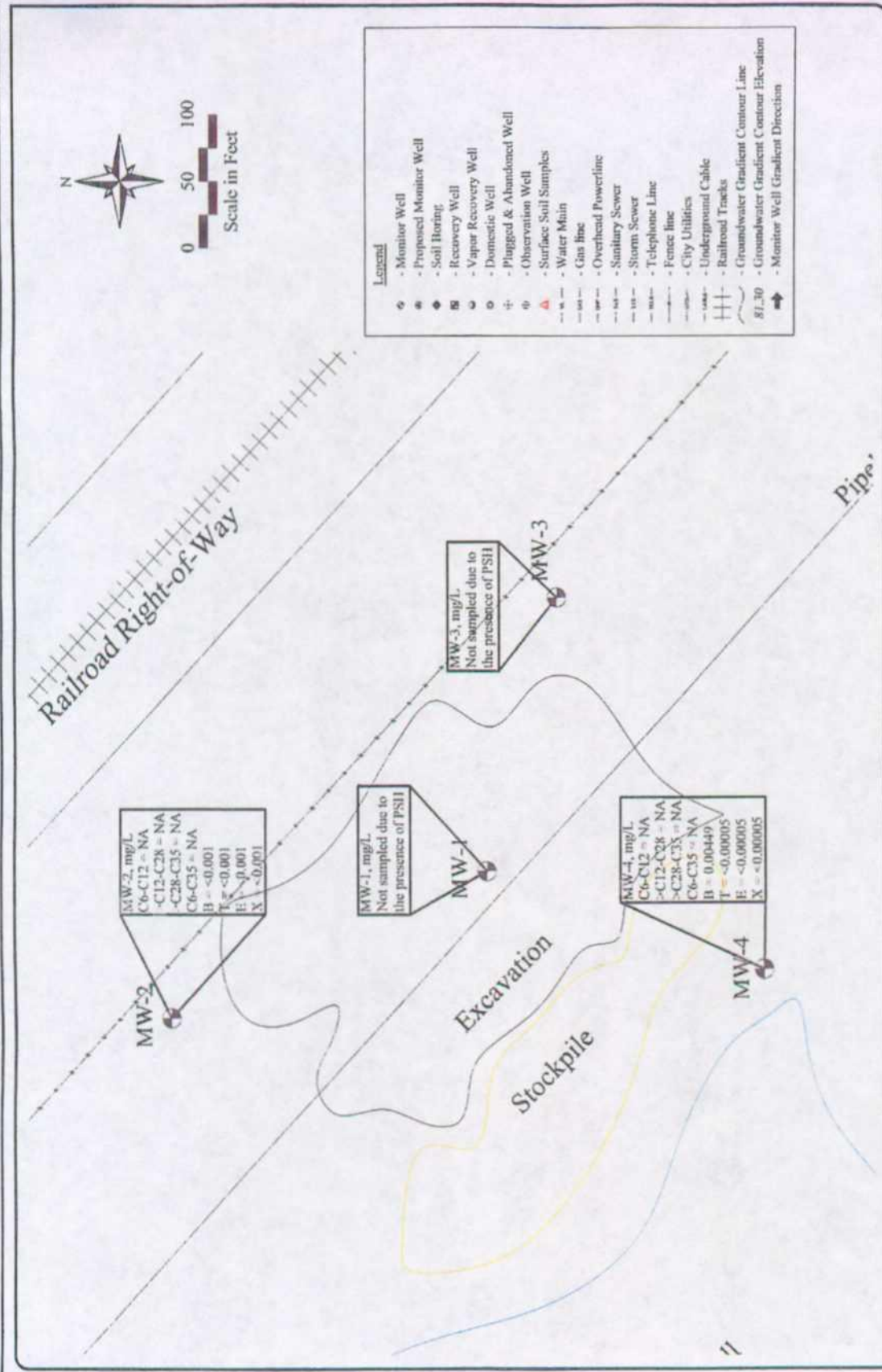


Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 7c, Groundwater BTEX Concentration Map (9/30/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR







Moore to Jal #2  
 9.2 Miles SE of Lovington, NM  
 Lea County, New Mexico  
 7d, Groundwater BTEX Concentration Map (12/30/05)

Date: 03/16/2006  
 Scale: 1" = 100'  
 Drawn By: WDR



**TABLES**



Plains All American Pipeline, L.P.  
 IT-Matamoras-Jul-02-2002-10773

Summary of PSH Thickness & Gauging Measurements  
 Table 1

WELL ID	DATE GAUGED	Relative Top of Casing Elevation (feet)*	Depth to PSH Below Top of Casing (feet)	Depth to Winter Below Top of Casing (feet)	Corrected Relative Top Groundwater Elevation (feet)*	PSH THICKNESS (ft)	PSH Volume Recovered (m3/acre)	PSH Commulative Recovery (m3/acre)	Water Volume Recovery (m3/acre)	Water Commulative Recovery (m3/acre)	Total Volume Recovery	Total Commulative Recovery (m3/acre)
MWA-7	01/06/05	3767.30	72.22	79.32	3687.78	7.62	9.00	7.69	0.29	0.00	9.00	7.98
	01/13/05	3767.30	72.31	79.34	3687.98	7.03	10.00	140.50	0.00	0.00	10.00	140.50
	01/19/05	3767.30	72.31	79.37	3687.91	7.05	9.00	149.50	0.00	0.00	9.00	149.50
	01/26/05	3767.30	72.34	79.43	3687.87	7.00	10.00	159.50	0.00	0.00	10.00	159.50
	02/02/05	3767.30	72.32	79.36	3687.93	7.04	10.00	168.50	0.00	0.00	10.00	168.50
	02/09/05	3767.30	72.30	79.39	3687.91	7.01	10.00	178.50	0.00	0.00	10.00	178.50
	02/16/05	3767.30	72.35	79.34	3687.96	6.99	9.00	187.50	0.00	0.00	9.00	187.50
	02/23/05	3767.30	72.37	79.36	3687.92	7.01	9.00	196.50	0.00	0.00	9.00	196.50
	03/03/05	3767.30	72.42	79.40	3687.88	6.98	9.00	205.50	0.00	0.00	9.00	205.50
	03/10/05	3767.30	72.41	79.35	3687.95	6.96	10.00	215.50	0.00	0.00	10.00	215.50
	03/17/05	3767.30	72.42	79.38	3687.90	6.91	10.00	224.50	0.00	0.00	10.00	224.50
	03/24/05	3767.30	72.42	79.38	3687.92	6.92	9.00	233.50	0.00	0.00	9.00	233.50
	04/07/05	3767.30	72.47	79.40	3687.87	6.91	10.00	241.50	0.00	0.00	10.00	241.50
	05/10/05	3767.30	72.41	79.40	3687.90	6.91	14.00	255.50	0.00	0.00	14.00	255.50
	05/23/05	3767.30	72.53	79.40	3687.86	6.87	10.00	263.50	0.00	0.00	10.00	263.50
	05/29/05	3767.30	72.54	79.34	3687.90	6.79	10.00	271.50	0.25	0.25	10.25	271.75
	06/01/05	3767.30	72.55	79.40	3687.86	6.85	10.00	279.50	0.25	0.25	10.25	279.75
	06/03/05	3767.30	72.50	79.40	3687.90	6.81	7.00	286.50	0.25	0.25	7.25	286.75
	06/07/05	3767.30	72.56	79.39	3687.81	6.83	7.00	293.50	0.00	0.00	7.00	293.50
	06/10/05	3767.30	72.55	79.35	3687.85	6.80	7.00	300.50	0.25	0.25	7.25	300.75
	06/13/05	3767.30	72.58	79.33	3687.77	6.76	9.00	309.50	0.25	0.25	9.25	309.75
	06/16/05	3767.30	72.68	79.40	3687.89	6.73	10.00	315.50	0.25	0.25	10.25	315.75
	06/20/05	3767.30	72.80	79.40	3687.80	6.80	10.00	323.50	0.25	0.25	10.25	323.75
	06/23/05	3767.30	72.61	79.47	3687.81	6.81	10.00	331.50	0.25	0.25	10.25	331.75
	06/29/05	3767.30	72.61	79.47	3687.81	6.81	10.00	339.50	0.25	0.25	10.25	339.75
	07/01/05	3767.30	72.62	79.29	3687.87	6.95	10.00	347.50	0.25	0.25	10.25	347.75
	07/05/05	3767.30	72.64	79.44	3687.86	6.80	9.00	354.50	0.00	0.00	9.00	354.50
	07/08/05	3767.30	72.63	79.33	3687.87	7.04	10.00	364.50	0.00	0.00	10.00	364.50
	07/12/05	3767.30	72.64	79.48	3687.82	6.80	10.00	374.50	0.25	0.25	10.25	374.75
	07/15/05	3767.30	72.61	79.35	3687.85	6.85	10.00	382.50	0.25	0.25	10.25	382.75
	07/18/05	3767.30	72.61	79.49	3687.81	6.81	10.00	392.50	0.25	0.25	10.25	392.75
	07/19/05	3767.30	72.63	79.37	3687.83	6.84	10.00	402.50	0.25	0.25	10.25	402.75
	07/23/05	3767.30	72.73	79.42	3687.86	6.87	10.00	412.50	0.25	0.25	10.25	412.75
07/26/05	3767.30	72.74	79.45	3687.80	6.80	10.00	422.50	0.25	0.25	10.25	422.75	
08/02/05	3767.30	72.73	79.35	3687.75	6.80	10.00	432.50	0.25	0.25	10.25	432.75	
08/03/05	3767.30	72.79	79.45	3687.85	6.85	10.00	442.50	0.25	0.25	10.25	442.75	
08/06/05	3767.30	72.77	79.46	3687.74	6.79	10.00	452.50	0.25	0.25	10.25	452.75	
08/09/05	3767.30	72.81	79.30	3687.89	6.85	10.00	462.50	0.25	0.25	10.25	462.75	
08/11/05	3767.30	72.71	79.60	3687.70	6.81	10.00	472.50	0.25	0.25	10.25	472.75	
08/18/05	3767.30	72.83	79.47	3687.83	6.85	10.00	482.50	0.25	0.25	10.25	482.75	
08/24/05	3767.30	72.82	79.63	3687.68	6.82	10.00	492.50	0.25	0.25	10.25	492.75	
08/27/05	3767.30	72.85	79.52	3687.70	6.87	10.00	502.50	0.25	0.25	10.25	502.75	
08/30/05	3767.30	72.83	79.53	3687.67	6.77	10.00	512.50	0.25	0.25	10.25	512.75	
09/03/05	3767.30	72.83	79.43	3687.87	6.80	10.00	522.50	0.25	0.25	10.25	522.75	
09/03/05	3767.30	72.83	79.50	3687.72	6.80	10.00	531.50	0.25	0.25	10.25	531.75	
09/06/05	3767.30	72.88	79.45	3687.85	6.83	10.00	541.50	0.25	0.25	10.25	541.75	
09/09/05	3767.30	72.81	79.62	3687.68	6.84	10.00	551.50	0.25	0.25	10.25	551.75	
09/13/05	3767.30	72.84	79.30	3687.72	6.74	9.00	560.50	0.25	0.25	9.25	560.75	
09/20/05	3767.30	72.85	79.62	3687.68	6.77	10.00	570.50	0.25	0.25	10.25	570.75	
09/27/05	3767.30	72.88	79.62	3687.68	6.74	10.00	580.50	0.25	0.25	10.25	580.75	
10/02/05	3767.30	72.80	79.65	3687.65	6.77	10.00	590.50	0.25	0.25	10.25	590.75	
10/09/05	3767.30	72.91	79.57	3687.73	6.86	10.00	600.50	0.25	0.25	10.25	600.75	
10/09/05	3767.30	72.91	79.40	3687.60	6.74	9.00	610.50	0.25	0.25	9.25	610.75	
10/09/05	3767.30	72.93	79.40	3687.60	6.74	9.00	620.50	0.25	0.25	9.25	620.75	
10/11/05	3767.30	72.94	79.01	3687.59	6.87	9.00	630.50	0.25	0.25	9.25	630.75	
10/11/05	3767.30	72.93	79.71	3687.50	6.78	10.00	640.50	0.25	0.25	10.25	640.75	
10/13/05	3767.30	72.95	79.65	3687.65	6.70	10.00	650.50	0.25	0.25	10.25	650.75	
10/18/05	3767.30	72.94	79.74	3687.36	6.80	9.00	660.50	0.25	0.25	9.25	660.75	
10/23/05	3767.30	72.94	79.76	3687.54	6.77	11.00	670.50	0.25	0.25	11.25	670.75	
10/25/05	3767.30	72.96	79.77	3687.53	6.81	10.00	680.50	0.25	0.25	10.25	680.75	
10/29/05	3767.30	72.99	79.64	3687.61	6.70	9.00	690.50	0.25	0.25	9.25	690.75	
11/01/05	3767.30	73.02	79.40	3687.50	6.79	9.00	700.50	0.25	0.25	9.25	700.75	
11/04/05	3767.30	73.03	79.43	3687.49	6.78	7.00	710.50	0.25	0.25	7.25	710.75	





Figure: All Annular Fractures, F-1  
 8" Monitor In-Job #2 - 2002-10273

Summary of PSH Thickness & Gauging Measurements  
 Table 1

WELL ID	DATE GAUGED	Relative Top of Casing Elevation (Foot)*	Depth to PSH Inflow Top of Casing (Foot)	Depth to Water Below Top of Casing (Foot)	Corrected Relative Top Groundwater Levelation (Foot)*	PSH THICKNESS (ft)	PSH Volume Recovered (gallons)	PSH Cumulative Recovery (gallons)	Water Volume Recovery (gallons)	Water Cumulative Recovery (gallons)	Total Volume Recovery	Total Cumulative Recovery (gallons)	
MW-2 (cont)	01/27/05	3771.04	N/D	77.52	3693.52	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/27/05	3771.04	N/D	77.52	3693.52	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/27/05	3771.04	N/D	77.54	3693.50	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/27/05	3771.04	N/D	77.56	3693.48	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/27/05	3771.04	N/D	77.57	3693.47	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/27/05	3771.04	N/D	77.60	3693.44	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.61	3693.43	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.65	3693.39	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.63	3693.41	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.64	3693.40	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.69	3693.35	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.63	3693.35	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.73	3693.31	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.73	3693.31	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.70	3693.30	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.70	3693.29	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.77	3693.27	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.80	3693.24	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.79	3693.25	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	01/27/05	3771.04	N/D	77.80	3693.18	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
01/27/05	3771.04	N/D	77.83	3693.21	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
01/27/05	3771.04	N/D	77.87	3693.23	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
01/27/05	3771.04	N/D	77.85	3693.19	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
01/27/05	3771.04	N/D	77.85	3693.19	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
01/27/05	3771.04	N/D	77.71	3693.33	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
MW-3	01/06/05	3771.94	N/D	78.44	3693.50	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/13/05	3771.94	N/D	78.45	3693.46	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/13/05	3771.94	N/D	78.45	3693.46	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	01/27/05	3771.94	N/D	78.50	3693.44	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	02/02/05	3771.94	N/D	78.57	3693.39	0.00	N/A	N/A	0.00	0.00	N/A	N/A	
	02/09/05	3771.94	N/D	78.57	3693.37	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	02/16/05	3771.94	N/D	78.48	3693.46	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	02/23/05	3771.94	N/D	78.48	3693.46	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	03/01/05	3771.94	N/D	78.54	3693.40	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	03/10/05	3771.94	N/D	78.51	3693.43	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	03/17/05	3771.94	N/D	78.56	3693.38	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	04/07/05	3771.94	N/D	78.54	3693.40	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	05/18/05	3771.94	N/D	79.49	3692.54	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	05/24/05	3771.94	N/D	78.60	3693.38	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	06/07/05	3771.94	N/D	78.67	3693.31	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	06/14/05	3771.94	N/D	78.60	3693.34	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	06/21/05	3771.94	N/D	78.61	3693.33	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	06/28/05	3771.94	N/D	78.61	3693.33	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	07/05/05	3771.94	N/D	78.66	3693.28	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
	07/12/05	3771.94	N/D	78.65	3693.29	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A
07/19/05	3771.94	N/D	78.67	3693.30	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/26/05	3771.94	N/D	78.67	3693.27	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/30/05	3771.94	N/D	78.68	3693.26	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.70	3693.24	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.72	3693.22	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.71	3693.23	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.73	3693.21	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.75	3693.19	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.78	3693.16	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	
07/31/05	3771.94	N/D	78.78	3693.16	0.00	N/A	N/A	0.00	0.00	0.00	N/A	N/A	







Plate: All American Pipelines, L.P.  
 # Measure to: 04/22/2012 10:23

Summary of PSH Thickness & Gauging Measurements  
 Table 1

WELL ID	DATE GAUGED	Relative Top of Casing Elevation (feet)	Depth to PSH Below Top of Casing (feet)	Depth to Water Below Top of Casing (feet)	Corrected Relative Top Groundwater Elevation (Foot)	PSH THICKNESS (ft)	PSH Volume Recovered (gallons)	PSH Cumulative Recovery (gallons)	Water Volume Recovery (gallons)	Water Cumulative Recovery (gallons)	Total Volume Recovery	Total Cumulative Recovery (gallons)
MW-4 (cont)	08/13/05	3172.86	N/D	79.63	3693.24	0.00	N/A	N/A	0.00	0.00	N/A	N/A
	08/16/05	3172.86	N/D	79.63	3693.24	0.00	N/A	N/A	0.00	0.00	N/A	N/A
	08/23/05	3172.86	N/D	79.00	3693.48	0.00	N/A	N/A	0.00	0.00	N/A	N/A
	08/27/05	3172.86	N/D	79.00	3693.48	0.00	N/A	N/A	0.00	0.00	N/A	N/A
	08/29/05	3172.86	N/D	79.00	3693.48	0.00	N/A	N/A	0.00	0.00	N/A	N/A
	07/01/05	3172.86	N/D	79.71	3693.15	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/06/05	3172.86	N/D	79.75	3693.11	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/08/05	3172.86	N/D	79.75	3693.11	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/13/05	3172.86	N/D	79.75	3693.11	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/18/05	3172.86	N/D	79.71	3693.19	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/21/05	3172.86	N/D	79.71	3693.07	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/26/05	3172.86	N/D	79.81	3693.05	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	07/29/05	3172.86	N/D	79.81	3693.05	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/02/05	3172.86	N/D	79.82	3693.04	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/04/05	3172.86	N/D	79.86	3693.02	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/09/05	3172.86	N/D	79.86	3693.01	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/11/05	3172.86	N/D	79.86	3693.00	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/16/05	3172.86	N/D	79.88	3692.98	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/18/05	3172.86	N/D	79.88	3692.98	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/23/05	3172.86	N/D	79.90	3692.96	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/24/05	3172.86	N/D	79.91	3692.95	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	08/28/05	3172.86	N/D	79.93	3692.93	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/01/05	3172.86	N/D	79.92	3692.94	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/06/05	3172.86	N/D	79.91	3692.95	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/08/05	3172.86	N/D	79.91	3692.92	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/13/05	3172.86	N/D	79.96	3692.90	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/20/05	3172.86	N/D	79.88	3692.88	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/22/05	3172.86	N/D	79.79	3693.87	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/27/05	3172.86	N/D	80.00	3692.88	0.00	N/A	N/A	0.00	0.00	0.00	N/A
	09/29/05	3172.86	N/D	80.01	3692.85	0.00	N/A	N/A	0.00	0.00	0.00	N/A
10/04/05	3172.86	N/D	80.03	3692.83	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
10/06/05	3172.86	N/D	80.04	3692.82	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
10/11/05	3172.86	N/D	80.04	3692.82	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
10/13/05	3172.86	N/D	80.05	3692.81	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
10/18/05	3172.86	N/D	80.05	3692.81	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
10/21/05	3172.86	N/D	80.09	3692.77	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
10/24/05	3172.86	N/D	80.08	3692.78	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/01/05	3172.86	N/D	80.53	3692.73	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/02/05	3172.86	N/D	80.51	3692.72	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/05/05	3172.86	N/D	80.18	3692.94	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/11/05	3172.86	N/D	80.16	3692.70	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/16/05	3172.86	N/D	80.21	3692.65	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/18/05	3172.86	N/D	80.20	3692.66	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/22/05	3172.86	N/D	80.30	3692.68	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
11/24/05	3172.86	N/D	80.22	3692.64	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/02/05	3172.86	N/D	80.27	3692.64	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/08/05	3172.86	N/D	80.20	3692.68	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/13/05	3172.86	N/D	80.25	3692.61	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/16/05	3172.86	N/D	80.20	3692.64	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/21/05	3172.86	N/D	80.21	3692.64	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/23/05	3172.86	N/D	80.20	3692.65	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/27/05	3172.86	N/D	80.20	3692.64	0.00	N/A	N/A	0.00	0.00	0.00	N/A	
12/30/05	3172.86	N/D	80.13	3692.71	0.00	N/A	N/A	0.00	0.00	0.00	N/A	



Talon/LPE

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Plains All American Pipeline, L.P.  
8" Moore to Jal #2 - 2002-10273

Table 2  
Quarterly Summary of Hydrocarbon Recovery

Date	Monthly Hydrocarbons Recovered (gallons)	Monthly Water Recovered (gallons)	Monthly Total Fluids Recovered (gallons)
January 2005	38	0	38
February 2005	37	0	37
March 2005	37	0	37
<b>Quarterly Total</b>	112	0	112
April 2005	8.0	0	8.0
May 2005	30.0	1.25	31.3
June 2005	68.00	2.25	70.3
<b>Quarterly Total</b>	106.0	3.5	109.5
<b>Total Six Months</b>	218	3.5	221.5
July 2005	83.00	1.75	84.8
August 2005	90.00	2.25	92.3
September 2005	88.00	2.25	90.3
<b>Quarterly Total</b>	261.00	6.3	267.3
October 2005	77.00	2.25	79.25
November 2005	72.00	2.50	74.50
December 2005	79.00	3.00	82.00
<b>Quarterly Total</b>	228.00	7.75	235.75
<b>Total Six Months</b>	489.00	14.00	503.00
<b>Total FY 2005</b>	707.00	17.50	724.50



## SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Table 3

Plains All American Pipeline, LP. - 8" Moore #2 - Ref #2002-10273

Monitor Well Location	Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene/m,p-Xylenes (mg/L)	o-Xylene (mg/L)	Total Xylenes (mg/L)	Chloride (mg/L)	Total Dissolved Solids (mg/L)	TPH (as Diesel) (mg/L)	TPH (as Gasoline) (mg/L)	Total TPH (mg/L)	
MW-1	18-Mar-05	Not Sampled due to the Presence of Phase Separated Hydrocarbons										
	14-Jun-05	Not Sampled due to the Presence of Phase Separated Hydrocarbons										
	30-Sep-05	Not Sampled due to the Presence of Phase Separated Hydrocarbons										
	30-Dec-05	Not Sampled due to the Presence of Phase Separated Hydrocarbons										
MW-2	18-Mar-05	<b>0.0404</b>	0.0251	0.0023	0.0051	0.0024	NA	NA	NA	NA	NA	
	14-Jun-05	0.0011	<.001	<.001	<.001	<.001	NA	NA	NA	NA	NA	
	30-Sep-05	<b>0.0428</b>	0.0392	0.0056	0.0090	0.0037	NA	NA	NA	NA	NA	
	30-Dec-05	<.001	<.001	<.001	<.001	<.001	NA	NA	NA	NA	NA	
MW-3	18-Mar-05	<b>1.2300</b>	0.3380	0.0260	0.1190	0.1320	NA	NA	NA	NA	NA	
	14-Jun-05	<b>11.0000</b>	<b>2.3400</b>	<b>0.7920</b>	1.1800	0.4700	NA	NA	NA	NA	NA	
	30-Sep-05	Not Sampled due to the Presence of Phase Separated Hydrocarbons										
	30-Dec-05	Not Sampled due to the Presence of Phase Separated Hydrocarbons										
MW-4	18-Mar-05	<b>5.2300</b>	<b>0.9890</b>	0.2590	0.2640	0.2040	NA	NA	NA	NA	NA	
	14-Jun-05	<b>8.2900</b>	<b>0.8270</b>	0.3080	0.2150	0.0989	NA	NA	NA	NA	NA	
	30-Sep-05	<b>5.3600</b>	0.1480	0.1530	<.010	<.010	NA	NA	NA	NA	NA	
	30-Dec-05	0.0045	<.000005	<.000005	<.000005	<.000005	NA	NA	NA	NA	NA	
NM/OC/D Remedial Thresholds		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>		<b>0.62</b>	<b>0.25</b>	<b>1</b>			<b>1</b>	

Red, bolded values are in excess of the NM/OC/D Remediation Thresholds or Other Standards for Domestic Water Supply. If the cell is blank, then that parameter was not analyzed

\* N/A - Not Analyzed

**TALON**

Talton, Inc.  
310 East Taylor Street, Hobbs, New Mexico 88240  
Phone: 505/283-4261, FAX: 505/283-4058

**SUMMARY OF GROUNDWATER POLY-AROMATIC HYDROCARBONS (PAH) ANALYTICAL RESULTS**

Table 4

Plains All American Pipeline, L.P. - 8<sup>th</sup> Moore #2 - Ref #2002-10273

Monitor Well Location	Date	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo[a]anthracene (ug/L)	Chrysene (ug/L)	Benzo[b]fluoranthene (ug/L)	Benzo[k]fluoranthene (ug/L)	Benzo[a]pyrene (ug/L)	Indeno[1,2,3-cd]perylene (ug/L)	Benzo[e]perylene (ug/L)
MW-1	30-Dec-05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0013	<0.0013	<0.0013	<0.0005	<0.0002	<0.0013	<0.0002
MW-2	30-Dec-05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0013	<0.0013	<0.0013	<0.0005	<0.0002	<0.0013	<0.0002
MW-3	30-Dec-05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0013	<0.0013	<0.0013	<0.0005	<0.0002	<0.0013	<0.0002
MW-4	30-Dec-05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0013	<0.0013	<0.0013	<0.0005	<0.0002	<0.0013	<0.0002

Not Analyzed due to the Presence of Phase Separated Hydrocarbons

Not Analyzed due to the Presence of Phase Separated Hydrocarbons

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Not Analyzed due to the Presence of Phase Separated Hydrocarbons

Not Analyzed due to the Presence of Phase Separated Hydrocarbons

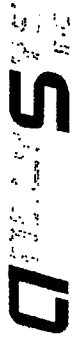
**APPENDICES**

**APPENDIX A**

**1<sup>st</sup> QUARTER GROUNDWATER LABORATORY  
ANALYTICAL RESULTS**

**AND**

**CHAIN-OF-CUSTODY FORMS**



3512 Montopolis Drive, Austin, TX 78744 &  
 2209 N. Padre Island Dr., Corpus Christi, TX 78408  
 (512) 385-5886 • FAX (512) 385-7411


**Client:** Environmental Plus, Inc.  
**Attn:** Iain Olness  
**Address:** 2100 Ave. O  
 Eunice, NM 88231  
**Phone:** (505) 394-3481 **FAX:** (505) 394-2601

**Report#/Lab ID#:** 164959 **Report Date:** 03/29/05  
**Project ID:** 2002-10273  
**Sample Name:** 8"M#2031805MW2  
**Sample Matrix:** water  
**Date Received:** 03/22/2005 **Time:** 09:30  
**Date Sampled:** 03/18/2005 **Time:** 11:32

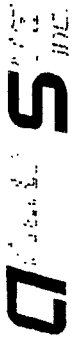
**REPORT OF ANALYSIS**

**QUALITY ASSURANCE DATA 1**

Parameter	Result	Units	RQL <sup>5</sup>	Blank	Date	Method <sup>6</sup>	Data Qual. <sup>7</sup>	Prec. <sup>2</sup>	Recov. <sup>3</sup>	CCV <sup>4</sup>	LCS <sup>4</sup>
Volatile organics-8260b/BTEX	---		---		03/23/05	8260b(5030/5035)	---	---	---	---	---
Benzene	40.4	µg/L	1	<1	03/23/05	8260b	---	2.4	93.5	91.9	90.4
Ethylbenzene	2.31	µg/L	1	<1	03/23/05	8260b	---	3	101.2	93	98.4
m,p-Xylenes	5.06	µg/L	2	<2	03/23/05	8260b	---	2.5	96.5	90.6	95.1
o-Xylene	2.38	µg/L	1	<1	03/23/05	8260b	---	2.8	108.1	100.3	103.5
Toluene	25.1	µg/L	1	<1	03/23/05	8260b	---	1.9	99.7	103.3	98.7

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 Respectfully Submitted,  
  
 Dale Wagner

1. Quality assurance data is for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent (%) difference between duplicate measurements. 3. Recovery (Recov.) is the percent (%) of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent (%) recovery of analyte from a known standard or matrix. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than (<) values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte potentially present between the PQL and the MDL. B = Analyte detected in associated method blank(s). S & S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference.



3512 Montopolis Drive, Austin, TX 78744 &  
2209 N. Padre Island Dr., Corpus Christi, TX 78408  
(512) 385-5886 • FAX (512) 385-7411

**Client:** Environmental Plus, Inc.  
**Attn:** Iain Olness  
**Project ID:** 2002-10273  
**Sample Name:** 8"M#2031805MW2  
**Report#/Lab ID#:** 164959  
**Sample Matrix:** water

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
1,2-Dichloroethane-d4	8260b	124	74-124	---
Toluene-d8	8260b	97.1	89-115	---

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.



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 2209 N. Padre Island Dr., Corpus Christi, TX 78408  
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**Client:** Environmental Plus, Inc.  
**Attn:** Iain Olness  
**Address:** 2100 Ave. O  
 Eunice, NM 88231  
**Phone:** (505) 394-3481 **FAX:** (505) 394-2601

**Report#/Lab ID#:** 164960 **Report Date:** 03/29/05  
**Project ID:** 2002-10273  
**Sample Name:** 8" M#2031805MW3  
**Sample Matrix:** water  
**Date Received:** 03/22/2005 **Time:** 09:30  
**Date Sampled:** 03/18/2005 **Time:** 10:39

**REPORT OF ANALYSIS**

**QUALITY ASSURANCE DATA 1**

Parameter	Result	Units	RQL <sup>5</sup>	Blank	Date	Method <sup>6</sup>	Data Qual. <sup>7</sup>	Prec. <sup>2</sup>	Recov. <sup>3</sup>	CCV <sup>4</sup>	LCS <sup>4</sup>
Volatile organics-8260b/BTEX	---		---		03/28/05	8260b(5030/5035)	---	---	---	---	---
Benzene	1230	µg/L	10	<10	03/28/05	8260b	---	2.4	93.5	91.9	90.4
Ethylbenzene	20.6	µg/L	10	<10	03/28/05	8260b	---	3	101.2	93	98.4
m,p-Xylenes	119	µg/L	20	<20	03/28/05	8260b	---	2.5	96.5	90.6	95.1
o-Xylene	132	µg/L	10	<10	03/28/05	8260b	---	2.8	108.1	100.3	103.5
Toluene	338	µg/L	10	<10	03/28/05	8260b	---	1.9	99.7	103.3	98.7

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 Respectfully Submitted,  
  
 Dale Wagner

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2209 N. Padre Island Dr., Corpus Christi, TX 78408  
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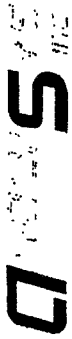
<b>Client:</b> Environmental Plus, Inc. <b>Attn:</b> Iain Olness	<b>Project ID:</b> 2002-10273 <b>Sample Name:</b> 8"M#2031805MW3	<b>Report#/Lab ID#:</b> 164960 <b>Sample Matrix:</b> water
---	---	---

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
1,2-Dichloroethane-d4	8260b	116	74-124	---
Toluene-d8	8260b	106	89-115	---

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.





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 2209 N. Padre Island Dr., Corpus Christi, TX 78408  
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**Client:** Environmental Plus, Inc.  
**Attn:** Iain Olness  
**Address:** 2100 Ave. O  
 Eunice, NM 88231  
**Phone:** (505) 394-3481 **FAX:** (505) 394-2601

**Report#/Lab ID#:** 164961 **Report Date:** 03/29/05  
**Project ID:** 2002-10273  
**Sample Name:** 8"M#2031805MW4  
**Sample Matrix:** water  
**Date Received:** 03/22/2005 **Time:** 09:30  
**Date Sampled:** 03/18/2005 **Time:** 09:16

**REPORT OF ANALYSIS**

**QUALITY ASSURANCE DATA 1**

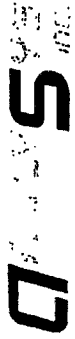
Parameter	Result	Units	RQL <sup>5</sup>	Blank	Date	Method <sup>6</sup>	Data Qual. <sup>7</sup>	Prec. <sup>2</sup>	Recov. <sup>3</sup>	CCV <sup>4</sup>	LCS <sup>4</sup>
Volatile organics-8260b/BTEX	---		---		03/28/05	8260b(5030/5035)	---	---	---	---	---
Benzene	523C	µg/L	100	<100	03/28/05	8260b	---	2.4	93.5	91.9	90.4
Ethylbenzene	259	µg/L	100	<100	03/28/05	8260b	---	3	101.2	93	98.4
m,p-Xylenes	264	µg/L	200	<200	03/28/05	8260b	---	2.5	96.5	90.6	95.1
o-Xylene	204	µg/L	100	<100	03/28/05	8260b	---	2.8	108.1	100.3	103.5
Toluene	989	µg/L	100	<100	03/28/05	8260b	---	1.9	99.7	103.3	98.7

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Respectfully Submitted,

Dale Wagner

1. Quality assurance data is for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent (%) difference between duplicate measurements. 3. Recovery (Recov.) is the percent (%) of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent (%) recovery of analyte from a known standard or matrix. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than (" $<$ ") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte potentially present between the PQL and the MDL. B = Analyte detected in associated method blank(s). S & S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference.



3512 Montopolis Drive, Austin, TX 78744 &  
2209 N. Padre Island Dr., Corpus Christi, TX 78408  
(512) 385-5886 FAX (512) 385-7411

<b>Client:</b> Environmental Plus, Inc. <b>Attn:</b> Iain Olness	<b>Project ID:</b> 2002-10273 <b>Sample Name:</b> 8" M#2031805MW4	<b>Report#/Lab ID#:</b> 164961 <b>Sample Matrix:</b> water
---	--	---

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
1,2-Dichloroethane-d4	8260b	102	74-124	---
Toluene-d8	8260b	109	89-115	---

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.


12020

# AnalySys Inc.

4221 Freidrich Lane, Suite 190, Austin, TX 78744  
 512-444-5896 FAX: 512-447-4766

# Chain of Custody Form

2209 N. Padre Island Dr., Corpus Christi, TX 78408

Company Name <b>Environmental Plus, Inc.</b>		Bill To	
EPI Project Manager <b>Iain Oliness</b>			
Mailing Address <b>P.O. BOX 1558</b>	<b>Attn: ENV Accounts Payable</b> <b>P.O. Box 4648,</b> <b>Houston, TX 77210-4648</b>		
City, State, Zip <b>Eunice New Mexico 88231</b>			
EPI Phone#/Fax# <b>505-394-3481 / 505-394-2601</b>			
Client Company <b>Plains All American</b>			
Facility Name <b>8" Moore #2</b>			
Project Reference <b>2002-10273</b>			
EPI Sampler Name <b>Manuel Gonzales</b>			

LAB I.D.	SAMPLE I.D.	MATRIX										PRESERV.			SAMPLING		ANALYSIS REQUEST							
		(G)RAB OR (C)OMP.	# CONTAINERS	GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE	ICE/COOL	OTHER	DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES (SO <sub>4</sub> )	PH	TCLP	PAH	PAH		
1649591	8" M#2031805MW2	G	4	X									X	X										
1649602	8" M#2031805MW3	G	4	X									X	X										
1649613	8" M#2031805MW4	G	4	X									X	X										
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Sampley Relinquished: <i>[Signature]</i>	Received By:	3/21/05	Time:	16:00	
	Received By: (lab staff)	3/22/05	Time:	09:30	
Relinquished by:	Mhanghny ASI		Sample Cool & Intact	Yes	No
Delivered by:			Checked By:		
E-mail results to: cfreynolds@paalp.com & ioliness@hotmail.com					
REMARKS:					

1310

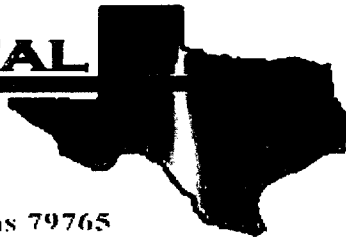
**APPENDIX B**

**2<sup>nd</sup> QUARTER GROUNDWATER LABORATORY  
ANALYTICAL RESULTS**

**AND**

**CHAIN-OF-CUSTODY FORMS**

**E** NVIRONMENTAL  
LAB OF



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: 8 inch Moore #2

Project Number: 2002-10273

Location: None Given

Lab Order Number: 5F14005

Report Date: 06/20/05

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
06/20/05 13:44

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	5F14005-01	Water	06/14/05 14:20	06/14/05 16:27
MW-3	5F14005-02	Water	06/14/05 14:00	06/14/05 16:27
MW-4	5F14005-03	Water	06/14/05 13:40	06/14/05 16:27

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
06/20/05 13:44

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-2 (SF14005-01) Water</b>									
Benzene	0.00109	0.00100	mg/L	1	EF51701	06/17/05	06/17/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		112 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.5 %	80-120		"	"	"	"	
<b>MW-3 (SF14005-02) Water</b>									
Benzene	11.0	0.0200	mg/L	20	EF51701	06/17/05	06/20/05	EPA 8021B	
Toluene	2.34	0.0200	"	"	"	"	"	"	
Ethylbenzene	0.792	0.0200	"	"	"	"	"	"	
Xylene (p/m)	1.18	0.0200	"	"	"	"	"	"	
Xylene (o)	0.471	0.0200	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		110 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.0 %	80-120		"	"	"	"	
<b>MW-4 (SF14005-03) Water</b>									
Benzene	8.29	0.0200	mg/L	20	EF51701	06/17/05	06/20/05	EPA 8021B	
Toluene	0.827	0.0200	"	"	"	"	"	"	
Ethylbenzene	0.308	0.0200	"	"	"	"	"	"	
Xylene (p/m)	0.215	0.0200	"	"	"	"	"	"	
Xylene (o)	0.0989	0.0200	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		118 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.5 %	80-120		"	"	"	"	

Environmental Lab of Texas

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Page 2 of 5

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 06/20/05 13:44

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EF51701 - EPA 5030C (GC)**

<b>Blank (EF51701-BLK1)</b>										
Prepared & Analyzed: 06/17/05										
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	21.5		ug/l	20.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	16.4		"	20.0		82.0	80-120			

<b>LCS (EF51701-BS1)</b>										
Prepared & Analyzed: 06/17/05										
Benzene	98.2		ug/l	100		98.2	80-120			
Toluene	99.0		"	100		99.0	80-120			
Ethylbenzene	89.8		"	100		89.8	80-120			
Xylene (p/m)	177		"	200		88.5	80-120			
Xylene (o)	82.1		"	100		82.1	80-120			
Surrogate: a,a,a-Trifluorotoluene	18.2		"	20.0		91.0	80-120			
Surrogate: 4-Bromofluorobenzene	19.0		"	20.0		95.0	80-120			

<b>LCS Dup (EF51701-BSD1)</b>										
Prepared & Analyzed: 06/17/05										
Benzene	112		ug/l	100		112	80-120	13.1	20	
Toluene	113		"	100		113	80-120	13.2	20	
Ethylbenzene	103		"	100		103	80-120	13.7	20	
Xylene (p/m)	199		"	200		99.5	80-120	11.7	20	
Xylene (o)	94.3		"	100		94.3	80-120	13.8	20	
Surrogate: a,a,a-Trifluorotoluene	20.1		"	20.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	17.2		"	20.0		86.0	80-120			

<b>Calibration Check (EF51701-CCV1)</b>										
Prepared & Analyzed: 06/17/05										
Benzene	112		ug/l	100		112	80-120			
Toluene	112		"	100		112	80-120			
Ethylbenzene	108		"	100		108	80-120			
Xylene (p/m)	201		"	200		100	80-120			
Xylene (o)	93.6		"	100		93.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	20.7		"	20.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	21.1		"	20.0		106	80-120			



Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 06/20/05 13:44

**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EF51701 - EPA 5030C (GC)**

**Matrix Spike (EF51701-MS1)**

Source: 5F17006-01

Prepared & Analyzed: 06/17/05

Benzene	103		ug/l	100	ND	103	80-120			
Toluene	114		"	100	ND	114	80-120			
Ethylbenzene	105		"	100	ND	105	80-120			
Xylene (p/m)	203		"	200	ND	102	80-120			
Xylene (o)	91.9		"	100	ND	91.9	80-120			
Surrogate: a,a,a-Trifluorotoluene	20.6		"	20.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	20.0		"	20.0		100	80-120			

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
06/20/05 13:44

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:

*Raland K Tuttle*

Date:

6/20/2005

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

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# Environmental Labs of Texas

12600 West J-20 East, Odessa, TX 79763  
 (432) 563-1800 FAX: (432) 563-1713

Company Name: Llano-Permian Environmental  
 LPE Project Manager: Louis Sanchez  
 Mailing Address: 318 E. Taylor Street  
 City, State, Zip: Hobbs New Mexico 88240  
 LPE Phone/Fax#: 505-393-4261 / 505-393-4658  
 Client Company: Plains All American  
 Facility Name: 8" Moore to Jal #2  
 Project Reference: LBSPLAINS006SPL / 2002-10273  
 LPE Sampler Name: Jeremy Anderson



Attn: ENV Accounts Payable  
 PO Box 4648,  
 Houston, TX 77210-4648

Chain of Custody Form

Page 1 of 1

LAB ID	SAMPLE I.D.	(GRAB OR C)OMP.	# CONTAINERS	GROUND WATER	WASTEWATER	MATRIX							PRESERV.			DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES (SO <sub>4</sub> )	PH	TCLP	OTHER >>>	PAH										
						SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE	ICE/COOL	OTHER	CHLORIDES (Cl)	SULFATES (SO <sub>4</sub> )	PH											TCLP	OTHER >>>	PAH							
-01	MW-2	2	X	X								X	X	X	6/14/05	1430	X																		
-02	MW-3	2	X	X								X	X	X	6/14/05	1400	X																		
-03	MW-4	2	X	X								X	X	X	6/14/05	1340	X																		
4																																			
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			

Received By: *[Signature]* Date: 6/14/05  
 Received By: (lab staff) Date: 6-14-05  
 Received By: *James McManus* Date: 6/27  
 Checked By: *JMM*  
 Sample Cool & Inact: (Yes) No  
 E-mail results to: lsanchez@llano-permian.com  
 REMARKS: SEALS on cooler  
 6-40ml glass w/HCl on ice 4.0°C  
 w/labels/seal on containers

**Environmental Lab of Texas**  
**Variance / Corrective Action Report – Sample Log-In**

Client: Llano-Permian

Date/Time: 6/14/05 16:27

Order #: 5F1400

Initials: CR

**Sample Receipt Checklist**

Temperature of container/cooler?	Yes	No	4.0 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Custody Seals intact on shipping container/cooler?	<input checked="" type="checkbox"/>	No	Not present
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/>	No	
Container labels legible and intact?	<input checked="" type="checkbox"/>	No	
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Samples in proper container/bottle?	<input checked="" type="checkbox"/>	No	
Samples properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	<input checked="" type="checkbox"/>	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable

Other observations:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Corrective Action Taken:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

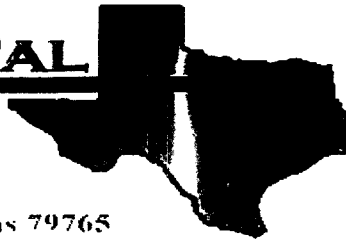
**APPENDIX C**

**3rd QUARTER GROUNDWATER LABORATORY  
ANALYTICAL RESULTS**

**AND**

**CHAIN-OF-CUSTODY FORMS**

**E NVIRONMENTAL**  
**LAB OF**



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: 8 inch Moore to Jal #2

Project Number: 2002-10273

Location: Lovington, NM

Lab Order Number: 5J03004

Report Date: 10/13/05

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914  
**Reported:**  
10/13/05 11:10

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-02	5J03004-01	Water	09/30/05 15:20	09/30/05 17:20
MW-04	5J03004-02	Water	09/30/05 15:00	09/30/05 17:20

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 10/13/05 11:10

**Volatile Organic Compounds by EPA Method 8260B**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-02 (5J03004-01) Water</b>									
Benzene	42.8	1.00	ug/l	1	EJ51204	10/11/05	10/11/05	EPA 8260B	
Toluene	39.2	1.00	"	"	"	"	"	"	
Ethylbenzene	5.61	1.00	"	"	"	"	"	"	
Xylene (p/m)	8.97	1.00	"	"	"	"	"	"	
Xylene (o)	3.68	1.00	"	"	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		102 %	68-129	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		91.0 %	72-132	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.6 %	74-118	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.4 %	65-140	"	"	"	"	"	
<b>MW-04 (5J03004-02) Water</b>									
Benzene	5360	100	ug/l	100	EJ51204	10/11/05	10/12/05	EPA 8260B	
Toluene	148	100	"	"	"	"	"	"	
Ethylbenzene	153	100	"	"	"	"	"	"	
Xylene (p/m)	ND	100	"	"	"	"	"	"	
Xylene (o)	ND	100	"	"	"	"	"	"	
<i>Surrogate: Dibromofluoromethane</i>		110 %	68-129	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		96.2 %	72-132	"	"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.8 %	74-118	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.4 %	65-140	"	"	"	"	"	

Environmental Lab of Texas

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Page 2 of 5



Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 10/13/05 11:10

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EJ51204 - EPA 5030C (GCMS)**

**Blank (EJ51204-BLK1)**

Prepared & Analyzed: 10/11/05

Benzene	ND	1.00	ug/l							
Toluene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Xylene (p/m)	ND	1.00	"							
Xylene (o)	ND	1.00	"							
Surrogate: Dibromofluoromethane	52.1		"	50.0		104	68-129			
Surrogate: 1,2-Dichloroethane-d4	44.5		"	50.0		89.0	72-132			
Surrogate: Toluene-d8	45.3		"	50.0		90.6	74-118			
Surrogate: 4-Bromofluorobenzene	46.9		"	50.0		93.8	65-140			

**LCS (EJ51204-BS1)**

Prepared: 10/11/05 Analyzed: 10/12/05

Benzene	48.6	1.00	ug/l	50.0		97.2	70-130			
Toluene	45.0	1.00	"	50.0		90.0	70-130			
Ethylbenzene	44.2	1.00	"	50.0		88.4	70-130			
Xylene (p/m)	72.6	1.00	"	100		72.6	70-130			
Xylene (o)	43.0	1.00	"	50.0		86.0	70-130			
Surrogate: Dibromofluoromethane	49.7		"	50.0		99.4	68-129			
Surrogate: 1,2-Dichloroethane-d4	47.7		"	50.0		95.4	72-132			
Surrogate: Toluene-d8	45.4		"	50.0		90.8	74-118			
Surrogate: 4-Bromofluorobenzene	44.8		"	50.0		89.6	65-140			

**Calibration Check (EJ51204-CCV1)**

Prepared & Analyzed: 10/11/05

Toluene	41.9		ug/l	50.0		83.8	70-130			
Ethylbenzene	39.4		"	50.0		78.8	70-130			
Surrogate: Dibromofluoromethane	52.2		"	50.0		104	68-129			
Surrogate: 1,2-Dichloroethane-d4	46.8		"	50.0		93.6	72-132			
Surrogate: Toluene-d8	47.4		"	50.0		94.8	74-118			
Surrogate: 4-Bromofluorobenzene	48.0		"	50.0		96.0	65-140			

Environmental Lab of Texas

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Page 3 of 5

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 10/13/05 11:10

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EJ51204 - EPA 5030C (GCMS)**

**Matrix Spike (EJ51204-MS1)**

Source: 5J10006-01

Prepared & Analyzed: 10/11/05

Benzene	47.3	1.00	ug/l	50.0	ND	94.6	70-130			
Toluene	44.8	1.00	"	50.0	ND	89.6	70-130			
Ethylbenzene	46.2	1.00	"	50.0	1.12	90.2	70-130			
Xylene (p/m)	75.8	1.00	"	100	ND	75.8	70-130			
Xylene (o)	41.8	1.00	"	50.0	0.600	82.4	70-130			
Surrogate: Dibromofluoromethane	46.8		"	50.0		93.6	68-129			
Surrogate: 1,2-Dichloroethane-d4	46.4		"	50.0		92.8	72-132			
Surrogate: Toluene-d8	46.9		"	50.0		93.8	74-118			
Surrogate: 4-Bromofluorobenzene	48.5		"	50.0		97.0	65-140			

**Matrix Spike Dup (EJ51204-MSD1)**

Source: 5J10006-01

Prepared & Analyzed: 10/11/05

Benzene	47.4	1.00	ug/l	50.0	ND	94.8	70-130	0.211	20	
Toluene	44.7	1.00	"	50.0	ND	89.4	70-130	0.223	20	
Ethylbenzene	46.0	1.00	"	50.0	1.12	89.8	70-130	0.434	20	
Xylene (p/m)	76.2	1.00	"	100	ND	76.2	70-130	0.526	20	
Xylene (o)	42.5	1.00	"	50.0	0.600	83.8	70-130	1.66	20	
Surrogate: Dibromofluoromethane	46.9		"	50.0		93.8	68-129			
Surrogate: 1,2-Dichloroethane-d4	46.0		"	50.0		92.0	72-132			
Surrogate: Toluene-d8	45.8		"	50.0		91.6	74-118			
Surrogate: 4-Bromofluorobenzene	47.3		"	50.0		94.6	65-140			

Environmental Lab of Texas

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Page 4 of 5

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

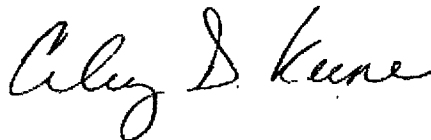
Fax: (432) 687-4914

Reported:  
10/13/05 11:10

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By: \_\_\_\_\_



Date: 10/13/2005

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
James L. Hawkins, Chemist/Geologist  
Sandra Sanchez, Lab Tech.

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# Environmental Lab of Texas

12600 West I-20 East  
Odessa, Texas 79765  
Phone: 432-563-1800  
Fax: 432-563-1713

**Project Manager:** Camille Reynolds/Plains / Louis Sanchez (LPE)  
**Company Name:** Plains PAAP / Talam LPE  
 AT&T Env Accounts Payable / LPE 318 East Taylor Street.  
 Company Address: PO Box 4648 / LPE # 9 East Industrial Loop  
 Hobbs, New Mexico 88340  
 City/State/Zip: Houston, TX 77210-4648 / Midland, Texas 79701  
**Telephone No:** (505) 393-4261  
**Fax No:** (505) 393-4658

**Sampler Signature:**

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

**Project Name:** 8" Nore to Jal #2  
 Plains / LPE  
**Project #:** 2002-10213 / LBSPPLAINSONGSL  
**Project Loc:** Livingston New Mexico  
 / LPE  
**PO #:** / LBSPPLAINSONGSL

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative					Matrix					Anions (Cl, SO <sub>4</sub> , CO <sub>3</sub> , HCO <sub>3</sub> )	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Sampulates	BTEX 822 824 826 or BTEX 8260	FCI	N.O.R.M.	RUSH TAT (Pre-Schedule)	Standard TAT				
					HCl	HNO <sub>3</sub>	NaOH	H <sub>2</sub> SO <sub>4</sub>	None	Other (Specify)	Water	Sudge	Soil	Other (Specify)											TFH: 418.1 8015M 1005 1008	Cations (Ca, Mg, Na, K)		
5-03004	-01 MWL-02	9-30-05	1530	2	✓	✓					✓								✓									
	-02 MW-04	9-30-05	1500	2	✓	✓					✓								✓									

**Special Instructions:**

Sample Containers Intact?  N  
 Temperature Upon Receipt: 4.5  
 Laboratory Comments: Labels / no seals

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	9-30-05	1720	Camille Kelly	9/30/05	17:20

**Environmental Lab of Texas**  
**Variance / Corrective Action Report – Sample Log-In**

Client: Plains P/L

Date/Time: 09-30-05 @ 1720

Order #: 5J03004

Initials: JMM

**Sample Receipt Checklist**

Temperature of container/cooler?	<input checked="" type="radio"/> Yes	No	4.5	C
Shipping container/cooler in good condition?	<input checked="" type="radio"/> Yes	No		
Custody Seals intact on shipping container/cooler?	<input checked="" type="radio"/> Yes	No	<del>Not present</del>	
Custody Seals intact on sample bottles?	<input checked="" type="radio"/> Yes	No	<del>Not present</del>	
Chain of custody present?	<input checked="" type="radio"/> Yes	No		
Sample Instructions complete on Chain of Custody?	<input checked="" type="radio"/> Yes	No		
Chain of Custody signed when relinquished and received?	<input checked="" type="radio"/> Yes	No		
Chain of custody agrees with sample label(s)	<input checked="" type="radio"/> Yes	No		
Container labels legible and intact?	<input checked="" type="radio"/> Yes	No		
Sample Matrix and properties same as on chain of custody?	<input checked="" type="radio"/> Yes	No		
Samples in proper container/bottle?	<input checked="" type="radio"/> Yes	No		
Samples properly preserved?	<input checked="" type="radio"/> Yes	No		
Sample bottles intact?	<input checked="" type="radio"/> Yes	No		
Preservations documented on Chain of Custody?	<input checked="" type="radio"/> Yes	No		
Containers documented on Chain of Custody?	<input checked="" type="radio"/> Yes	No		
Sufficient sample amount for indicated test?	<input checked="" type="radio"/> Yes	No		
All samples received within sufficient hold time?	<input checked="" type="radio"/> Yes	No		
VOC samples have zero headspace?	<input checked="" type="radio"/> Yes	No	Not Applicable	

Hand delivered  
by Sampler

Other observations:

*\* Client used custody seals for labels*

**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

Corrective Action Taken:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

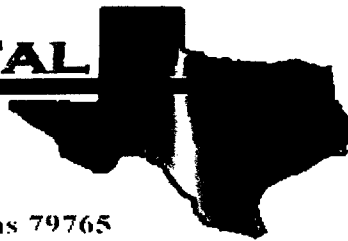
**APPENDIX D**

**4th QUARTER GROUNDWATER LABORATORY  
ANALYTICAL RESULTS**

**AND**

**CHAIN-OF-CUSTODY FORMS**

**E** **N** **V** **I** **R** **O** **N** **M** **E** **N** **T** **A** **L** **L** **A** **B** **O** **F**



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Camille Reynolds

Plains All American EH & S

1301 S. County Road 1150

Midland, TX 79706-4476

Project: 8 inch Moore to Jal #2

Project Number: 2002-10273

Location: None Given

Lab Order Number: 5L30007

Report Date: 01/10/06



Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914  
**Reported:**  
01/10/06 17:09

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-02	5L30007-01	Water	12/30/05 11:55	12/30/05 15:16
MW-04	5L30007-02	Water	12/30/05 11:25	12/30/05 15:16
NW	5L30007-03	Soil	12/30/05 11:05	12/30/05 15:16
SW	5L30007-04	Soil	12/30/05 11:03	12/30/05 15:16
NE	5L30007-05	Soil	12/30/05 11:07	12/30/05 15:16
SE	5L30007-06	Soil	12/30/05 11:00	12/30/05 15:16

Plains All American EH & S  
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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**MW-02 (5L30007-01) Water**

Benzene	ND	0.00100	mg/L	1	EA60408	01/04/06	01/09/06	EPA 8021B	
Toluene	J [0.000447]	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	J [0.000252]	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		95.5 %		80-120	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %		80-120	"	"	"	"	

**MW-04 (5L30007-02) Water**

Benzene	4.49	0.0500	mg/L	50	EA60408	01/04/06	01/09/06	EPA 8021B	
Toluene	J [0.0255]	0.0500	"	"	"	"	"	"	
Ethylbenzene	J [0.0199]	0.0500	"	"	"	"	"	"	
Xylene (p/m)	J [0.0274]	0.0500	"	"	"	"	"	"	
Xylene (o)	ND	0.0500	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		105 %		80-120	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.8 %		80-120	"	"	"	"	

**NW (5L30007-03) Soil**

Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EL53011	12/30/05	12/31/05	EPA 8015M	
Diesel Range Organics >C12-C35	186	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	186	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		104 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		106 %		70-130	"	"	"	"	

**SW (5L30007-04) Soil**

Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EL53011	12/30/05	12/31/05	EPA 8015M	
Diesel Range Organics >C12-C35	146	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	146	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		110 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		112 %		70-130	"	"	"	"	

Environmental Lab of Texas

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 Midland TX, 79706-4476

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 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>NE (5L30007-05) Soil</b>									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EL53011	12/30/05	12/31/05	EPA 8015M	
Diesel Range Organics >C12-C35	103	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	103	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		103 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		104 %		70-130	"	"	"	"	
<b>SE (5L30007-06) Soil</b>									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EL53011	12/30/05	12/31/05	EPA 8015M	
Diesel Range Organics >C12-C35	167	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	167	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		107 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		110 %		70-130	"	"	"	"	

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01/10/06 17:09

**General Chemistry Parameters by EPA / Standard Methods**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>NW (5L30007-03) Soil</b>									
% Moisture	8.7	0.1	%	1	EA60310	12/30/05	01/03/06	% calculation	
<b>SW (5L30007-04) Soil</b>									
% Moisture	8.0	0.1	%	1	EA60310	12/30/05	01/03/06	% calculation	
<b>NE (5L30007-05) Soil</b>									
% Moisture	6.3	0.1	%	1	EA60310	12/30/05	01/03/06	% calculation	
<b>SE (5L30007-06) Soil</b>									
% Moisture	4.0	0.1	%	1	EA60310	12/30/05	01/03/06	% calculation	

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 Project Manager: Camille Reynolds

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Reported:  
 01/10/06 17:09

**PAH compounds by Semivolatile GCMS**  
**Environmental Lab of Texas**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>MW-02 (5L30007-01) Water</b>										
Naphthalene	ND	5.00		ug/l	1	EA60904	01/05/06	01/05/06	8270C	
Acenaphthylene	ND	5.00		"	"	"	"	"	"	
Acenaphthene	ND	5.00		"	"	"	"	"	"	
Fluorene	ND	5.00		"	"	"	"	"	"	
Phenanthrene	ND	5.00		"	"	"	"	"	"	
Anthracene	ND	5.00		"	"	"	"	"	"	
Fluoranthene	ND	5.00		"	"	"	"	"	"	
Pyrene	ND	5.00		"	"	"	"	"	"	
Benzo (a) anthracene	ND	1.30		"	"	"	"	"	"	
Chrysene	ND	5.00		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.30		"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	1.30		"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.00		"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.200		"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200		"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	5.00		"	"	"	"	"	"	
Surrogate: Nitrobenzene-d5		44.4 %		35-114		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		53.0 %		43-116		"	"	"	"	
Surrogate: p-Terphenyl-d14		55.6 %		33-141		"	"	"	"	
<b>MW-04 (5L30007-02) Water</b>										
Naphthalene	19.9	5.00		ug/l	1	EA60904	01/05/06	01/05/06	8270C	
Acenaphthylene	ND	5.00		"	"	"	"	"	"	
Acenaphthene	ND	5.00		"	"	"	"	"	"	
Fluorene	J [0.600]	5.00		"	"	"	"	"	"	J
Phenanthrene	J [0.400]	5.00		"	"	"	"	"	"	J
Anthracene	ND	5.00		"	"	"	"	"	"	
Fluoranthene	ND	5.00		"	"	"	"	"	"	
Pyrene	ND	5.00		"	"	"	"	"	"	
Benzo (a) anthracene	ND	1.30		"	"	"	"	"	"	
Chrysene	ND	5.00		"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.30		"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	1.30		"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.00		"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.200		"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200		"	"	"	"	"	"	
Benzo (g,h,i) perylene	ND	5.00		"	"	"	"	"	"	
Surrogate: Nitrobenzene-d5		50.2 %		35-114		"	"	"	"	

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Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
01/10/06 17:09

**PAH compounds by Semivolatile GCMS**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-04 (SL30007-02) Water</b>									
Surrogate: 2-Fluorobiphenyl		60.2 %	43-116		EA60904	01/05/06	01/05/06	8270C	
Surrogate: p-Terphenyl-d14		61.5 %	33-141		"	"	"	"	

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**Organics by GC - Quality Control  
 Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA60408 - EPA 5030C (GC)**

**Blank (EA60408-BLK1)**

Prepared: 01/04/06 Analyzed: 01/09/06

Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	34.9		ug/l	40.0		87.2	80-120			
Surrogate: 4-Bromofluorobenzene	36.2		"	40.0		90.5	80-120			

**LCS (EA60408-BS1)**

Prepared: 01/04/06 Analyzed: 01/09/06

Benzene	0.0528	0.00100	mg/L	0.0500		106	80-120			
Toluene	0.0586	0.00100	"	0.0500		117	80-120			
Ethylbenzene	0.0586	0.00100	"	0.0500		117	80-120			
Xylene (p/m)	0.119	0.00100	"	0.100		119	80-120			
Xylene (o)	0.0591	0.00100	"	0.0500		118	80-120			
Surrogate: a,a,a-Trifluorotoluene	41.3		ug/l	40.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	38.0		"	40.0		95.0	80-120			

**Calibration Check (EA60408-CCV1)**

Prepared: 01/04/06 Analyzed: 01/09/06

Benzene	54.1		ug/l	50.0		108	80-120			
Toluene	59.8		"	50.0		120	80-120			
Ethylbenzene	59.5		"	50.0		119	80-120			
Xylene (p/m)	120		"	100		120	80-120			
Xylene (o)	57.0		"	50.0		114	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.2		"	40.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	36.6		"	40.0		91.5	80-120			

**Matrix Spike (EA60408-MS1)**

Source: 6A05002-01

Prepared: 01/04/06 Analyzed: 01/09/06

Benzene	0.0516	0.00100	mg/L	0.0500	ND	103	80-120			
Toluene	0.0572	0.00100	"	0.0500	ND	114	80-120			
Ethylbenzene	0.0587	0.00100	"	0.0500	ND	117	80-120			
Xylene (p/m)	0.119	0.00100	"	0.100	ND	119	80-120			
Xylene (o)	0.0588	0.00100	"	0.0500	ND	118	80-120			
Surrogate: a,a,a-Trifluorotoluene	39.9		ug/l	40.0		99.8	80-120			
Surrogate: 4-Bromofluorobenzene	41.4		"	40.0		104	80-120			

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EA60408 - EPA 5030C (GC)**

**Matrix Spike Dup (EA60408-MSD1)**

Source: 6A05002-01

Prepared: 01/04/06

Analyzed: 01/09/06

Benzene	0.0525	0.00100	mg/L	0.0500	ND	105	80-120	1.92	20	
Toluene	0.0575	0.00100	"	0.0500	ND	115	80-120	0.873	20	
Ethylbenzene	0.0573	0.00100	"	0.0500	ND	115	80-120	1.72	20	
Xylene (p/m)	0.119	0.00100	"	0.100	ND	119	80-120	0.00	20	
Xylene (o)	0.0590	0.00100	"	0.0500	ND	118	80-120	0.00	20	
Surrogate: a,a,a-Trifluorotoluene	39.6		ug/l	40.0		99.0	80-120			
Surrogate: 4-Bromofluorobenzene	36.8		"	40.0		92.0	80-120			

**Batch EL53011 - Solvent Extraction (GC)**

**Blank (EL53011-BLK1)**

Prepared: 12/30/05

Analyzed: 12/31/05

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	50.7		mg/kg	50.0		101	70-130			
Surrogate: 1-Chlorooctadecane	50.9		"	50.0		102	70-130			

**LCS (EL53011-BS1)**

Prepared: 12/30/05

Analyzed: 12/31/05

Gasoline Range Organics C6-C12	456	10.0	mg/kg wet	500		91.2	75-125			
Diesel Range Organics >C12-C35	528	10.0	"	500		106	75-125			
Total Hydrocarbon C6-C35	984	10.0	"	1000		98.4	75-125			
Surrogate: 1-Chlorooctane	58.8		mg/kg	50.0		118	70-130			
Surrogate: 1-Chlorooctadecane	54.4		"	50.0		109	70-130			

**Calibration Check (EL53011-CCV1)**

Prepared: 12/30/05

Analyzed: 12/31/05

Gasoline Range Organics C6-C12	502		mg/kg	500		100	80-120			
Diesel Range Organics >C12-C35	533		"	500		107	80-120			
Total Hydrocarbon C6-C35	1040		"	1000		104	80-120			
Surrogate: 1-Chlorooctane	55.2		"	50.0		110	70-130			
Surrogate: 1-Chlorooctadecane	54.0		"	50.0		108	70-130			

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EL53011 - Solvent Extraction (GC)**

<b>Matrix Spike (EL53011-MS1)</b>		<b>Source: 5L30007-03</b>		<b>Prepared: 12/30/05</b>		<b>Analyzed: 12/31/05</b>				
Gasoline Range Organics C6-C12	512	10.0	mg/kg dry	548	ND	93.4	75-125			
Diesel Range Organics >C12-C35	718	10.0	"	548	186	97.1	75-125			
Total Hydrocarbon C6-C35	1230	10.0	"	1100	186	94.9	75-125			
Surrogate: 1-Chlorooctane	57.7		mg/kg	50.0		115	70-130			
Surrogate: 1-Chlorooctadecane	53.4		"	50.0		107	70-130			
<b>Matrix Spike Dup (EL53011-MSD1)</b>		<b>Source: 5L30007-03</b>		<b>Prepared: 12/30/05</b>		<b>Analyzed: 12/31/05</b>				
Gasoline Range Organics C6-C12	503	10.0	mg/kg dry	548	ND	91.8	75-125	1.77	20	
Diesel Range Organics >C12-C35	721	10.0	"	548	186	97.6	75-125	0.417	20	
Total Hydrocarbon C6-C35	1220	10.0	"	1100	186	94.0	75-125	0.816	20	
Surrogate: 1-Chlorooctane	56.7		mg/kg	50.0		113	70-130			
Surrogate: 1-Chlorooctadecane	52.8		"	50.0		106	70-130			

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 01/10/06 17:09

**General Chemistry Parameters by EPA / Standard Methods - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EA60310 - General Preparation (Prep)**

**Blank (EA60310-BLK1)** Prepared: 12/30/05 Analyzed: 01/03/06

% Solids	100		%							
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**Duplicate (EA60310-DUP1)** Source: 5L30001-01 Prepared: 12/30/05 Analyzed: 01/03/06

% Solids	92.4		%		91.7			0.760	20	
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**Duplicate (EA60310-DUP2)** Source: 5L30007-03 Prepared: 12/30/05 Analyzed: 01/03/06

% Solids	92.0		%		91.3			0.764	20	
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**PAH compounds by Semivolatile GCMS - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EA60904 - EPA 3510C**

**Blank (EA60904-BLK1)**

Prepared & Analyzed: 01/05/06

Naphthalene	ND	5.00	ug/l							
Acenaphthylene	ND	5.00	"							
Acenaphthene	ND	5.00	"							
Fluorene	ND	5.00	"							
Phenanthrene	ND	5.00	"							
Anthracene	ND	5.00	"							
Fluoranthene	ND	5.00	"							
Pyrene	ND	5.00	"							
Benzo (a) anthracene	ND	1.30	"							
Chrysene	ND	5.00	"							
Indeno (1,2,3-cd) pyrene	ND	1.30	"							
Benzo (b) fluoranthene	ND	1.30	"							
Benzo (k) fluoranthene	ND	5.00	"							
Benzo (a) pyrene	ND	0.200	"							
Dibenzo (a,h) anthracene	ND	0.200	"							
Benzo (g,h,i) perylene	ND	5.00	"							
<i>Surrogate: Nitrobenzene-d5</i>	<i>39.1</i>		<i>"</i>	<i>80.0</i>		<i>48.9</i>	<i>35-114</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>39.0</i>		<i>"</i>	<i>80.0</i>		<i>48.8</i>	<i>43-116</i>			
<i>Surrogate: p-Terphenyl-d14</i>	<i>57.4</i>		<i>"</i>	<i>80.0</i>		<i>71.8</i>	<i>33-141</i>			

**LCS (EA60904-BS1)**

Prepared & Analyzed: 01/05/06

Naphthalene	42.5	5.00	ug/l	100		42.5	21-133			
Acenaphthylene	44.0	5.00	"	100		44.0	33-145			
Anthracene	48.6	5.00	"	100		48.6	27-133			
Fluoranthene	45.2	5.00	"	100		45.2	26-137			
Pyrene	54.6	5.00	"	100		54.6	52-115			
Benzo (a) anthracene	51.3	1.30	"	100		51.3	33-143			
Chrysene	51.6	5.00	"	100		51.6	17-168			
Indeno (1,2,3-cd) pyrene	37.3	1.30	"	100		37.3	5-171			
Benzo (b) fluoranthene	55.8	1.30	"	100		55.8	24-159			
Benzo (k) fluoranthene	48.7	5.00	"	100		48.7	11-162			
Benzo (a) pyrene	48.6	0.200	"	100		48.6	17-163			
Dibenzo (a,h) anthracene	50.4	0.200	"	100		50.4	5-227			
Benzo (g,h,i) perylene	39.6	5.00	"	100		39.6	5-219			
<i>Surrogate: Nitrobenzene-d5</i>	<i>42.3</i>		<i>"</i>	<i>80.0</i>		<i>52.9</i>	<i>35-114</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>45.4</i>		<i>"</i>	<i>80.0</i>		<i>56.8</i>	<i>43-116</i>			
<i>Surrogate: p-Terphenyl-d14</i>	<i>57.2</i>		<i>"</i>	<i>80.0</i>		<i>71.5</i>	<i>33-141</i>			

Environmental Lab of Texas

*The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.*

Plains All American EH & S  
 1301 S. County Road 1150  
 Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
 Project Number: 2002-10273  
 Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
 01/10/06 17:09

**PAH compounds by Semivolatile GCMS - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch EA60904 - EPA 3510C**

**LCS Dup (EA60904-BSD1)**

Prepared & Analyzed: 01/05/06

Naphthalene	42.6	5.00	ug/l	100		42.6	21-133	0.235	30.1	
Acenaphthylene	44.0	5.00	"	100		44.0	33-145	0.00	40.2	
Phenanthrene	53.1	5.00	"	100		53.1	54-120	0.377	20.6	
Anthracene	48.5	5.00	"	100		48.5	27-133	0.206	32	
Fluoranthene	44.8	5.00	"	100		44.8	26-137	0.889	32.8	
Pyrene	55.6	5.00	"	100		55.6	52-115	1.81	25.2	
Benzo (a) anthracene	51.1	1.30	"	100		51.1	33-143	0.391	27.6	
Chrysene	51.1	5.00	"	100		51.1	17-168	0.974	48.3	
Indeno (1,2,3-cd) pyrene	36.2	1.30	"	100		36.2	5-171	2.99	44.6	
Benzo (b) fluoranthene	48.2	1.30	"	100		48.2	24-159	14.6	38.8	
Benzo (k) fluoranthene	57.3	5.00	"	100		57.3	11-162	16.2	32.3	
Benzo (a) pyrene	48.7	0.200	"	100		48.7	17-163	0.206	39	
Dibenzo (a,h) anthracene	48.7	0.200	"	100		48.7	5-227	3.43	70	
Benzo (g,h,i) perylene	39.3	5.00	"	100		39.3	5-219	0.760	58.9	
Surrogate: Nitrobenzene-d5	42.2		"	80.0		52.8	35-114			
Surrogate: 2-Fluorobiphenyl	45.2		"	80.0		56.5	43-116			
Surrogate: p-Terphenyl-d14	57.9		"	80.0		72.4	33-141			

**Calibration Check (EA60904-CCV1)**

Prepared: 01/05/06 Analyzed: 01/06/06

Acenaphthene	48.1		ug/l	50.0		96.2	70-130			
Fluoranthene	46.8		"	50.0		93.6	70-130			
Benzo (a) pyrene	47.5		"	50.0		95.0	70-130			
Surrogate: Nitrobenzene-d5	68.3		"	80.0		85.4	35-114			
Surrogate: 2-Fluorobiphenyl	67.0		"	80.0		83.8	43-116			
Surrogate: p-Terphenyl-d14	50.3		"	80.0		62.9	33-141			

Plains All American EH & S  
1301 S. County Road 1150  
Midland TX, 79706-4476

Project: 8 inch Moore to Jal #2  
Project Number: 2002-10273  
Project Manager: Camille Reynolds

Fax: (432) 687-4914

Reported:  
01/10/06 17:09

### Notes and Definitions

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).  
DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference  
LCS Laboratory Control Spike  
MS Matrix Spike  
Dup Duplicate

Report Approved By:

*Raland K. Tuttle*

Date:

1/10/2006

Raland K. Tuttle, Lab Manager  
Celey D. Keene, Lab Director, Org. Tech Director  
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director  
LaTasha Cornish, Chemist  
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.


If you have received this material in error, please notify us immediately at 432-563-1800.

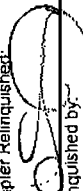
# Environmental Labs of Texas

12600 West I-20 East, Odessa, TX 79763  
 (432) 563-1800 FAX: (432) 563-1713

# Chain of Custody Form

Page 1 of 1

<b>Company Name</b> Talon/LPE <b>LPE Project Manager</b> Louis Sanchez <b>Mailing Address</b> 318 E. Taylor Street <b>City, State, Zip</b> Hobbs New Mexico 88240 <b>LPE Phone#/Fax#</b> 505-393-4261 / 505-393-4658 <b>Client Company</b> PAAP / Camille Reynolds <b>Facility Name</b> 8" Moore to Jal #2 / 2002-10273 <b>Project Reference</b> LBSPLAINS008SPL <b>LPE Sampler Name</b> Jeremy Anderson		<b>Bill To</b>  <b>PLAINS</b> ALL AMERICAN PIPELINE, L.P. Attn: ENV Accounts Payable PO Box 4648, Houston, TX 77210-4648		<b>ANALYSIS REQUEST</b>																																												
LAB I.D. 5-360095-15 -01 -02 -03 -04 -05 -010	(G) RAB OR (C) OMP.		# CONTAINERS		GROUND WATER		WASTEWATER		SOIL		CRUDE OIL		SLUDGE		OTHER:		ACID/BASE		ICE/COOL		OTHER		PRESERV.		SAMPLING		DATE		TIME		BTEX 8021B		TPH 8015M		CHLORIDES (Cl)		SULFATES (SO <sub>4</sub> )		PH		TCLP		OTHER **		PAH			
	G		3		X												X		X		X		X		X		X		X		X		X		X		X		X		X		X					
	G		3		X												X		X		X		X		X		X		X		X		X		X		X		X		X		X					
	C		1						X								X		X		X		X		X		X		X		X		X		X		X		X		X		X					
	C		1						X								X		X		X		X		X		X		X		X		X		X		X		X		X		X					
	C		1						X								X		X		X		X		X		X		X		X		X		X		X		X		X		X					
	C		1						X								X		X		X		X		X		X		X		X		X		X		X		X		X		X					

**Sampler Relinquished:**  Date: 12-30-05 Received By: \_\_\_\_\_  
**Relinquished by:** 17516 Date: \_\_\_\_\_ Received By: (lab staff) \_\_\_\_\_  
**Delivered by:** \_\_\_\_\_ Date: \_\_\_\_\_  
 Sample Cool & Intact:  Yes  No  
 Checked By: 1000

E-mail results to: [lsanchez@talonlpe.com](mailto:lsanchez@talonlpe.com)  
 REMARKS:  
402  
VDA - HCl  
IL-amber poly  
5.5

**Environmental Lab of Texas**  
**Variance / Corrective Action Report – Sample Log-In**

Client: Plains

Date/Time: 12/30/05 3:20

Order #: 5L30007

Initials: ck

**Sample Receipt Checklist**

Temperature of container/cooler?	Yes	No	5.5 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Custody Seals intact on shipping container/cooler?	Yes	No	<del>Not present</del>
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/>	No	
Container labels legible and intact?	<input checked="" type="checkbox"/>	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable

Other observations:

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**Variance Documentation:**

Contact Person: - \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted by: \_\_\_\_\_  
 Regarding: \_\_\_\_\_

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Corrective Action Taken:

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**APPENDIX E**  
**SOIL BORING LOGS**  
**AND**  
**WELL CONSTRUCTION DIAGRAMS**



Log Of Test Borings

(NOTE - Page 1 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
 ENVIRONMENTAL SERVICES  
 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-1

Surface Elevation: 3,763.01'

Start Date: 07/27/04 Time: 0900

Completion Date: 07/27/04 Time: 1550

Description

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						5	CALICHE, White to Tan, Soft to Indurated
0910	SS	12	Dry	906	-		Hydrocarbon odor
						15	
0911	Cuttings	NA	Dry	592	-		Hydrocarbon odor
						20	
0917	SS	24	Damp	721	-		Hydrocarbon odor
						25	
0918	Cuttings	NA	Damp	427	SP		Tan to Red Brown, Soft, Fine to Medium-Grained SAND with some trace SILT, CLAY and PEBBLES Hydrocarbon odor
						30	
0928	SS	24	Damp	733	SP		Hydrocarbon odor
						35	

Log Of Test Borings

(NOTE - Page 2 of 3)



**ENVIRONMENTAL PLUS, INC.**  
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 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-1

Surface Elevation: 3,763.01'

Start Date: 07/27/04 Time: 0900

Completion Date: 07/27/04 Time: 1550

Description

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
0929	Cuttings	NA	Dry	386	SP	38	Hydrocarbon odor
						40	
0937	SS	24	Dry	588	SP	42	Hydrocarbon odor
						45	
0938	Cuttings	NA	Dry	301	SP	48	Hydrocarbon odor
						50	
0949	SS	24	Dry	431	SP	52	Hydrocarbon odor
						55	
1002	Cuttings	NA	Dry	599	SP	58	Hydrocarbon odor
						60	
1012	SS	24	Dry	660	SP	62	Hydrocarbon odor
						65	
1019	Cuttings	NA	Dry	799	SP	68	Hydrocarbon odor
						70	

Log Of Test Borings

(NOTE - Page 3 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
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 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-1

Surface Elevation: 3,763.01'

Start Date: 07/27/04 Time: 0900

Completion Date: 07/27/04 Time: 1550

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1033	SS	24	Damp	390	SP	75	Hydrocarbon odor
1037	Cuttings	NA	Damp	566	SP	80	Hydrocarbon odor
10:55	SS	24	Damp	11.2	SP	85	Hydrocarbon odor
						90	End of Boring at 83'
						95	
						100	

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
07/27/04	-	-	-	-	-
10/29/04	-	-	-	-	79.20

Drilling Method: Air Rotary 10.25" OD

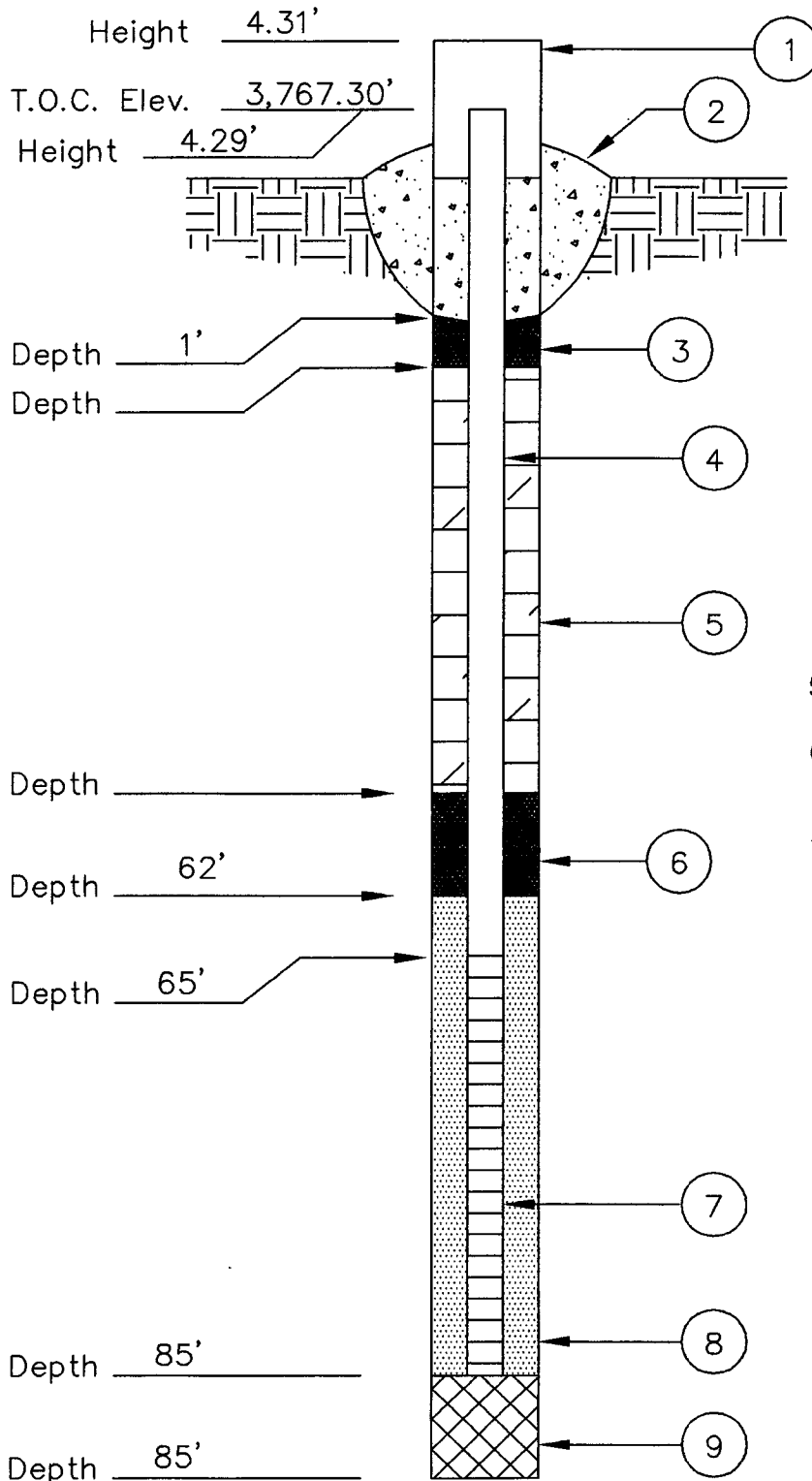
Backfill Method: MW-2 Installed

Field Representative: JR

# Monitoring Well Construction Information

Standard Well

Job No.: 2002-10270 Job Name: 8-Inch Moore to Jal #1 Boring / Well No. MW-1  
 Date: 10/23/04 Field Representative: JR State Unique Well No. NA



- 1) Protective Casing  Yes  No  
 Locking  Yes  No  
 Protective Posts Yes  No  
 Concrete Pyramid Yes  No
- 2) Concrete Seal  Yes  No
- 3) Type of Surface Seal if Installed 22 bags of Bentonite Plug
- 4) Solid Pipe Type PVC  
 Solid Pipe Length 70 ft.  
 Joint Type Slip/Glued or Threaded Threaded
- 5) Type of Backfill Bentonite Plug
- 6) Type of Lower Seal if Installed Bentonite Plug
- 7) Screen Type P.V.C.  
 Screen Length 20 ft.  
 Slot Size .010"  
 Length 20 ft.  
 Screen Diameter 4 in.
- 8) Type of Backfill around Screen 6 bags of 12/20 sand
- 9) Type of Backfill NA
- 10) Drilling Method Air Rotary
- 11) Additives Used if any Water
- 12) Borehole Diameter 8.5" in.

Log Of Test Borings

(NOTE - Page 1 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
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 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-2

Surface Elevation: 3,768.10'

Start Date: 10/25/04 Time: 0830

Completion Date: 10/25/04 Time: 1300

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						0.5'	Sandy Topsoil
						5	CALICHE, White to Tan, Soft to Indurated
0921	CS	36	Dry	23.8	-	10	
0928	CS	48	Dry	58.8	-	15	
0931	CS	60	Dry	20.6	-	20	
						25	Tan to Red Brown, Soft, Fine to Medium-Grained SAND with some trace SILT, CLAY and PEBBLES
0938	CS	60	Dry	26.3	SP	30	
0946	CS	48	Dry	53.8	SP	35	

Log Of Test Borings

(NOTE - Page 2 of 3)



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 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-2

Surface Elevation: 3,768.10'

Start Date: 10/25/04 Time: 0830

Completion Date: 10/25/04 Time: 1300

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
0954	CS	53	Dry	102	SP	40	Caliche Fragments Present
1005	CS	60	Damp	40.3	SP	45	
1010	CS	55	Damp	109	SP	50	
1018	CS	48	Damp	114	SP	55	
1027	CS	48	Damp	102	SP	60	
1035	CS	48	Damp	110	SP	65	
1048	CS	60	Damp	98.3	SP	70	

Log Of Test Borings

(NOTE - Page 3 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
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 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-2

Surface Elevation: 3,768.10'

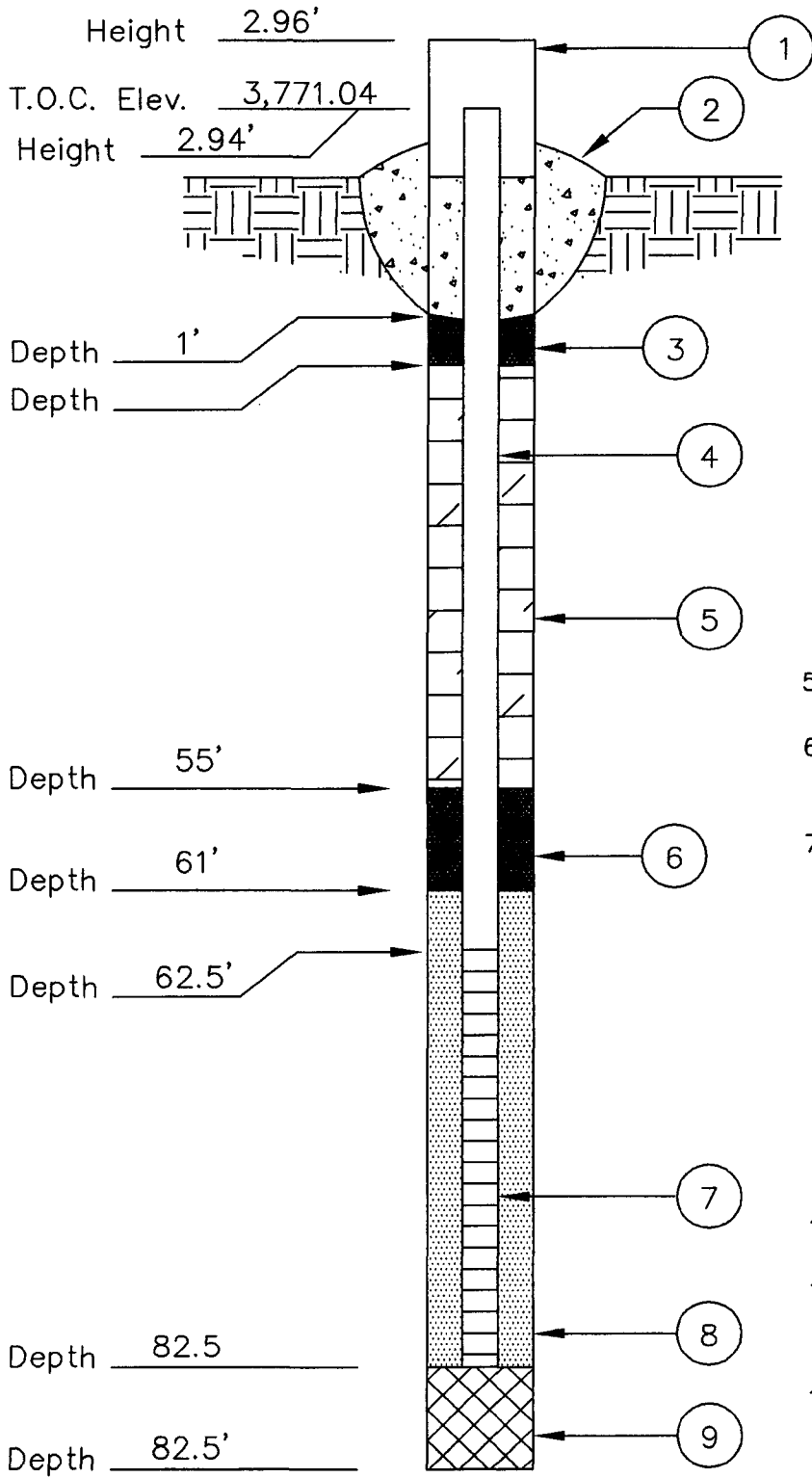
Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1055	CS	36	Wet	62.4	SP	75	
						80	
						85	End of Boring at 82.5'
						90	
						95	
						100	

Water Level Measurements (feet)						Drilling Method: Air Rotary 10.25" OD	
Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Backfill Method: MW-2 Installed	
10/25/04	-	-	-	-	-	Field Representative: JR	
10/29/04	-	-	-	-	76.67		

# Monitoring Well Construction Information

Standard Well

Job No.: 2002-10273 Job Name: 8-Inch Moore to Jal #2 Boring / Well No. MW-2  
 Date: 10/25/04 Field Representative: JR State Unique Well No. NA



- 1) Protective Casing  Yes  No  
 Locking  Yes  No  
 Protective Posts Yes  No  
 Concrete Pyramid Yes  No
- 2) Concrete Seal  Yes  No
- 3) Type of Surface Seal if Installed 28 bags of Bentonite Plug
- 4) Solid Pipe Type PVC  
 Solid Pipe Length 62.5 ft.  
 Joint Type Slip/Glued or Threaded
- 5) Type of Backfill Bentonite Plug
- 6) Type of Lower Seal if Installed Sluffed Off Sand
- 7) Screen Type P.V.C.  
 Screen Length 20 ft.  
 Slot Size .020"  
 Length 20 ft.  
 Screen Diameter 2 in.
- 8) Type of Backfill around Screen 16 bags of 12/20 sand
- 9) Type of Backfill \_\_\_\_\_
- 10) Drilling Method 6.25" I.D. H.S.A.
- 11) Additives Used if any Water
- 12) Borehole Diameter 10.25" O.D. in.



Log Of Test Borings

(NOTE - Page 1 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
 ENVIRONMENTAL SERVICES  
 ELUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-3

Surface Elevation: 3,769.15'

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						0	0.5' Sandy Topsoil
						5	CALICHE, White to Tan, Soft to Indurated
1040	CS	36	Dry	23.2	-	10	
1044	CS	60	Dry	77.4	-	15	
1053	CS	60	Dry	50.1	-	20	
1104	CS	48	Dry	38.6	SP	25	Tan to Red Brown, Soft, Fine to Medium-Grained SAND with some trace SILT, CLAY and PEBBLES
1110	CS	36	Dry	66.1	SP	30	
						35	

Log Of Test Borings

(NOTE - Page 2 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
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 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

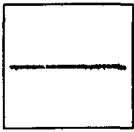
Boring Number: MW-3

Surface Elevation: 3,769.15'

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1117	CS	48	Dry/Damp	68.7	SP	40	
1127	CS	48	Dry/Damp	42.8	SP	45	
1135	CS	60	Dry/Damp	67.7	SP	50	
1229	CS	48	Dry/Damp	62.2	SP	55	
1235	CS	60	Dry/Damp	78.3	SP	60	
1239	CS	60	Dry/Damp	56.9	SP	65	
1248	CS	48	Dry/Damp	53.3	SP	70	

Log Of Test Borings

(NOTE - Page 3 of 3)



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 STATE APPROVED LAND FARM AND  
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 ELUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-3

Surface Elevation: 3,769.15'

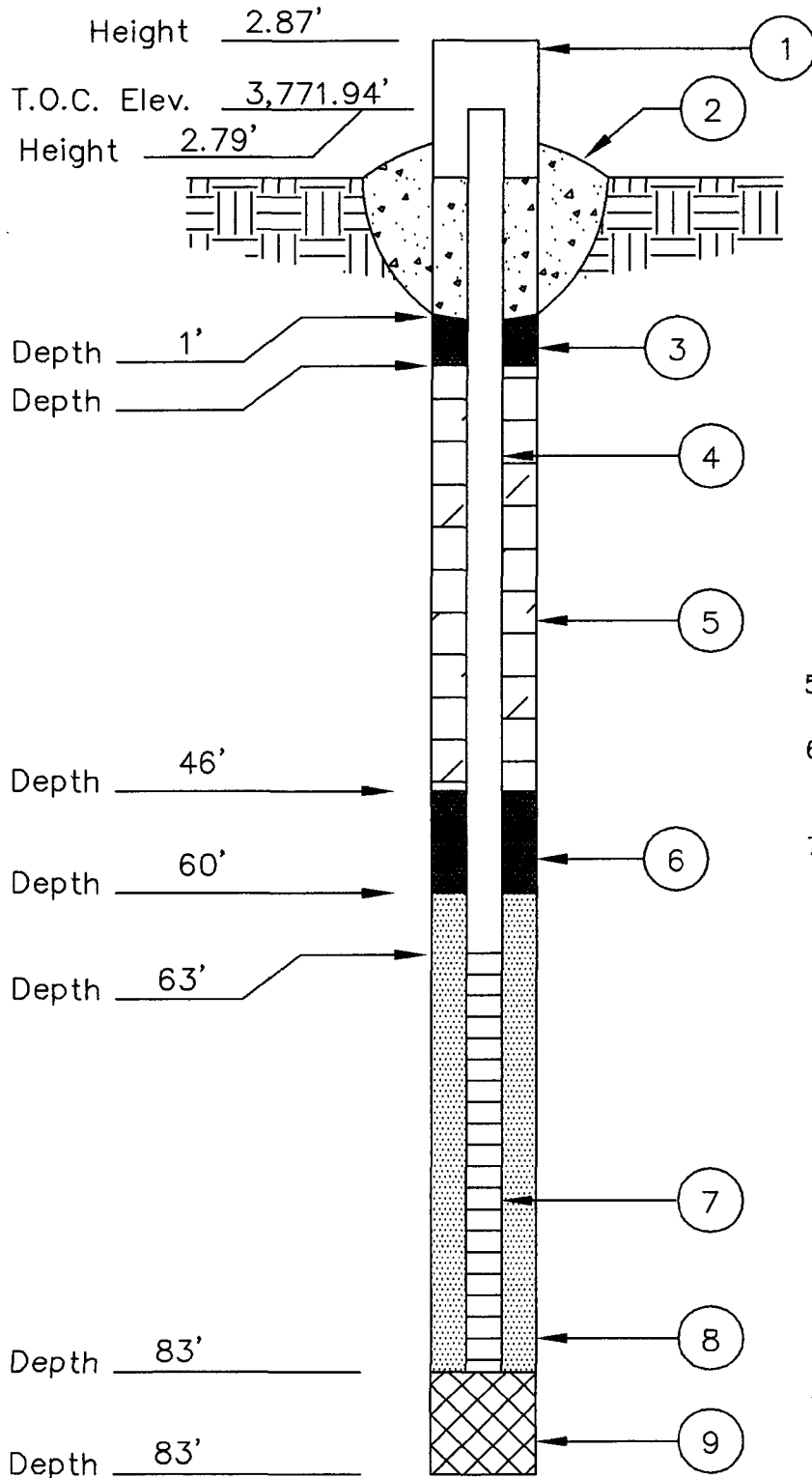
Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1303	CS	48	Wet	70.6	SP	75	
						80	
						85	End of Boring at 83'
						90	
						95	
						100	

Water Level Measurements (feet)						Drilling Method: Air Rotary 10.25" OD	
Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level	Backfill Method: MW-3 Installed	
10/26/04	-	-	-	-	-	Field Representative: JR	
10/29/04	-	-	-	-	78.18		

# Monitoring Well Construction Information

Standard Well

Job No.: 2002-10273 Job Name: 8-Inch Moore to Jal #2 Boring / Well No. MW-3  
 Date: 10/26/04 Field Representative: JR State Unique Well No. NA



- 1) Protective Casing  Yes  No  
 Locking  Yes  No  
 Protective Posts  Yes  No  
 Concrete Pyramid  Yes  No
- 2) Concrete Seal  Yes  No
- 3) Type of Surface Seal if Installed 28 bags of Bentonite Plug
- 4) Solid Pipe Type PVC  
 Solid Pipe Length 63 ft.  
 Joint Type Slip/Glued or Threaded
- 5) Type of Backfill Bentonite Plug
- 6) Type of Lower Seal if Installed Sluffed Off Sand
- 7) Screen Type P.V.C.  
 Screen Length 20 ft.  
 Slot Size .020"  
 Length 20 ft.  
 Screen Diameter 2 in.
- 8) Type of Backfill around Screen 14 bags of 12/20 sand
- 9) Type of Backfill \_\_\_\_\_
- 10) Drilling Method 6.25" I.D. H.S.A.
- 11) Additives Used if any Water
- 12) Borehole Diameter 10.25" O.D. in.

Log Of Test Borings

(NOTE - Page 1 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
 ENVIRONMENTAL SERVICES  
 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-4

Surface Elevation: 3,770.00'

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
						0.5'	Sandy Topsoil
						5	CALICHE, White to Tan, Soft to Indurated
1438	CS	48	Dry	40.5	-	10	
1441	CS	24	Dry	66.9	SP	15	Tan to Red Brown, Soft, Fine to Medium-Grained SAND with some trace SILT, CLAY and PEBBLES
1448	CS	60	Dry	47.6	SP	20	
1453	CS	50	Dry	71.2	SP	25	
1503	CS	60	Dry	54.7	SP	30	
						35	

Log Of Test Borings

(NOTE - Page 2 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
 ENVIRONMENTAL SERVICES  
 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-4

Surface Elevation: 3,770.00'

Start Date: 10/25/04 Time: 1400

Completion Date: 10/26/04 Time: 0955

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1508	CS	24	Dry	79.8	SP	40	
1516	CS	60	Dry	76.2	SP	45	
1524	CS	48	Moist	75.3	SP	50	
1537	CS	60	Moist	90.9	SP	55	
1547	CS	60	Moist	56.8	SP	60	
1557	CS	60	Moist	63.4	SP	65	
1607	CS	60	Moist	42.0	SP	70	

Log Of Test Borings

(NOTE - Page 3 of 3)



**ENVIRONMENTAL PLUS, INC.**  
 STATE APPROVED LAND FARM AND  
 ENVIRONMENTAL SERVICES  
 EUNICE, NM  
 505-394-3481

Project Number: Plains All American Pipeline - 2002-10273

Project Name: 8-Inch Moore to Jal #2

Location: UL-J of Section 16, Township 17 South, Range 37 East

Boring Number: MW-4

Surface Elevation: 3,770.00'

Start Date: 10/25/04 Time: 1400

Completion Date: 10/26/04 Time: 0955

Sample # and Time	Sample Type	Recovery (inches)	Moisture	PID Readings (ppm)	U.S.C.S. Symbol	Depth (feet)	Description
1621	CS	60	Moist	23.3	SP	75	
						80	
						85	
						90	End of Boring at 87'
						95	
						100	

Water Level Measurements (feet)

Date	Time	Sample Depth	Casing Depth	Cave-in Depth	Water Level
10/26/04	-	-	-	-	-
10/29/04	-	-	-	-	79.22

Drilling Method: Air Rotary 10.25" OD

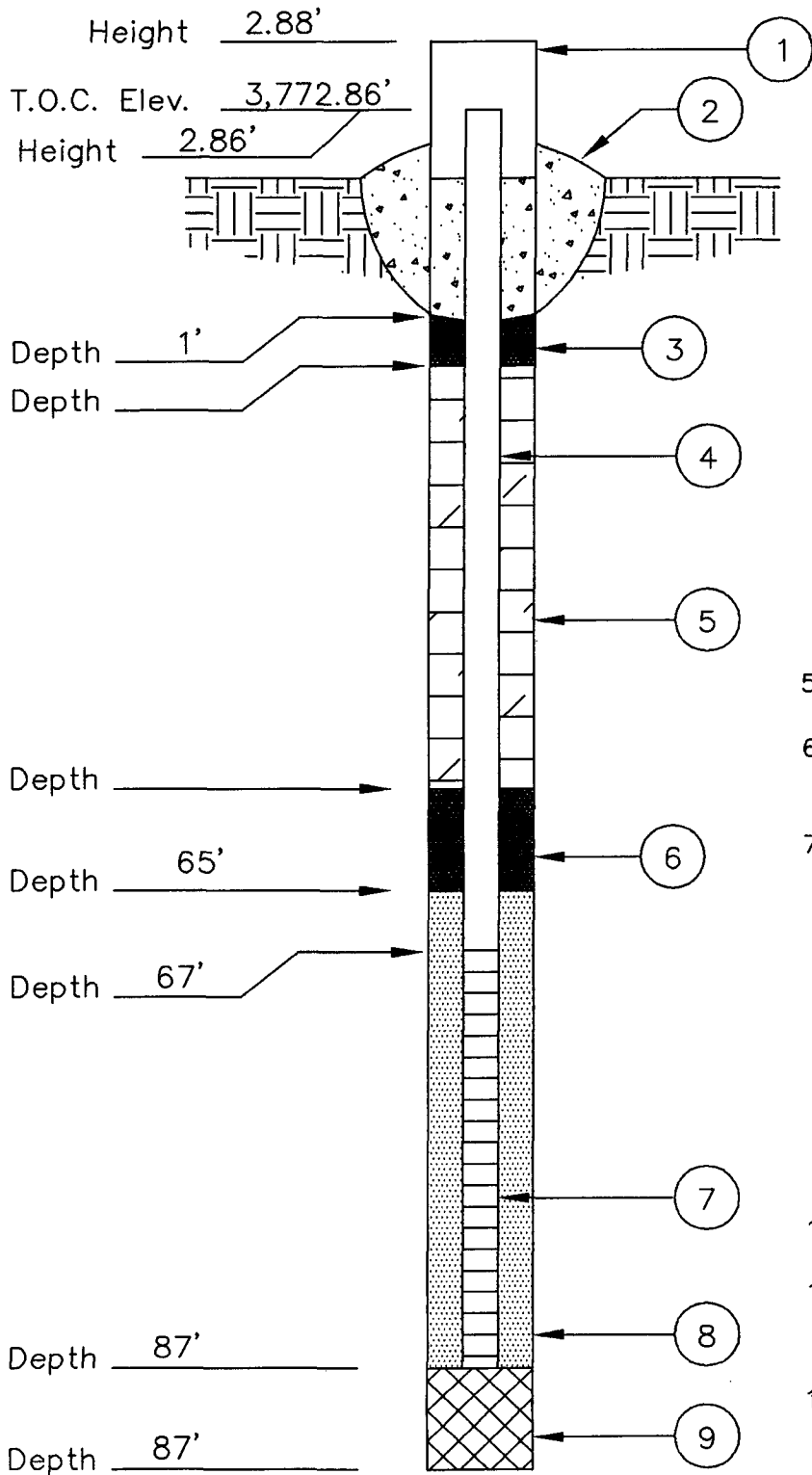
Backfill Method: MW-4 Installed

Field Representative: JR

# Monitoring Well Construction Information

Standard Well

Job No.: 2002-10273 Job Name: 8-Inch Moore to Jal #2 Boring / Well No. MW-4  
 Date: 10/25-26/04 Field Representative: JR State Unique Well No. NA



- 1) Protective Casing  Yes  No  
 Locking  Yes  No  
 Protective Posts  Yes  No  
 Concrete Pyramid  Yes  No
- 2) Concrete Seal  Yes  No
- 3) Type of Surface Seal if Installed 32 bags of Bentonite Plug
- 4) Solid Pipe Type PVC  
 Solid Pipe Length 67 ft.  
 Joint Type Slip/Glued or Threaded
- 5) Type of Backfill Bentonite Plug
- 6) Type of Lower Seal if Installed Bentonite Plug
- 7) Screen Type P.V.C.  
 Screen Length 20 ft.  
 Slot Size .020"  
 Length 20 ft.  
 Screen Diameter 2 in.
- 8) Type of Backfill around Screen 13 bags of 12/20 sand
- 9) Type of Backfill Native Soils
- 10) Drilling Method 6.25" I.D. H.S.A.
- 11) Additives Used if any Water
- 12) Borehole Diameter 10.25" O.D. in.



**APPENDIX D**

**INFORMATIONAL COPIES OF**

**SITE INFORMATION AND METRICS FORM**

**AND**

**INITIAL C-141**

<b>EOTT Site Information and Metrics</b>		<b>Incident Date:</b> 10-22-02 @ 5:00 Pm	<b>NMOCD Notified:</b> 10-23-02 @ 7:00 AM
SITE: 8" Moore to Jal #2		Assigned Site Reference #: 2002-10273	
Company: EOTT			
Street Address: PO Box 1660			
Mailing Address: 5805 East Highway 80			
City, State, Zip: Midland, Texas 79702			
Representative: Frank Hernandez			
Representative Telephone: 915.638.3799			
Telephone:			
Fluid volume released (bbls): 25 bbls		Recovered (bbls): 0 bbls	
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)			
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)			
Leak, Spill, or Pit (LSP) Name: 8" Moore to Jal #2			
Source of contamination: 8" Steel Pipeline			
Land Owner, i.e., BLM, ST, Fee, Other: State of New Mexico			
LSP Dimensions ~160' x 40'			
LSP Area: 5,794 sqft ft <sup>2</sup>			
Location of Reference Point (RP)			
Location distance and direction from RP			
Latitude: 32 49' 56.61"N			
Longitude: 103 15' 08.47"W			
Elevation above mean sea level:			
Feet from South Section Line			
Feet from West Section Line			
Location- Unit or ¼¼: NW¼ of the SE¼		Unit Letter: J	
Location- Section: 16			
Location- Township: T17S			
Location- Range: R37E			
Surface water body within 1000' radius of site: none			
Surface water body within 1000' radius of site:			
Domestic water wells within 1000' radius of site: none			
Domestic water wells within 1000' radius of site:			
Agricultural water wells within 1000' radius of site: none			
Agricultural water wells within 1000' radius of site:			
Public water supply wells within 1000' radius of site: none			
Public water supply wells within 1000' radius of site:			
Depth from land surface to ground water (DG) ~66' bgs			
Depth of contamination (DC) - ?			
Depth to ground water (DG - DC = DtGW) - 0			
<b>1. Ground Water</b>		<b>2. Wellhead Protection Area</b>	
If Depth to GW <50 feet: 20 points		If <1000' from water source, or; <200' from private domestic water source: 20 points	
If Depth to GW 50 to 99 feet: 10 points		If >1000' from water source, or: >200' from private domestic water source: 0 points	
If Depth to GW >100 feet: 0 points			
Ground water Score = 20		Wellhead Protection Area Score = 0	
Site Rank (1+2+3) = 20		Surface Water Score = 0	
<b>Total Site Ranking Score and Acceptable Concentrations</b>			
Parameter	>19	10-19	0-9
Benzene <sup>1</sup>	10 ppm	10 ppm	10 ppm
BTEX <sup>1</sup>	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1000 ppm	5000 ppm

<sup>1</sup>100 ppm field VOC headspace measurement may be substituted for lab analysis

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 October 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

<b>Name of Company:</b> EOTT	<b>Contact:</b> Frank Hernandez
<b>Address:</b> PO Box 1660 5805 East Highway 80 Midland, Texas 79702	<b>Telephone No.:</b> 915.638.3799
<b>Facility Name:</b> 8" Moore to Jal #2	<b>Facility Type:</b> 8" Steel Pipeline

<b>Surface Owner:</b> State of New Mexico	<b>Mineral Owner:</b>	<b>Lease No.:</b>
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#### LOCATION OF RELEASE

<b>Unit Letter</b> J	<b>Section</b> 16	<b>Township</b> T17S	<b>Range</b> R37E	<b>Feet from the</b>	<b>North/South Line</b>	<b>Feet from the</b>	<b>East/West Line</b>	<b>County:</b> Lea Lat. 32 49' 56.61"N Lon. 103 15' 08.47"W
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#### NATURE OF RELEASE

<b>Type of Release</b> Crude Oil	<b>Volume of Release</b> 25 bbls barrels	<b>Volume Recovered</b> 0 bbls barrels
<b>Source of Release</b> 8" Steel Pipeline	<b>Date and Hour of Occurrence</b> EOTT	<b>Date and Hour of Discovery</b> 10-22-02 @ 7:00 PM
<b>Was Immediate Notice Given?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	<b>If YES, To Whom?</b> Larry Johnson	
<b>By Whom?</b> Pat McCasland, EPI	<b>Date and Hour</b> 10-23-02 @ 7:00 AM	
<b>Was a Watercourse Reached?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If YES, Volume Impacting the Watercourse:</b> NA	

**If a Watercourse was Impacted, Describe Fully:** \* NA

**Describe Cause of Problem and Remedial Action Taken:** \*8" Steel Pipeline. Site will be delineated to determine the vertical and horizontal extents of contamination. Contaminated soil will be blended on site or disposed of.

**Describe Area Affected and Cleanup Action Taken:** \*5,794 sqft ~160' x 40' Site will be delineated to determine the vertical and horizontal extents of contamination. Contaminated soil will be blended on site or disposed of. Remedial Goals: TPH 8015m = 100 mg/Kg, Benzene = 10 mg/Kg, and BTEX, i.e., the mass sum of Benzene, Ethyl Benzene, Toluene, and Xylenes = 50 mg/Kg.

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.

<b>Signature:</b>	<b>OIL CONSERVATION DIVISION</b>		
<b>Printed Name:</b> Frank Hernandez	<b>Approved by District Supervisor:</b>		
<b>Title:</b> District Environmental Supervisor	<b>Approval Date:</b>	<b>Expiration Date:</b>	
<b>Date:</b> October 23, 2003 <b>Phone:</b> 915.638.3799	<b>Conditions of Approval:</b>	<b>Attached</b> <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joanna Prukop**

Cabinet Secretary

**Mark E. Fesmire, P.E.**

Director

**Oil Conservation Division**

October 16, 2005

Ms. Camille Reynolds  
Plains All American Pipeline, L.P.  
3112 West U.S. Highway 82  
Lovington, NM 88260

Re: Soil Remediation Work Plan  
Plains Pipeline, L.P. 8" Moore to Jal #2 Site (Ref. # 2002-10273)  
Located in the NW/4 SE/4 of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico  
NMOCD Ref. 1R-0381

Dear Ms. Reynolds:

The New Mexico Oil Conservation Division (NMOCD) has received and reviewed the work plan (plan) shown above submitted, on behalf of Plains All American Pipeline, L.P. (Plains), by Llano-Permian Environmental dated June 24, 2005. The work plan is approved with the following understandings and conditions:

1. The descriptions of activities contained in the section of the plan entitled "Sampling Activities" are acceptable to the NMOCD. All sample analyses results will be submitted to the NMOCD in a future report prior to backfilling activities.
2. Also included in this future report will be sampling results for the stockpiled soils that are to be used as backfill as well as the results from the modeling proposed in the section of the plan entitled "Modeling Activities".
3. Activities described in the section of the plan entitled "Restoration Activities" will be expanded upon in a future report.
4. Aeration of the stockpiled soils will continue in the interim.

If you have any questions, contact me at (505) 476-3492 or [ed.martin@state.nm.us](mailto:ed.martin@state.nm.us)

NEW MEXICO OIL CONSERVATION DIVISION

Edwin E. Martin  
Environmental Bureau

Cc: Larry Johnson, NMOCD, Hobbs

**LPE**  
**LLANO-PERMIAN**  
**ENVIRONMENTAL**

June 24, 2005

**AMARILLO, TX**

921 North Bivins  
Amarillo, TX 79107  
806-467-0607  
FAX: 806-467-0622

**AUSTIN, TX**

13009 Dessau Road  
Suite A  
Austin, TX 78754  
512-989-3428  
FAX: 512-989-3487

**MIDLAND, TX**

#9 East Industrial Loop  
Midland, TX 79701  
432-522-2133  
FAX: 432-522-2180

**NEW BRAUNFELS, TX**

707 N. Walnut Ave., Suite 208  
New Braunfels, TX 78130  
210-579-0235  
FAX: 210-568-2191

**TULSA, OK**

1439 East 41st Street  
Tulsa, OK 74105  
918-742-0871  
FAX: 918-742-0876

**HOBBS, NM**

318 East Taylor Street  
Hobbs, NM 88240  
505-393-4261  
FAX: 505-393-4658

*Environmental  
Biologists  
Chemists  
Corrective Action  
Project Managers  
Engineers  
Geologists  
Scientists*

Toll Free: 866-742-0742

www.llano-permian.com

Mr. Edwin E. Martin  
New Mexico Oil Conservation Division  
Environmental Bureau  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Re: Soil Remediation Work Plan  
Plains Pipeline, L.P.  
8" Moore to Jal #2 (Rcf #2002-10273)  
NW/4 of the SE/4 of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico  
NMOCD Ref. 1R-0381

Mr. Martin:

The 8" Moore to Jal #2 release site is located approximately 9.5 miles southeast of Lovington in Lea County, New Mexico, at an elevation of approximately 3,770 feet above mean sea level. The release occurred on property owned by the State of New Mexico and is utilized as pasture land. The site is located in a rural area within the West Lovington Oil Field, with no residences or surface water within a 1,000-foot radius of the facility.

In October 2002, a release of approximately 25 barrels of crude oil, of which there was no recovery, occurred at the site due to corrosion (internal and/or external) of the pipeline. Approximately 6,000 square feet (ft<sup>2</sup>) of surface area was impacted by the release. Surficial soil saturated by the release was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm for treatment.

The details of the soil remediation and sampling activities are described in the attached Soil Remediation Work Plan. If you have any questions feel free to contact me at (505) 441-4835 or by E-mail at lsanchez@llano-permian.com. Thank you very much.

LLANO-PERMIAN ENVIRONMENTAL



Louis B. Sanchez  
Project Manager

Cc: Camille Reynolds, Plains All American Pipeline, L.P.  
Jeff Dann, Plains All American Pipeline, L.P.

RECEIVED  
OIL CONSERVATION  
DIVISION

**AMARILLO, TX**

921 North Bivins  
Amarillo, TX 79107  
806-467-0607  
FAX: 806-467-0622

**AUSTIN, TX**

13009 Dessau Road  
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Austin, TX 78754  
512-989-3428  
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**MIDLAND, TX**

#9 East Industrial Loop  
Midland, TX 79701  
432-522-2133  
FAX: 432-522-2180

**NEW BRAUNFELS, TX**

707 N. Walnut Ave., Suite 208  
New Braunfels, TX 78130  
210-579-0235  
FAX: 210-568-2191

**TULSA, OK**

1439 East 41st Street  
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918-742-0871  
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**HOBBS, NM**

318 East Taylor Street  
Hobbs, NM 88240  
505-393-4261  
FAX: 505-393-4658

Environmental:

Biologists

Chemists

Corrective Action

Project Managers

Engineers

Geologists

Scientists

Toll Free: 866-742-0742

www.llano-permian.com

## 8<sup>99</sup> Moore to Jal #2 Soil Remediation Work Plan

Plains Ref: 2002-10273

NW¼ of the SE¼ of Section 16, Township 17 South, Range 37 East  
Lea County, New Mexico

~9.5 Miles Southeast (136°) of  
Lovington, Lea County, New Mexico

Latitude: N32° 49' 56.6"

Longitude: W103° 15' 8.31"

June 2005

Prepared For:



**PLAINS**  
ALL AMERICAN  
PIPELINE LP

333 Clay Street, Suite 600  
Houston, TX 77002

Prepared By:

Llano-Permian Environmental  
318 East Taylor Street  
Hobbs, New Mexico 88240

### Distribution List

Name	Title	Company or Agency	Mailing Address	e-mail
Ed Martin	Environmental Engineer	NMOCD	1220 South St. Francis Drive Santa Fe, NM 87505	emartin@state.nm.us
Larry Johnson	Environmental Engineer	NMOCD	1625 French Dr. Hobbs, NM 88231	lwjohnson@state.nm.us
Camille Reynolds	Remediation Coordinator	Plains All American Pipeline	3112 West U.S. Hwy 82 Lovington, NM 88260	cjreynolds@paalp.com
Jeff Dann	Senior Environmental Specialist	Plains All American Pipeline	P. O. Box 4648 Houston, TX 77210-4648	jpdann@paalp.com
Daniel Bryant	Environmental Specialist	Plains All American Pipeline	P. O. Box 3119 Midland, TX 79702-3119	dmbryant@paalp.com
File		LPE	318 East Taylor Street Hobbs, New Mexico 88240	lsanchez@llano-permian.com

NMOCD - New Mexico Oil Conservation Division  
LPE - Llano-Permian Environmental

## SOILS REMEDIATION WORK PLAN

### Introduction

The 8" Moore to Jal #2 release site is located approximately 9.5 miles southeast of Lovington in Lea County, New Mexico, at an elevation of approximately 3,770 feet above mean sea level. The release occurred on property owned by the State of New Mexico and is utilized as pasture land. The site is located in a rural area within the West Lovington Oil Field, with no residences or surface water within a 1,000-foot radius of the facility (Figure 1).

In October 2002, a release of approximately 25 barrels of crude oil, of which there was no recovery, occurred at the site due to corrosion (internal and/or external) of the pipeline. Approximately 6,000 square feet (ft<sup>2</sup>) of surface area was impacted by the release. Surficial soil saturated by the release was excavated and transported to a New Mexico Oil Conservation Division (NMOCD) approved land farm for treatment.

In an effort to delineate the extent of impacted soil remaining at the site, delineation activities were performed by Environmental Plus, Inc. (EPI) at the site to depths ranging from 20 to 40 feet below ground surface (bgs) in November 2002. Only field analysis was performed on the soil delineation samples collected at discreet intervals. The field analysis indicated organic vapor concentrations exceeded 100 parts per million (ppm) to a depth of 40 feet bgs.

EPI commenced excavation activities at the site in June 2003 in order to remove soil impacted above the New Mexico Oil Conservation Division (NMOCD) remedial thresholds. Approximately 1,220 cubic yards of soil were excavated and run through a shaker to separate the rock from the soil. After the soil and rock had been separated, the soil (approximately 575 cubic yards) was spread out into two land treatment areas and the rock was stockpiled on site.

Upon the completion of site excavation activities in June 2003, composite samples were collected by EPI from the north, south and east sidewalls, as well as the floor of the excavation. Laboratory analysis of the samples confirmed all analytes were below the NMOCD remedial thresholds with the exception of Total Petroleum Hydrocarbons (TPH) in the north sidewall sample which was only slightly above the 100 mg/kg threshold (195 mg/kg – SW-846 Method 8015). In June 2005, two (2) confirmation grab samples were collected by Llano-Permian Environmental (LPE) from the west sidewall of the excavation. Laboratory analysis of these samples confirmed all analytes were below NMOCD remedial thresholds (Table 2).

EPI installed two (2) monitor wells in July of 2004, and three (3) monitoring wells in October of 2004 (Figure 2). Soil samples were collected from MW-1, 2, 3 and 4 at various horizons during the boring process of the well installation. No soil samples were collected during the boring of MW-1A due to its close proximity to MW-1. The majority of the samples collected exceeded the NMOCD thresholds for the various analytes. Field analysis of soil samples collected at discreet intervals indicated organic vapor concentrations exceeded 100 parts per million (ppm) at least to a depth of 77 feet bgs in soil boring MW-1 (Table 1).



As a result of the presence of phase separated hydrocarbons (PSH) in MW-1, EPI performed PSH recovery activities from October of 2004 to April of 2005. In May of 2005, Llano-Permian Environmental (LPE) took over the PSH recovery activities. In an effort to accelerate the PSH recovery at the 8" Moore to Jal #2 site, LPE began bi-weekly PSH recovery upon commencement of the PSH recovery activities in May. Approximately fifteen (15) gallons of PSH has been recovered on a weekly basis since the middle of May 2005.

EPI sampled the land treatment areas on December 15, 2004, in conjunction with the weekly site visit. Sampling results indicated contaminant levels in the land treatment area soils were above the NMOCD remedial thresholds in two (2) of the four (4) quadrants in the land treatment area (Table 3). The land treatment areas have been turned to aerate the soils and accelerate the TPH degradation since the last sampling event and will continue until the implementation of the restoration activities that are generally described in this work plan in the "Restoration Activities" section. Additional sampling of the land treatment areas is slated for late June of 2005.

### **Excavation Activities**

Due to the evidence of the composite and grab confirmation sampling in the excavation (Table 2), the north sidewall of the excavation will be cut back an additional one foot (1') (Figure 4). At that point a photo ionization detector (PID) will be used to determine if any portion of the north sidewall has remaining contaminated soil that should be excavated. If and when areas of concern are identified with the PID, they will be excavated until an acceptable PID reading (<100 ppm) is established in that area. The soils removed from the excavation will be placed in one of the land treatment areas. Large rocks removed from the north sidewall will be placed in the on-site rock stockpile.

When no areas of concern are detected with the PID on the excavated sidewalls, then grab confirmation samples will be collected as outlined in the "Sampling Activities" section of this work plan. No excavation will be performed on the excavation floor, the west sidewall, east sidewall or the south sidewall. Prior sampling activities have shown these areas of the excavation to be below the NMOCD TPH Remedial Threshold of 100 mg/kg (Table 2).

### **Sampling Activities**

Confirmation grab samples will be collected on the north sidewall after the completion of the excavation activities (Figure 3). The confirmation samples on the north sidewall will be grab samples collected from two (2) locations following field screening with a PID. If no PID readings are detected the two (2) samples will be collected at the mid-point of the north excavation sidewall, halfway between the base and top of the excavation approximately three to four feet (3'-4') below ground surface. The two (2) samples will be twenty-five feet (25') apart and twenty-five feet' (25') from the east and west sidewalls respectively.

In addition, confirmation grab samples will be collected throughout the floor of the excavation to aid in delineating the horizontal extent of the petroleum impact. Sampling locations will be determined by field screening activities with a PID. The floor of the excavation will be broken into quadrants and the maximum PID from each quadrant will be sampled. If no PID readings

are detected in a quadrant than the sample will be collected from the middle of that particular quadrant.

Each confirmation sample will be analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) by SW-846 method 8021, and total petroleum hydrocarbons (TPH) by SW-846 method 8015. Each sample will be collected using new disposable sampling equipment to prevent cross contamination. Any non-disposable sampling equipment will be stainless steel, and will be decontaminated using a phosphate free surfactant and de-ionized water before the collection of each sample.

This section is submitted as a finalized sampling plan following the excavation activities. This is contingent on the approval of the NMOCD. Any changes requested by the NMOCD will be incorporated into the sampling activities of this work plan prior to implementation.

### **Soil Disposal Activities**

No disposal activities are proposed at this time. All onsite soils will be placed back in the excavation, on top of the twelve millimeter (12 mill) black-on-black rock grade polyethylene liner, as backfill. These activities are outlined in the "Restoration Activities" section of this work plan.

### **Modeling Activities**

Prior to backfill activities, a soil migration model will be run to evaluate the migration characteristics of the soils underneath the proposed liner. The installation of the liner is described in the "Restoration Activities" section of this work plan for illustration purposes. Current, historical and the new data collected as part of this work plan will be utilized and evaluated in the model.

A seasonal compartment model which simulates long-term pollutant fate and migration in the unsaturated soil zone will be utilized to describe the following components of a site specific soil column which extends from the ground surface to the ground-water table.

- Pollutant concentrations and masses in the soil
- Pollutant migration to ground water.

The model will estimate all the above components on a monthly basis for 999 years of simulation time to perform a long-term leaching study. The following pollutant fate processes will be accounted for: Volatilization, Adsorption, Cation Exchange, Biodegradation, Hydrolysis and Complexation.

### **Restoration Activities**

Prior to the initiation of the restoration activities, MW-1 will be extended to an elevation above the top of the excavation and the top of casing re-surveyed. With the monitoring well extended to a level accessible after backfilling activities, the bottom of the excavation will be filled with

an even six inch (6") layer of sand. A twelve millimeter (12 mill) black-on-black rock grade poly ethylene liner will then be placed on the sand covering the base of the excavation. A small hole will be cut through the liner to encompass MW-1 which will be left in the excavation. Clay packing material will be utilized to seal the opening in the poly around the monitor well casing. An additional six inch (6") layer of sand will be placed on top of the poly.


With the liner in place, backfill of the excavated materials will begin. A layer of the rock material will first be placed back in the excavation. Then a layer of the soils from the land treatment area will be placed on top of the first rock layer. The two layers will then be properly packed. This alternating of layers and packing activities will continue to the top of the excavation taking great care to insure the integrity of MW-1 and the pipeline. Only soils, no rock, will be placed in the proximity of either the pipeline or MW-1. Clean back-fill soil will be used during the restoration activities as needed.

### **Conclusion**

Prior to any site restoration activities, the results of the additional excavation activities and confirmation soil sampling activities, as well as the modeling exercise will be presented to the NMOCD. Upon the NMOCDs concurrence that all soils activities are complete, a more detailed site restoration plan will be prepared and submitted to the NMOCD. The restoration activities presented in this plan are for informational purposes only. Soil aeration activities in the land treatment areas will continue until such time that the restoration activities commence.

**Signatures**

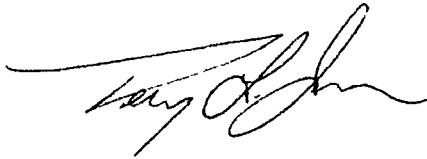
Written By:



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Louis B. Sanchez Jr. B.S  
Project Manager  
Llano-Permian Environmental

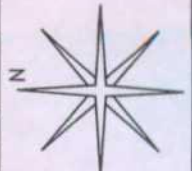
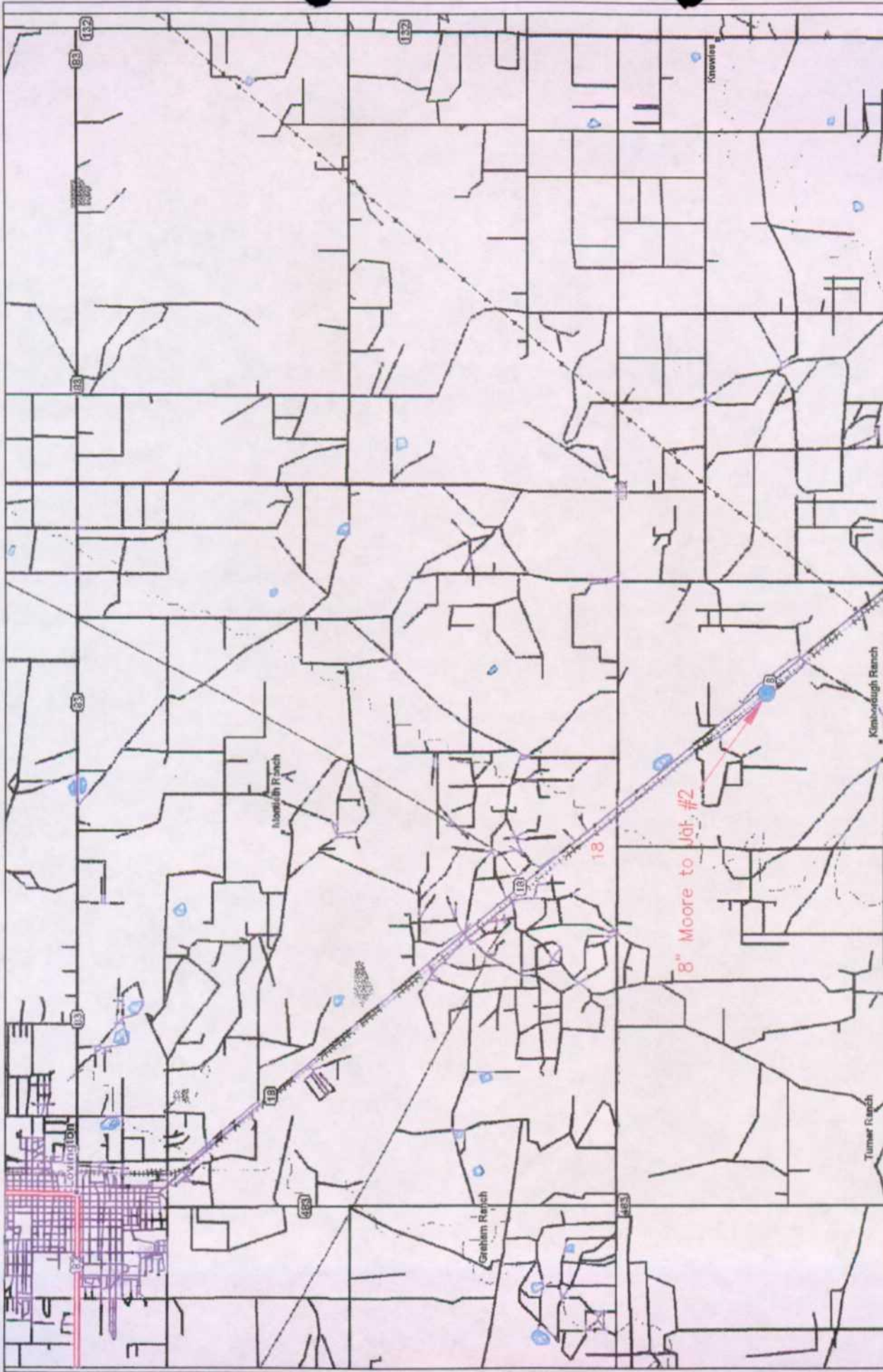
Reviewed By:



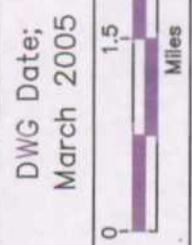
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Terry James B.S., M.S.  
Senior Project Manager  
Llano-Permian Environmental

**Figures**



REVISED:  
June 2005  
SHEET  
1 of 1



DWG Date:  
March 2005

Leas County, New Mexico  
NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E  
N 32° 49' 56.6" W 103° 15' 8.31"  
Elevation: 3,770 feet amsl

Figure 1  
Site Location Map  
Plains Pipeline, L.P.  
8" Moore to Jal #2

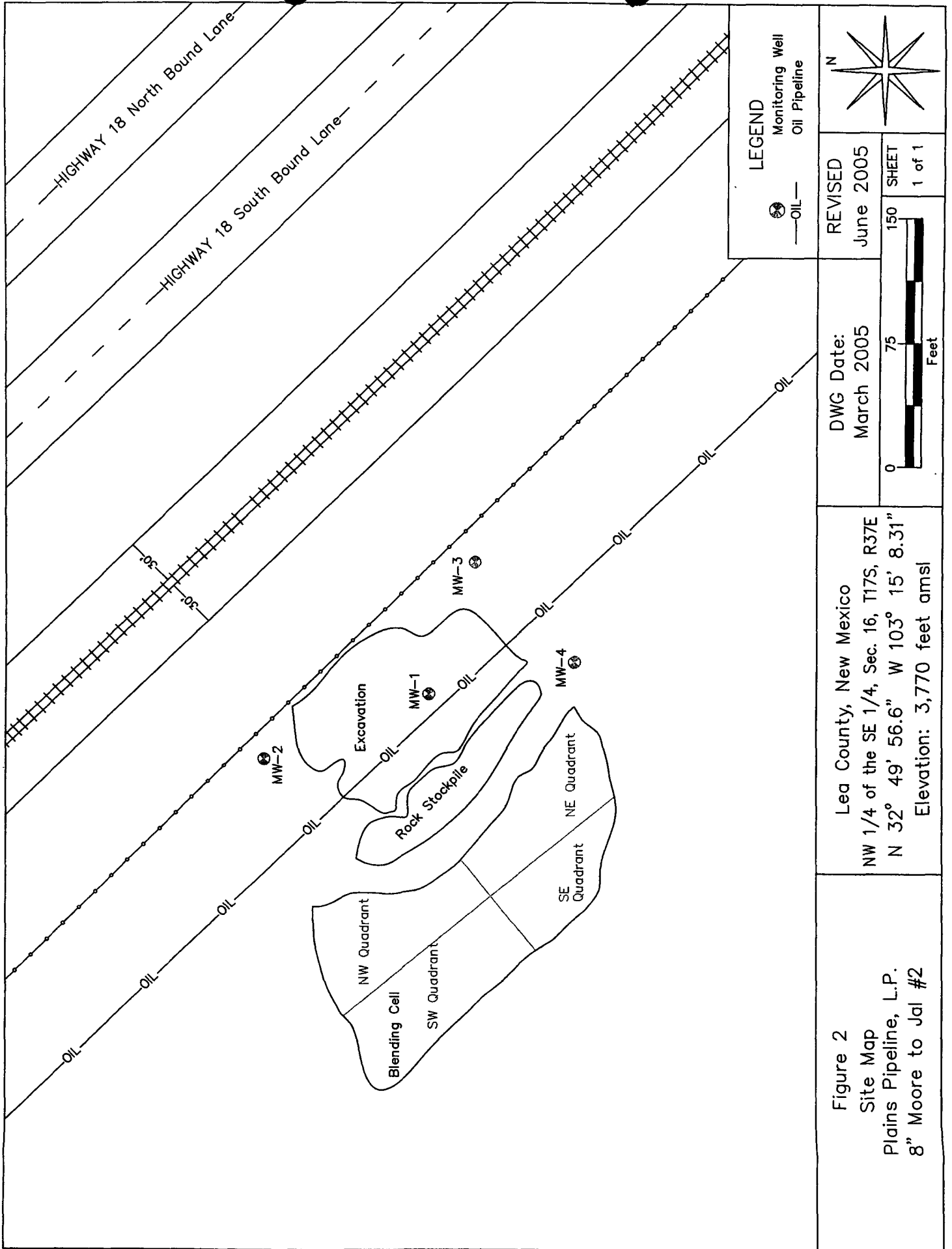


Figure 2  
 Site Map  
 Plains Pipeline, L.P.  
 8" Moore to Jal #2

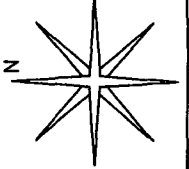
Lea County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E  
 N 32° 49' 56.6" W 103° 15' 8.31"  
 Elevation: 3,770 feet amsl

DWG Date:  
 March 2005

REVISED  
 June 2005



LEGEND  
 Monitoring Well  
 Oil Pipeline



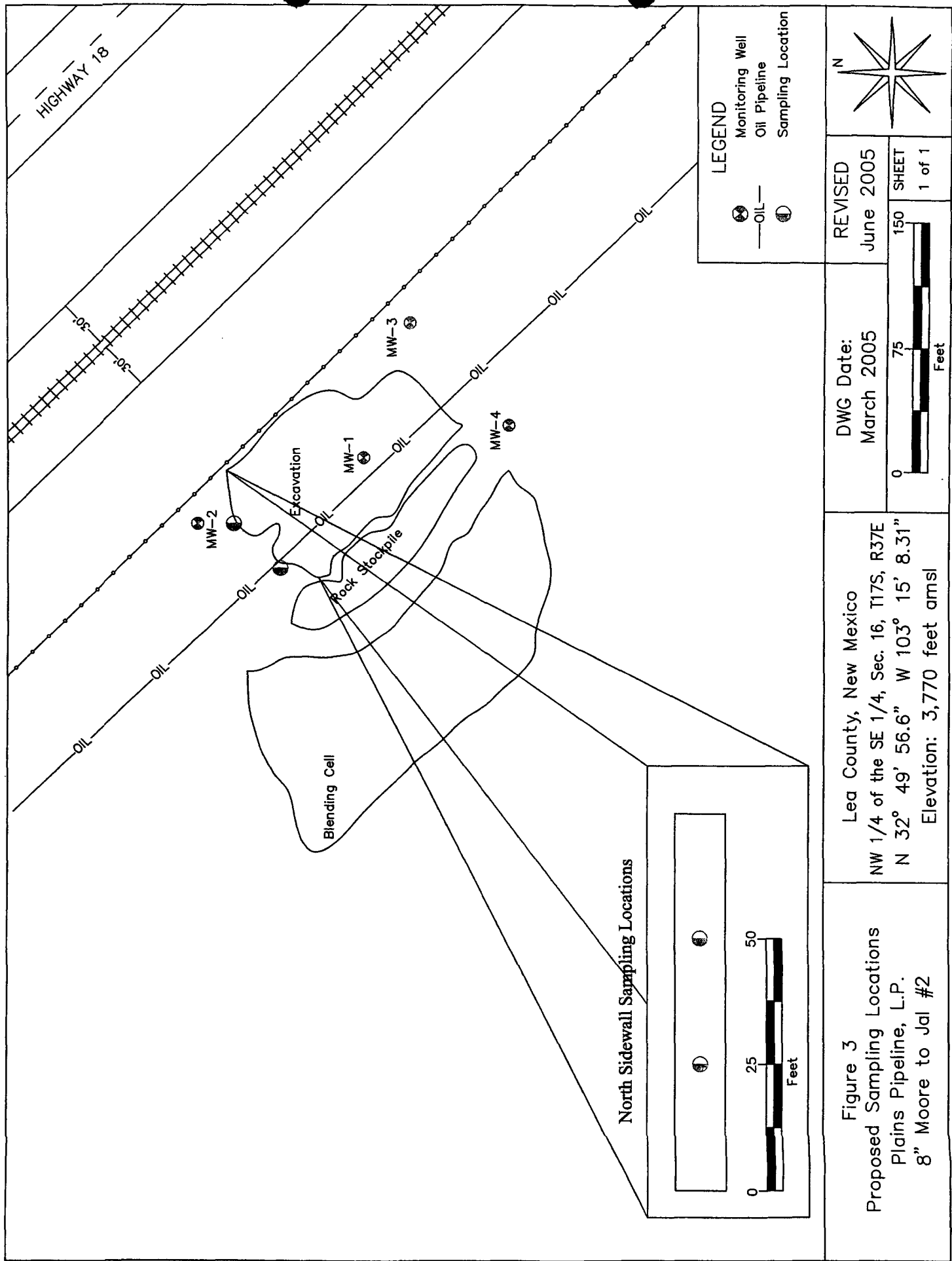


Figure 3  
 Proposed Sampling Locations  
 Plains Pipeline, L.P.  
 8" Moore to Jal #2

Lea County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E  
 N 32° 49' 56.6" W 103° 15' 8.31"  
 Elevation: 3,770 feet amsl

DWG Date:  
 March 2005

REVISED  
 June 2005

SHEET  
 1 of 1



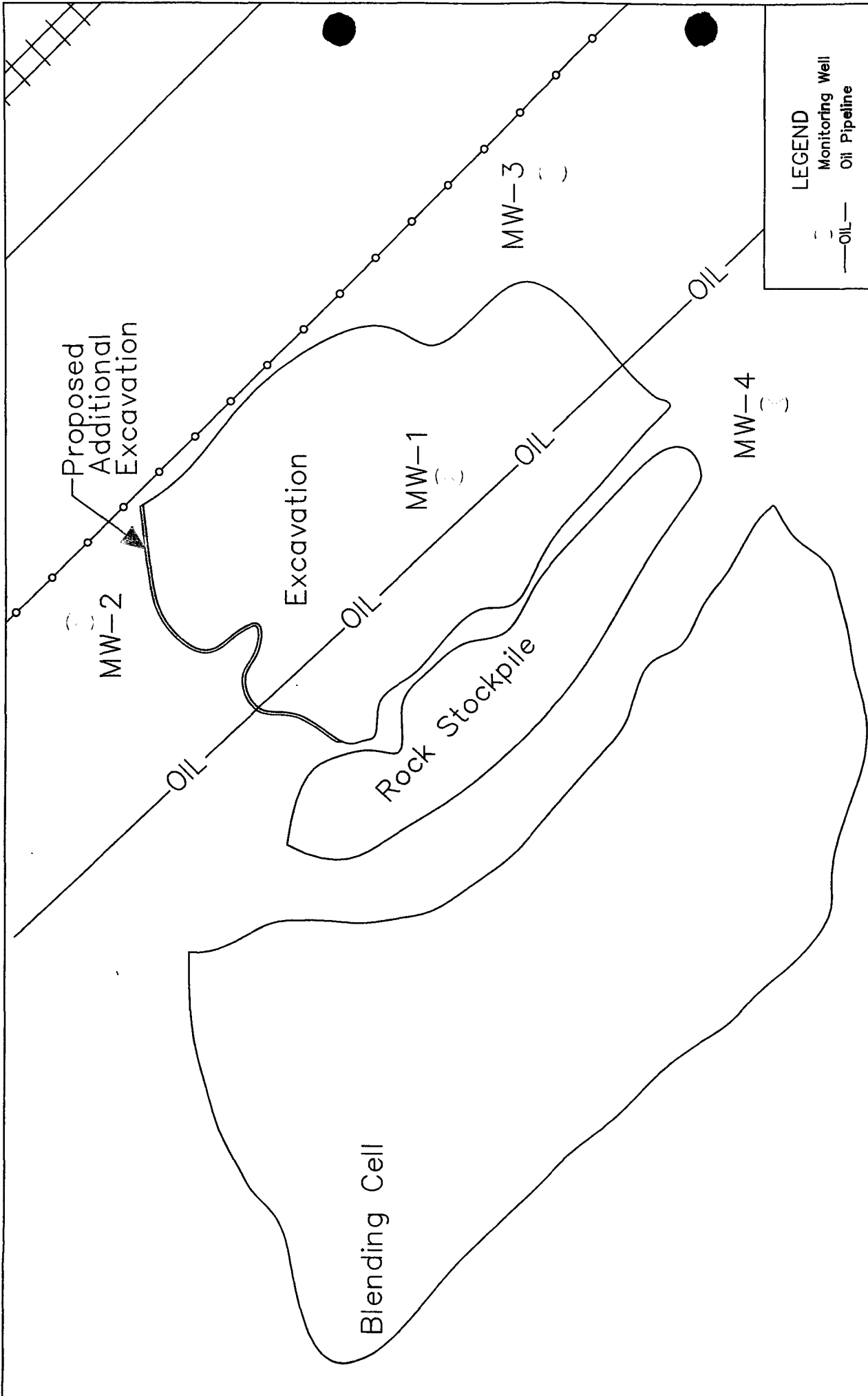


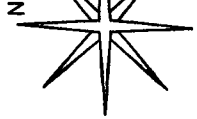
Figure 4  
 Additional Excavation Location  
 Plains Pipeline, L.P.  
 8" Moore to Jal #2

Lea County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 16, T17S, R37E  
 N 32° 49' 56.6" W 103° 15' 8.31"  
 Elevation: 3,770 feet amsl

DWG Date:  
 March 2005

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 1 of 1



LEGEND

- Monitoring Well
- OIL— Oil Pipeline
- Proposed Excavation

**Tables**





MW-4 (65-70)	25-Oct-04	MW-4	42.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4 (70-75)		Con't	23.3	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.125	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
<b>NMOC Remedial Thresholds</b>				<b>10</b>							<b>50</b>					<b>100</b>	

<sup>1</sup> Bolded values are in excess of the NMOC Remediation Thresholds

<sup>2</sup> NA : Not Analyzed

<sup>3</sup> NS : Not Sampled

<sup>4</sup> Detected, but below the Reporting Limit; therefore, result is an estimated concentration (CLP-J Flag).



Llano-Permian Environmental

Table 2

318 East Taylor Street, Hobbs, New Mexico 88240  
Phone: 505/393-4261, FAX: 505/393-4658

SUMMARY OF EXCAVATION ANALYTICAL RESULTS (SOIL)

Plains All American Pipeline, L.P. - 8" Moore to Jal #2 - Ref #2002-10273

Sample ID	Sample Date	Sample Location	Field PID Analysis (ppm)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	m,p-Xylenes (mg/Kg)	o-Xylene (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)
SEMR31302NSW	13-Mar-02	North Sidewall	NA	<25	937	3,590	4,410	2,140	11,077	224	545	769
SEMR31302RAMP	13-Mar-02	Ramp	NA	<25	<25	<25	<25	<25	<125	<10	<10	<10
SEMR51302SP	13-May-02	Stockpile	NA	<1	<1	<1	<1	<1	NA	NA	NA	NA
SEMR51702BCC3'	17-May-02	Bottom -3'	NA	<25	<25	<25	<25	<25	<125	<10	<10	<10
SE103002StkPile	30-Oct-02	Stockpile	NA	0.002	0.006	0.003	0.007	0.004	0.022	NA	NA	NA
SLE8M2111203NSWC	12-Nov-03	North Sidewall Composite (3'-4')	3.2	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	195	195
SLE8M2111203SSWC	12-Nov-03	South Sidewall Composite (3'-4')	6.9	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	<10.0	<10.0

SLE8M211203ESWC	12-Nov-03	East Sidewall Composite (3'-4')	8.5	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	<10.0	<10.0
SLE8M211203BHC	12-Nov-03	Bottomhole Composite (4')	9.7	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	<10.0	<10.0
WW-N-01	3-Jun-05	West Sidewall - North End Grab (3'-4')	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	<10.0	<10.0
WW-S-01	3-Jun-05	West Sidewall - South End Grab (3'-4')	NA	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.125	<10.0	<10.0	<10.0
<b>NMOCD Remedial Thresholds</b>				<b>10</b>							<b>50</b>			<b>100</b>

<sup>1</sup> **Bolded** values are in excess of the NMOCD Remediation Thresholds

<sup>2</sup> NA : Not Analyzed

<sup>3</sup> NS : Not Sampled

<sup>4</sup> Detected, but below the Reporting Limit; therefore, result is an estimated concentration (CLP-J Flag).

# LPE

Llano-Permian  
Environmental

**Table 3**

318 East Taylor Street, Hobbs, New Mexico 88240  
Phone: 505/393-4261, FAX: 505/393-4658

**SUMMARY OF LAND TREATMENT ANALYTICAL RESULTS (SOIL)**

Plains All American Pipeline, LP. - 8" Moore to Jal #2 - Ref #2002-10273

Sample ID	Sample Date	Sample Location	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	m,p-Xylenes (mg/Kg)	o-Xylene (mg/Kg)	Total BTEX (mg/Kg)	TPH (as gasoline) (mg/Kg)	TPH (as diesel) (mg/Kg)	Total TPH (mg/Kg)
NW	15-Dec-04	Northwest Quadrant of Cell	NA	NA	NA	NA	NA	NA	<5	282	457
SW	15-Dec-04	Southwest Quadrant of Cell	NA	NA	NA	NA	NA	NA	<5	464	464
NE	15-Dec-04	Northeast Quadrant of Cell	NA	NA	NA	NA	NA	NA	<5	31.2	31.2
SE	15-Dec-04	Southeast Quadrant of Cell	NA	NA	NA	NA	NA	NA	<5	18.1	18.1
<b>NMOCD Remedial Thresholds</b>			<b>10</b>					<b>50</b>			<b>100</b>

<sup>1</sup> Values are in excess of the NMOCD Remediation Thresholds

<sup>2</sup> NA : Not Analyzed

<sup>3</sup> NS : Not Sampled

<sup>4</sup> Detected, but below the Reporting Limit; therefore, result is an estimated concentration (CLP-J Flag).



C-141

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 October 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 <b>EOTT</b>	Contact <b>Frank Hernandez</b>
Address PO Box 1660 5805 East Highway 80 Midland, Texas 79702	Telephone No. 915.638.3799
Facility Name 8" Moore to Jal #2	Facility Type 8" Steel Pipeline

Surface Owner State of New Mexico	Mineral Owner	Lease No.
--------------------------------------	---------------	-----------

**LOCATION OF RELEASE**

Unit Letter 16	Section 16	Township T17S	Range R37E	Feet from the	North/South Line	Feet from the	East/West Line	County: Lea Lat. 32 49' 56.61"N Lon. 103 15' 08.47"W
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**NATURE OF RELEASE**

Type of Release Crude Oil	Volume of Release 25 bbls barrels	Volume Recovered 0 bbls barrels
Source of Release 8" Steel Pipeline	Date and Hour of Occurrence EOTT	Date and Hour of Discovery 10-22-02 @ 7:00 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Larry Johnson	
By Whom? Pat McCasland, EPI	Date and Hour 10-23-02 @ 7:00 AM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. NA	

If a Watercourse was Impacted, Describe Fully.\*  
NA

Describe Cause of Problem and Remedial Action Taken.\*  
8" Steel Pipeline Site will be delineated to determine the vertical and horizontal extents of contamination. Contaminated soil will be blended on site or disposed of.

Describe Area Affected and Cleanup Action Taken.\*  
5,794 sqft ~160' x 40' Site will be delineated to determine the vertical and horizontal extents of contamination. Contaminated soil will be blended on site or disposed of. Remedial Goals: TPH 8015m = 100 mg/Kg, Benzene = 10 mg/Kg, and BTEX, i.e., the mass sum of Benzene, Ethyl Benzene, Toluene, and Xylenes = 50 mg/Kg.

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>OIL CONSERVATION DIVISION</b>		
Printed Name: Frank Hernandez	Approved by District Supervisor:		
Title: District Environmental Supervisor	Approval Date:	Expiration Date:	
Date: October 23, 2003      Phone: 915.638.3799	Conditions of Approval:	Attached <input type="checkbox"/>	

\* Attach Additional Sheets If Necessary