

1R - 91

# REPORTS

DATE:

4/12/2006



# 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: 2005 Annual Monitoring Report  
Plains Pipeline, L.P. South Mattix Site  
Plains Reference: 2000-10410  
NW/4 SE/4 Section 15, Township 24 South, Range 37 East  
Lea County, New Mexico  
NMOCD File Number 1R-0091

Dear Ms. Reynolds:

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

1. Plains will continue to collect groundwater samples and water/PSH level data on a quarterly basis, and the samples shall be submitted for quantification of BTEX quarterly, and PAH's annually.
2. If PSH appears in the groundwater monitoring wells, Plains shall visit the site semi-monthly to recover the PSH.
3. Plains will implement the "Interim Remediation Plan" (January 2006) during the second quarter of 2006.

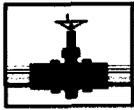
NMOCD approval does not relieve Plains of liability should its operations at this site prove to have been harmful to public health or the environment. Nor does it relieve Plains of its responsibility to comply with the rules and regulations of any other governmental agency.

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  
Iain Olness, EPI



**PLAINS  
ALL AMERICAN**

February 27, 2006

2006 MAR 1 PM 12 50

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 Report  
1 Site 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 report for the following site:

South Mattix                      Section 15, Township 24 South, Range 37 East, Lea County

EPI prepared this document and has vouched for its accuracy and completeness, and on behalf of Plains All American, I have personally reviewed the document and interviewed EPI in order to verify the accuracy and completeness of this document. It is based upon these inquiries and reviews that Plains All American submits the enclosed Annual Monitoring Report for the above facility.

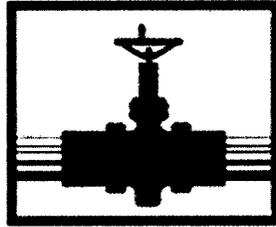
If you have any questions or require further information, please contact me at (505) 441-0965.

Sincerely,

Camille Reynolds  
Remediation Coordinator  
Plains All American

CC: Larry Johnson, NMOCD, Hobbs, NM

Enclosures



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

*Report is on  
the L-Drive*

## 2005 ANNUAL MONITORING REPORT

**PLAINS PIPELINE, L.P.**  
**SOUTH MATTIX**  
**PLAINS REF: 2000-10410**  
**(COMPANY #231735)**

**NW $\frac{1}{4}$  OF THE SE $\frac{1}{4}$  OF SECTION 15, TOWNSHIP 24 SOUTH, RANGE 37 EAST**  
**LEA COUNTY, NEW MEXICO**

**~10 MILES NORTHEAST OF JAL,**  
**LEA COUNTY, NEW MEXICO**

**LATITUDE: N 32° 13' 01"**

**LONGITUDE: W 103° 08' 57"**

**FEBRUARY 2006**

**PREPARED BY:**

***Environmental Plus, Inc.***

2100 Avenue O

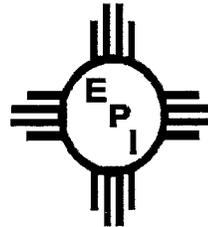
P.O. Box 1558

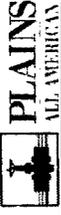
Eunice, NM 88231

Phone: (505)394-3481

FAX: (505)394-2601

iolness@envplus.net





Distribution List

2005 Annual Monitoring Report

Plains Pipeline, L.P.

South Mattix (Ref. #2000-10410)

Name	Title	Company or Agency	Mailing Address	e-mail
Ed Martin	Environmental Engineer	New Mexico Oil Conservation Division - Santa Fe	1120 South St. Francis Santa Fe, NM 87505	ed.martin@state.nm.us
Larry Johnson	Environmental Engineer	New Mexico Oil Conservation Division - Hobbs	1625 North French Drive Hobbs, NM 88240	larry_johnson@state.nm.us
Jeff Dann	Senior Environmental Specialist	Plains All American Pipeline	333 Clay Street, Suite 1600 Houston, TX 77002	jpdann@paalp.com
Camille Reynolds	Remediation Coordinator	Plains All American Pipeline	3112 West Highway 82 Lovington, NM 88260	cireynolds@paalp.com
File	--	Environmental Plus, Inc.	P.O. Box 1558 Eunice, NM 88231	iolness@envyplus.net

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**Standard of Care**

**Annual Monitoring Report**

**South Mattix  
Ref. # 2000-10410**

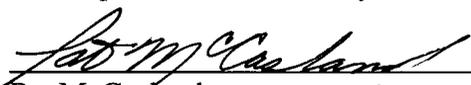
The information provided in this report was collected consistent with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993), the NMOCD Unlined Surface Impoundment Closure Guidelines (February 1993), and the Environmental Plus, Inc. (EPI) Standard Operating Procedures and Quality Assurance/Quality Control Plan. The conclusions are based on field observations and laboratory analytical reports as presented in the report. Recommendations follow NMOCD guidance and represent the professional opinions of EPI staff. These opinions were arrived at with currently accepted geologic, hydrogeologic and engineering practices at this time and location. The report was prepared or reviewed by a certified or registered EPI professional with a background in engineering, environmental, and/or the natural sciences.

This report was prepared by:

  
\_\_\_\_\_  
Iain A. Olness, P.G.  
Hydrogeologist

26 February 2006  
Date

This report was reviewed by:

  
\_\_\_\_\_  
Pat McCasland  
Environmental Consultant

26 February 2006  
Date

## Table of Contents

<b>1.0</b>	<b>Background</b> .....	<b>1</b>
<b>2.0</b>	<b>Field Activities</b> .....	<b>2</b>
<b>3.0</b>	<b>Groundwater Gradient and PSH Thickness</b> .....	<b>2</b>
<b>4.0</b>	<b>PSH Recovery</b> .....	<b>2</b>
<b>5.0</b>	<b>Groundwater Sampling</b> .....	<b>2</b>
<b>6.0</b>	<b>Analytical Results</b> .....	<b>2</b>
<b>7.0</b>	<b>Status and Recommendations</b> .....	<b>2</b>

### FIGURES

- Figure 1:** Area Map  
**Figure 2:** Site Location Map  
**Figure 3:** Site Map  
**Figure 4:** TPH and BTEX Concentrations in Groundwater Monitoring Well MW-1 from 12/28/01 through 12/31/05, Plains Pipeline, L.P. - South Mattix Sump, Lea County, New Mexico.  
**Figure 5:** Hydrograph for Monitoring Well MW-1, Plains Pipeline, L.P. - South Mattix Sump, Lea County, New Mexico from 12/28/01 through 12/31/05.  
**Figure 6:** Contaminant Concentration Map – 02/22/05  
**Figure 7:** Contaminant Concentration Map – 05/09/05  
**Figure 8:** Contaminant Concentration Map – 08/17/05  
**Figure 9:** Contaminant Concentration Map – 11/15/05

### TABLES

- Table 1:** Relative Groundwater Elevations and Phase Separated Hydrocarbon Thicknesses  
**Table 2:** Summary of Groundwater Analytical Results (BTEX & TPH)  
**Table 3:** Concentrations of Semi-Volatiles in Groundwater

### APPENDICES

- Appendix A:** Analytical Results and Chain-of-Custody Forms  
**Appendix B:** NMOCD Approval Letter for *Soil Characterization and Interim Remediation Plan* (January 2006).

## 1.0 Background

The Plains Pipeline, L.P. (Plains) South Mattix site is located in Unit Letter-G (the NW $\frac{1}{4}$  of the SE $\frac{1}{4}$ ), of Section 15, Range 37E, Township 24S at a latitude N 32°13'01" and a longitude W 103°08'57" approximately 10 miles northeast of Jal, Lea County, New Mexico on property owned by the Grobe Estate (reference *Figures 1 and 2*). There are no domestic or agricultural water wells or surface water bodies within 1,000 horizontal feet of the site. The site is associated with the Plains South Mattix crude oil transfer pump station and has historically been impacted from pump leaks and a sub-grade sump. During site soil delineation in December 2001, the vertical extent of soil impacted above the New Mexico Oil Conservation Division (NMOCD) remedial goals was determined to be approximately 50 feet below ground surface (bgs).

A two-inch groundwater monitoring well was installed during site soil delineation activities in December 2001 and is sampled on a quarterly basis. In addition, water and PSH level measurements were recorded during the quarterly sampling visits.

During the December 13, 2002 sampling event, a 0.01 foot thickness of phase separated hydrocarbons (PSH) was measured. Likewise, a sheen of oil was observed on the purge water during well purging, but has not been observed since.

The groundwater monitoring well was sampled on a quarterly basis during 2003 and samples submitted for quantification of benzene, toluene, ethylbenzene and total xylenes (BTEX) and/or total petroleum hydrocarbons (TPH). Analytical results for the sample collected during the first quarterly sampling event were non-detectable (ND) for all analytes at or above each analytes respective method detection limit (MDL). Analytical results for the samples collected during the second and third quarterly sampling events indicated analytes were detected at various concentrations; however, all reported concentrations were below the New Mexico Water Quality Control Commission (NMWQCC) groundwater standards. Analytical results for the final sampling event of 2003 were ND for all analytes at or above each analytes respective MDL. Groundwater levels rose during the first two quarters of 2003, dropped during the third quarter and remained steady during the fourth quarter, with the final measurement indicating a groundwater elevation of approximately 3,158.85 feet above mean sea level.

The groundwater monitoring well was sampled and water levels gauged on a quarterly basis in 2004. Analytical results indicated BTEX impacts were detected during the first two quarterly sampling events at 44  $\mu\text{g/L}$  and 75  $\mu\text{g/L}$ , respectively. The analytical results also indicated benzene was detected at 12.2  $\mu\text{g/L}$  and 21.4  $\mu\text{g/L}$  for the first two sampling events, respectively. These benzene concentrations are above the NMWQCC Standard's for groundwater. Analytical results for the final two quarterly sampling events of 2004 were reported as ND at or above each analytes respective method detection limit (MDL). Groundwater levels rose during the first three quarters of 2004 and dropped during the final quarter with the final measurement indicating a groundwater elevation of approximately 3,158.88 feet above mean sea level.

On August 9 and 10, 2004, the sump at the site was removed per the NMOCD's request. During the replacement of the sump, 28 yards of impacted soil were removed and transported to Lea Station Landfarm for treatment.

## **2.0 Field Activities**

Site visits were made to the site on January 22, May 9, August 17 and November 15, 2005 to collect samples from the groundwater monitoring well. In addition, groundwater level measurements were obtained prior to purging the well to determine the depth to groundwater and to determine if PSH were present on the water surface.

## **3.0 Groundwater Gradient and PSH Thickness**

The area groundwater gradient, according to the USGS Ground-Water Report 6, Geology and Ground-Water Conditions in Southern Lea County, New Mexico (A. Nicholson and A. Clebsch, 1961), is to the southeast. No PSH was detected on the water surface during the past year.

## **4.0 PSH Recovery**

No PSH was detected on the water surface during the past year.

## **5.0 Groundwater Sampling**

During 2005, groundwater monitoring well MW-1 was sampled on January 22, May 9, August 17 and November 15. The samples were submitted to an independent laboratory for the quantification of BTEX via EPA Method 8260b. In addition, the sample collected on January 22 was also analyzed for the presence of poly-aromatic hydrocarbons (PAHs) via EPA Method 8270C. The well was purged a minimum of three well volumes or dry and samples collected utilizing dedicated or disposable sample bailers. Samples were then placed on ice and shipped to an independent laboratory under chain-of-custody for analysis.

## **6.0 Analytical Results**

Analytical results for all four quarterly sampling events were ND for all analytes at or above each analytes respective method detection limit MDL (reference *Tables 2 and 3*).

## **7.0 Status and Recommendation**

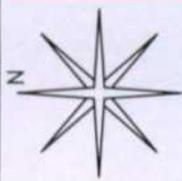
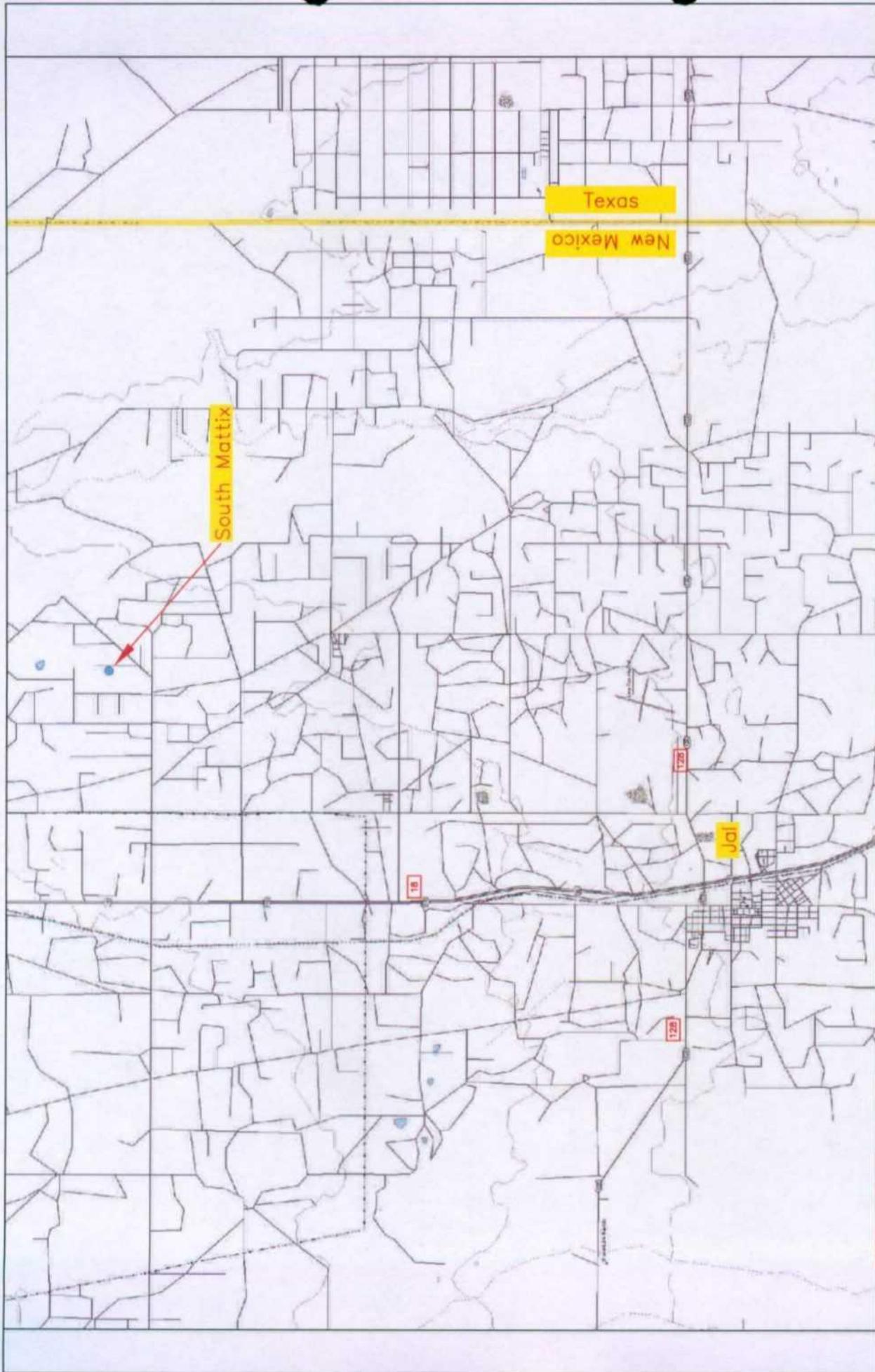
Based on field monitoring and analytical results collected during the past year and analyzed in conjunction with data collected during the past three years, the following recommendations are made in regards to the sampling protocol:

- 1) Continue to collect groundwater samples and water/PSH level data on a quarterly basis. The samples should be submitted for quantification of BTEX on a quarterly basis and PAHs on an annual basis.

- 2) Should PSH be detected in the groundwater monitoring well, semi-monthly visits shall be made to recover the PSH and sampling activities ceased until such time that PSH is no longer detected in the groundwater monitoring well.
- 3) The *Interim Remediation Plan* (January 2006), approved by the NMOCD on January 30, 2006 (reference *Appendix B*), will be implemented during the 1<sup>st</sup> or 2<sup>nd</sup> quarter of 2006.

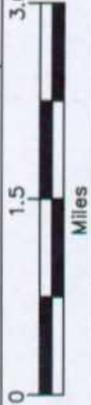
EPI, on behalf of Plains requests formal written approval from the NMOCD to implement these proposed remedial activities.

**FIGURES**



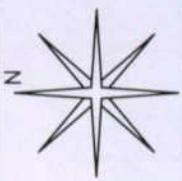
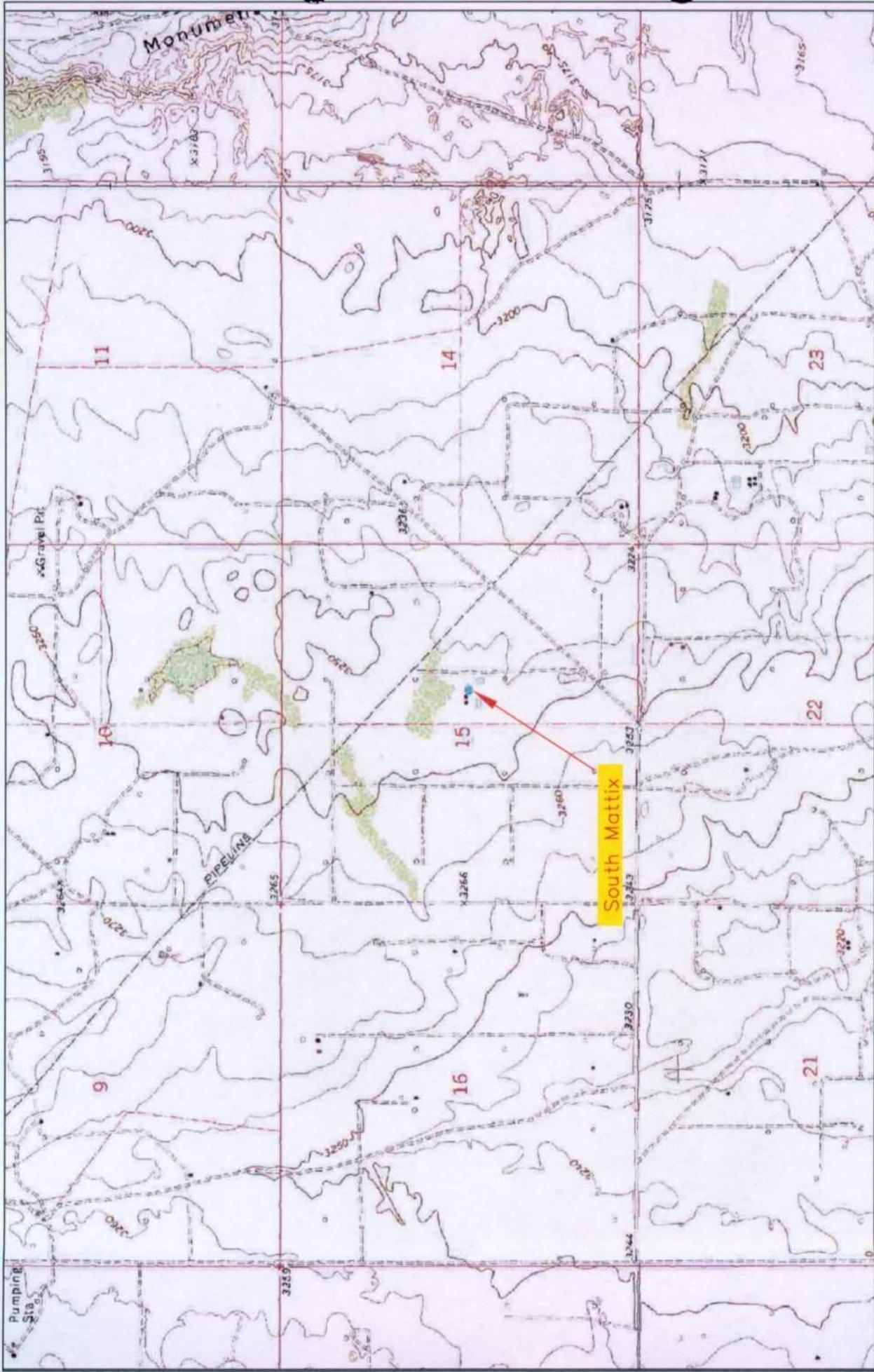
REVISED:  
Nov. 2005

DWG By: Iain Olness  
June 2004



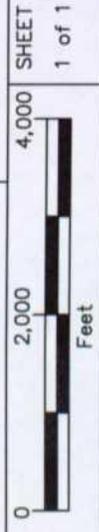
Lea County, New Mexico  
NW 1/4 of the SE 1/4, Sec. 15, T24S, R37E  
N 32° 13' 1.19" W 103° 08' 57.1"  
Elevation: 3,245 feet amsl

Figure 1  
Area Map  
Plains Pipeline, LP  
South Mattix  
2000-10410



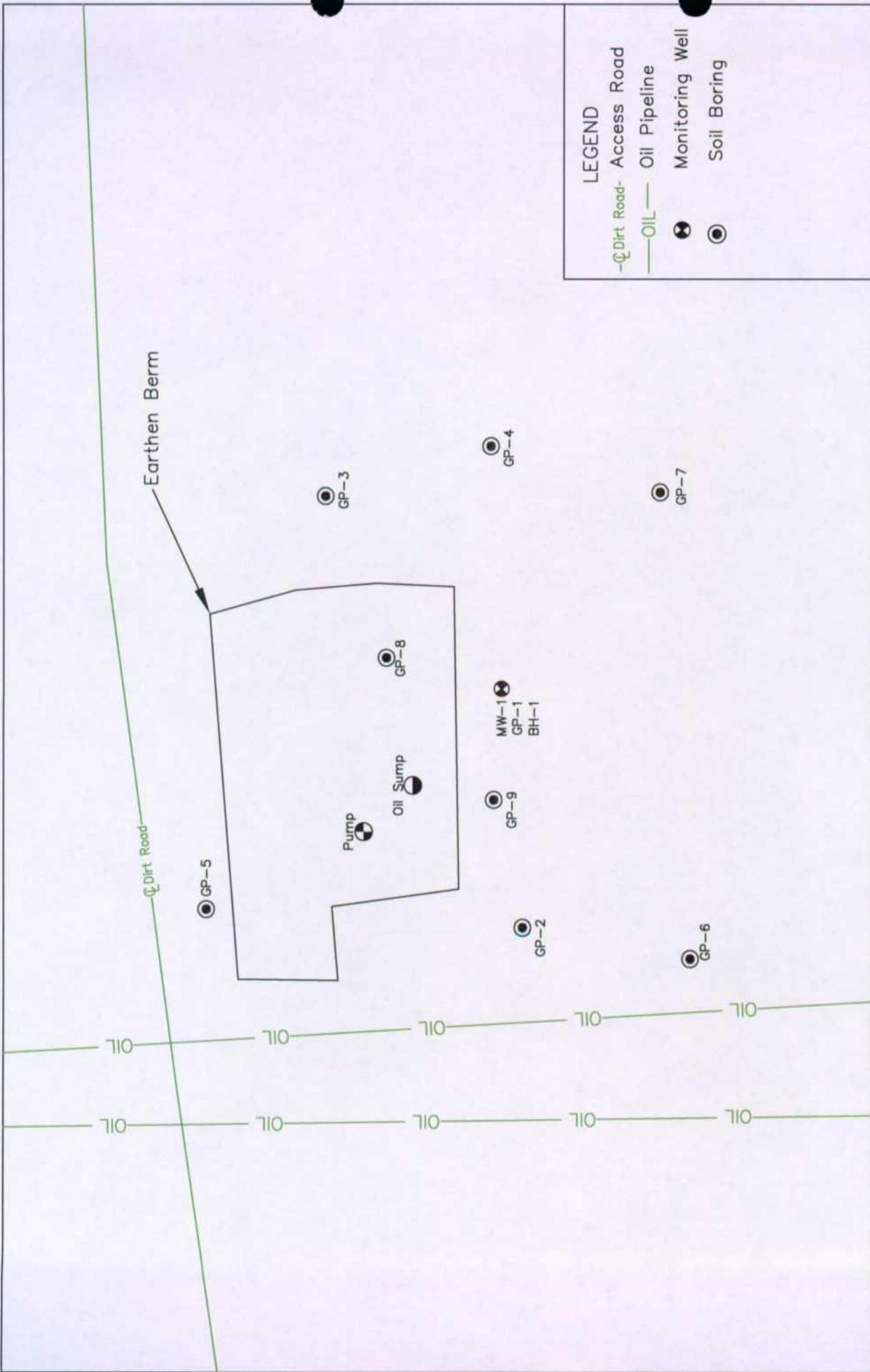
REVISED:  
Nov. 2005

DWG By: Iain Olness  
June 2004



Lea County, New Mexico  
NW 1/4 of the SE 1/4, Sec. 15, T24S, R37E  
N 32° 13' 1.19" W 103° 08' 57.1"  
Elevation: 3,245 feet amsl

Figure 2  
Site Location Map  
Plains Pipeline, LP  
South Mattix  
2000-10410



<p>Figure 3 Site Map Plains Pipeline, LP South Mattix 2000-10410</p>	<p>Lea County, New Mexico NW 1/4 of the SE 1/4, Sec. 15, T24S, R37E N 32° 13' 1.19" W 103° 08' 57.1" Elevation: 3,245 feet amsl</p>		<p>DWG By: Iain Olness June 2004</p>	<p>REVISED: Nov. 2005</p>	<p>SHEET 1 of 1</p>
	<p>0 10 20 Feet</p>		<p>LEGEND</p> <ul style="list-style-type: none"> <li>- - - Dirt Road- Access Road</li> <li>— OIL — Oil Pipeline</li> <li>⊕ Monitoring Well</li> <li>⊙ Soil Boring</li> </ul>		

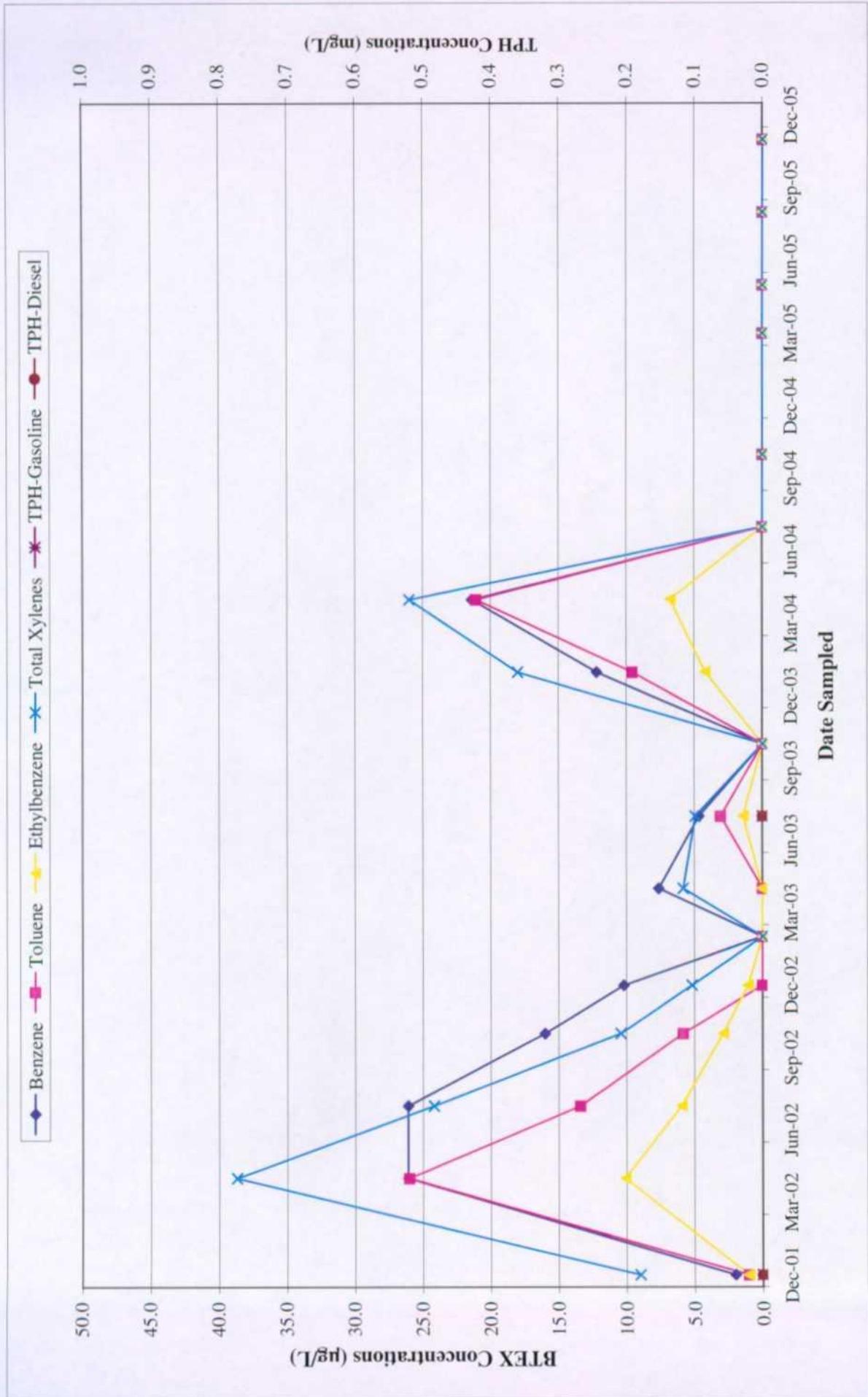


Figure 4: TPH and BTEX Concentrations in Groundwater Monitoring Well MW-1 from 12/28/01 through 12/31/05, Plains Pipeline, L.P. South Mattix Sump (Ref. #2000-10410), Lea County, New Mexico.

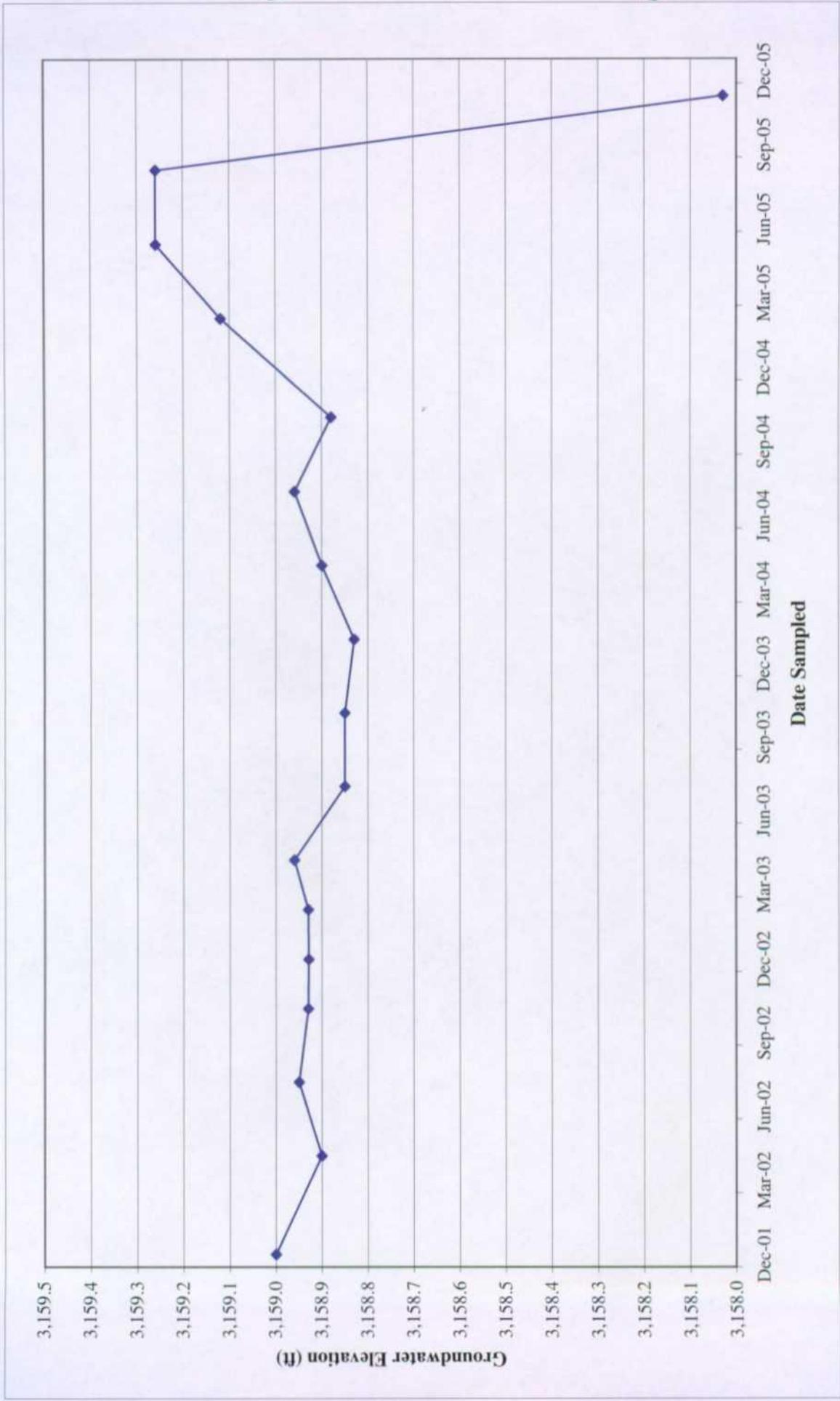


Figure 5: Hydrograph for Monitoring Well MW-1, Plains Pipeline, LP South Mattix Sump (Ref. #2000-10410), Lea County, New Mexico from 12/28/01 through 12/31/05.

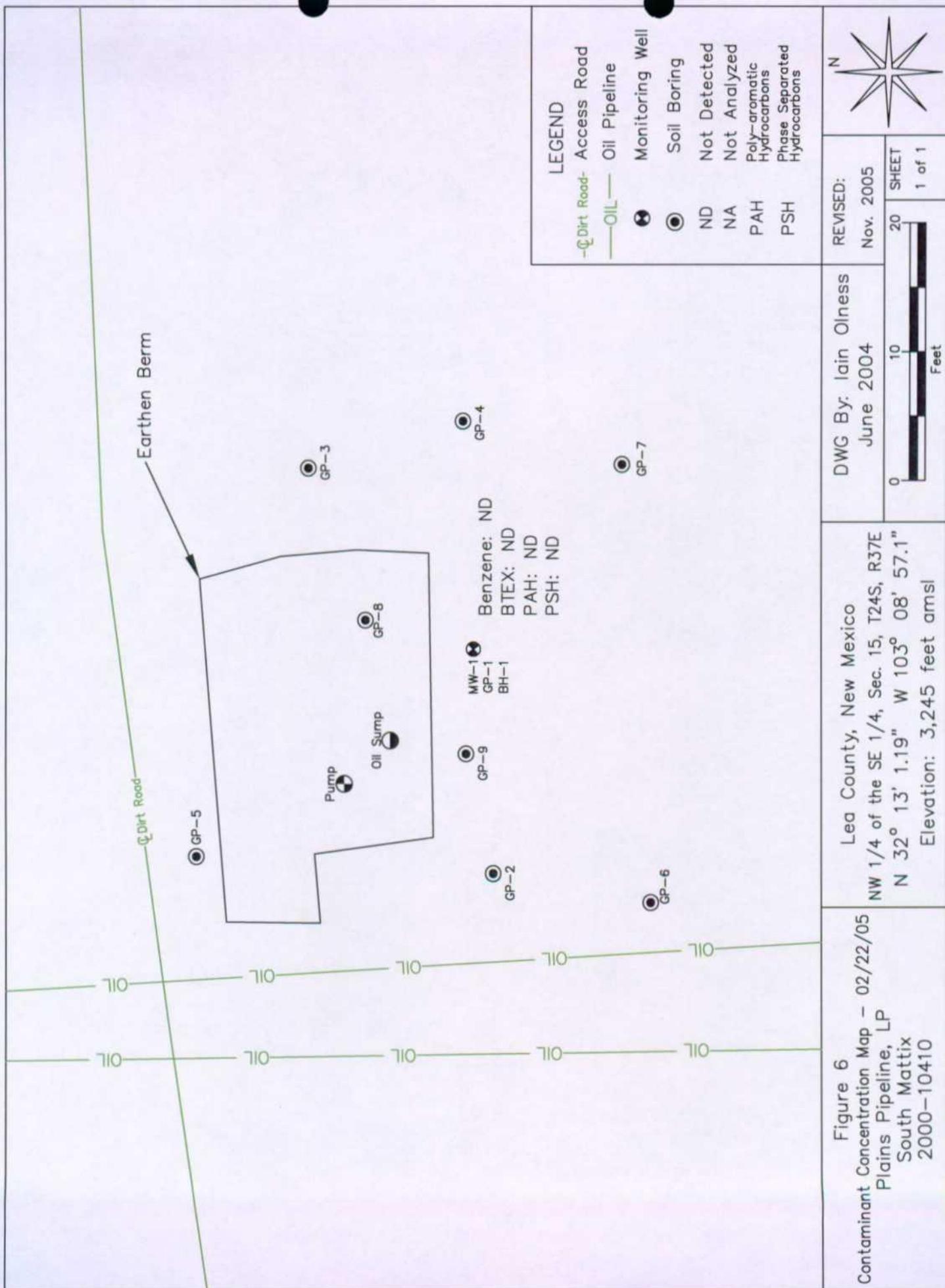
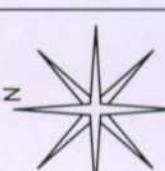


Figure 6  
 Contaminant Concentration Map - 02/22/05  
 Plains Pipeline, LP  
 South Mattix  
 2000-10410

Lea County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 15, T24S, R37E  
 N 32° 13' 1.19" W 103° 08' 57.1"  
 Elevation: 3,245 feet amsl

DWG By: Iain Olness  
 June 2004

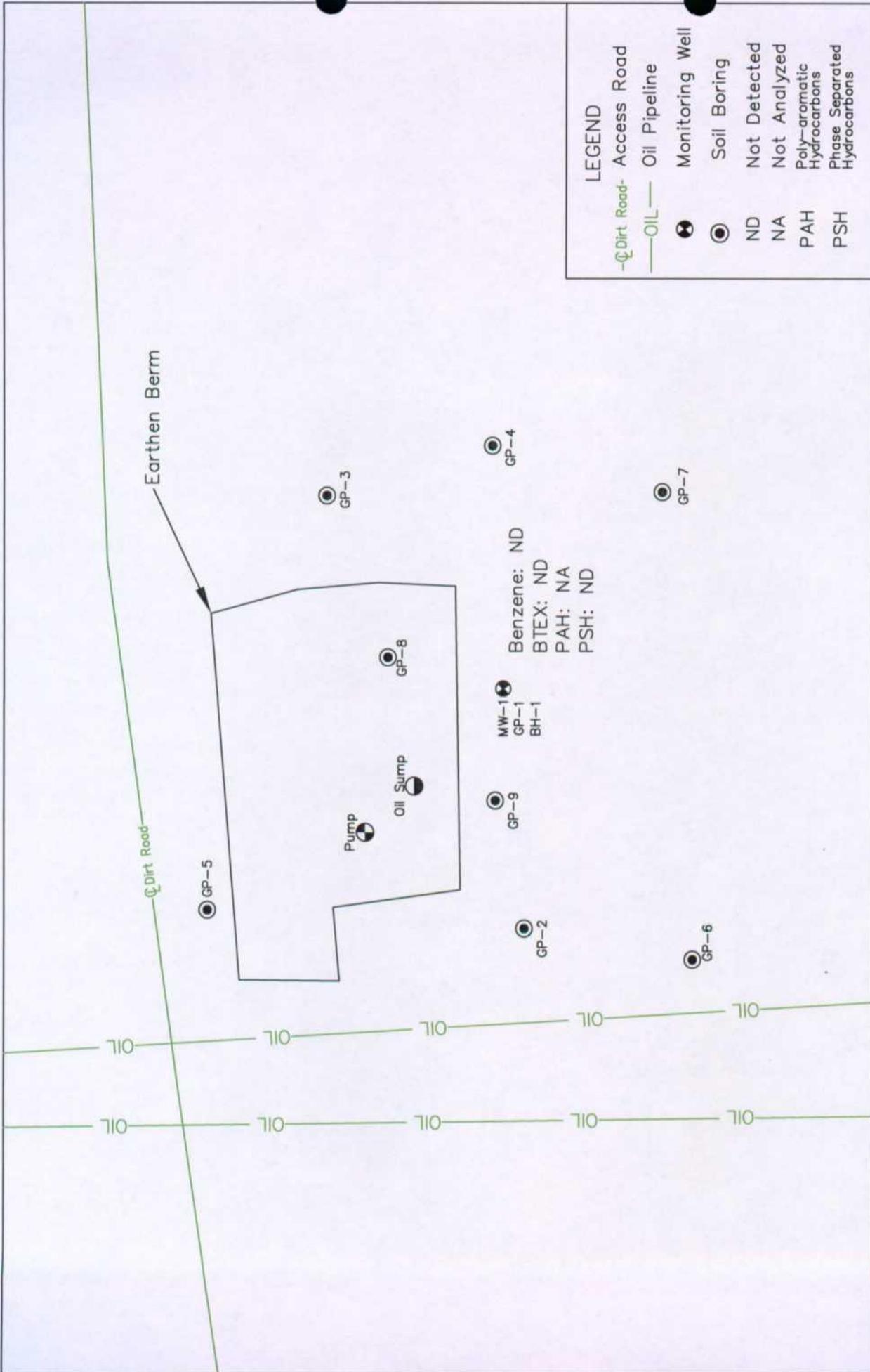
REVISED:  
 Nov. 2005



LEGEND

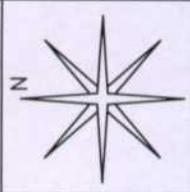
-○- Dirt Road	-○- Access Road
—OIL—	Oil Pipeline
⊕	Monitoring Well
⊙	Soil Boring
ND	Not Detected
NA	Not Analyzed
PAH	Poly-aromatic Hydrocarbons
PSH	Phase Separated Hydrocarbons





**LEGEND**

- Dirt Road- Access Road
- OIL — Oil Pipeline
- ⊕ Monitoring Well
- ⊙ Soil Boring
- ND Not Detected
- NA Not Analyzed
- PAH Poly-aromatic Hydrocarbons
- PSH Phase Separated Hydrocarbons



REVISED:  
Nov. 2005

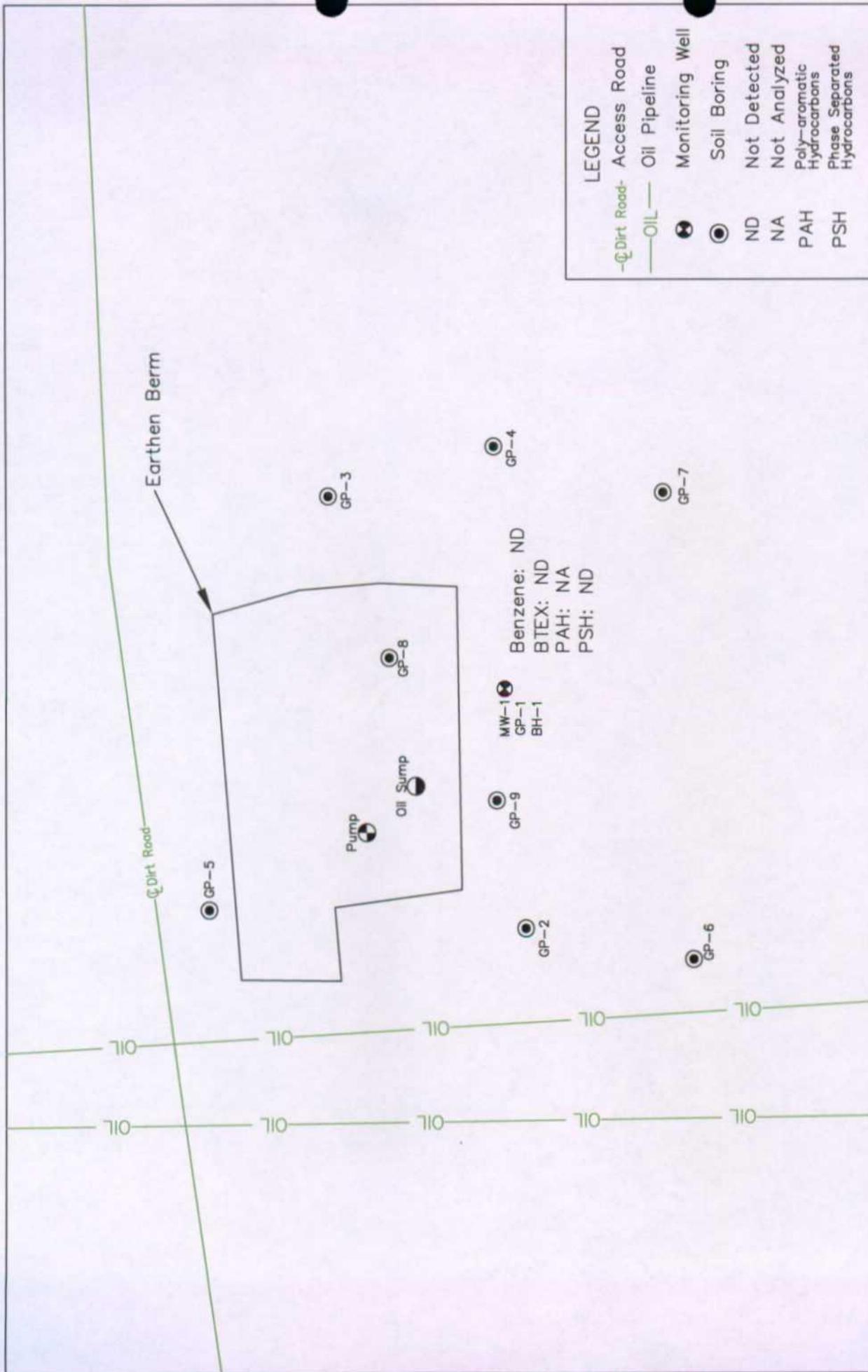
SHEET  
1 of 1

DWG By: Iain Olness  
June 2004

0 10 20  
Feet

Lea County, New Mexico  
NW 1/4 of the SE 1/4, Sec. 15, T24S, R37E  
N 32° 13' 1.19" W 103° 08' 57.1"  
Elevation: 3,245 feet amsl

Figure 7  
Contaminant Concentration Map - 05/09/05  
Plains Pipeline, LP  
South Mattix  
2000-10410



**Figure 8**  
 Contaminant Concentration Map - 08/17/05  
 Plains Pipeline, LP  
 South Mattix  
 2000-10410

Lea County, New Mexico  
 NW 1/4 of the SE 1/4, Sec. 15, T24S, R37E  
 N 32° 13' 1.19" W 103° 08' 57.1"  
 Elevation: 3,245 feet amsl

DWG By: Iain Olness  
 June 2004

REVISED:  
 Nov. 2005

20 SHEET  
 1 of 1

0 10 20 Feet

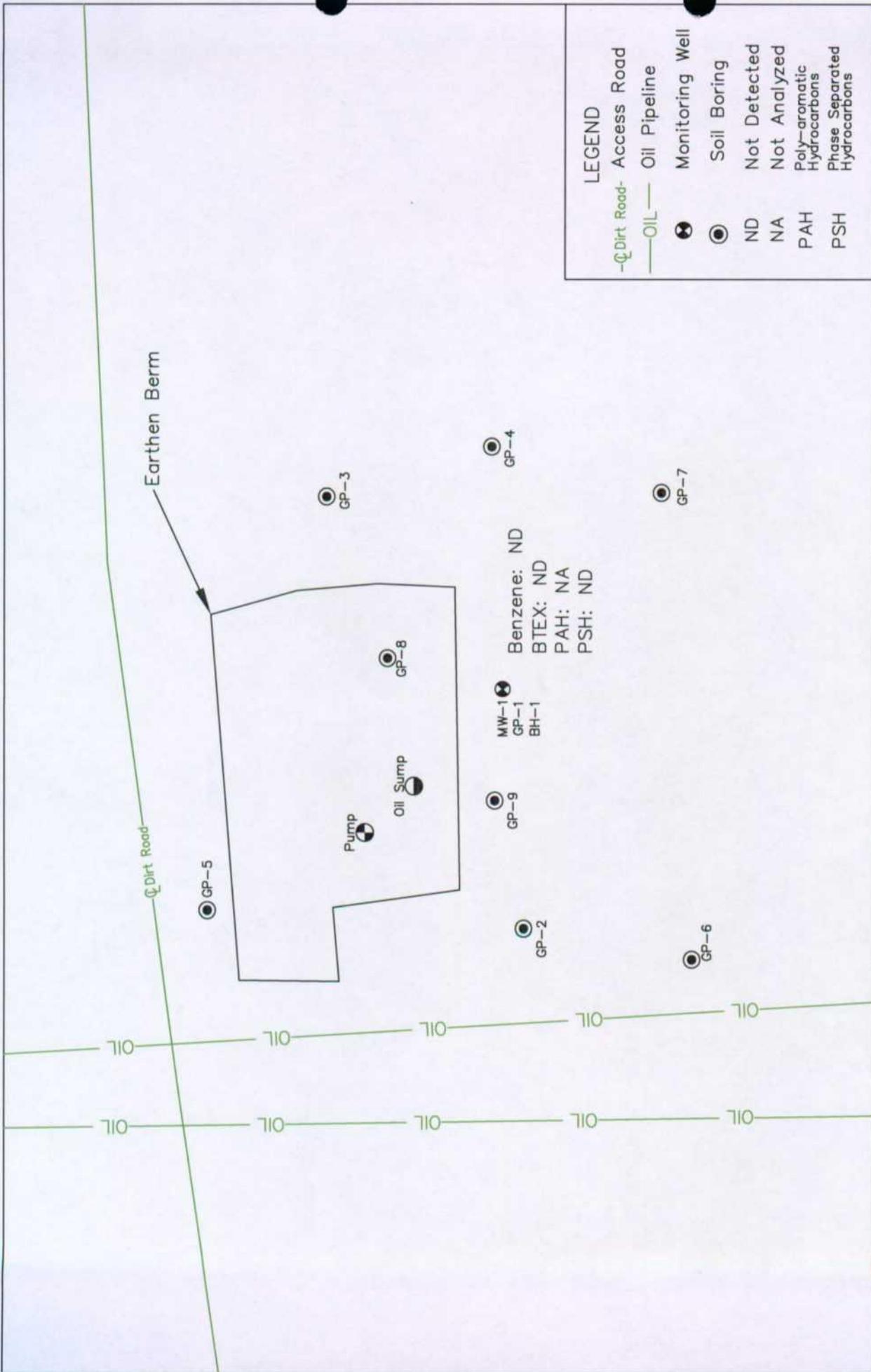


Figure 9  
 Contaminant Concentration Map - 11/15/05  
 Plains Pipeline, LP  
 South Mattix  
 2000-10410

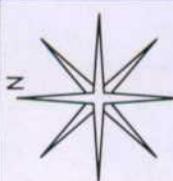
Lea County, New Mexico  
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 Elevation: 3,245 feet amsl

DWG By: Iain Olness  
 June 2004

0 10 20  
 Feet

REVISED:  
 Nov. 2005

SHEET  
 1 of 1



**LEGEND**

- Dirt Road- Access Road
- Oil Pipeline
- ⊗ Monitoring Well
- ⊙ Soil Boring
- ND Not Detected
- NA Not Analyzed
- PAH Poly-aromatic Hydrocarbons
- PSH Phase Separated Hydrocarbons



# TABLES

TABLE 1

RELATIVE GROUNDWATER ELEVATIONS AND  
PHASE SEPARATED HYDROCARBON THICKNESSES

South Mattix - Ref #2000-10410

Monitor Well	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 Groundwater Elevation (feet)**	Phase Separated Hydrocarbon Thickness (feet)
MW-1	28-Dec-01	3,245	--	86.00	3,159.00	--
	30-Apr-02		--	86.10	3,158.90	--
	9-Jul-02		--	86.05	3,158.95	--
	5-Oct-02		--	86.07	3,158.93	--
	13-Dec-02		86.07	86.08	3,158.93	0.01
	17-Feb-03		--	86.07	3,158.93	--
	2-Apr-03		--	86.04	3,158.96	--
	25-Jul-03		--	86.15	3,158.85	--
	1-Oct-03		--	86.15	3,158.85	--
	27-Jan-04		--	86.17	3,158.83	--
	21-Apr-04		--	86.10	3,158.90	--
	14-Jul-04		--	86.04	3,158.96	--
	20-Oct-04		--	86.12	3,158.88	--
	22-Feb-05		--	85.88	3,159.12	--
	9-May-05		--	85.74	3,159.26	--
17-Aug-05		--	85.74	3,159.26	--	
15-Nov-05		--	86.97	3,158.03	--	

\* = Top of casing elevation set from USGS Topographical map

\*\* Corrected Groundwater Elevation = Top of Casing Elevation - (Depth to Water Below Top of Casing - (SG)(PSH Thickness)

-- = Not detected

If cell is blank, the well was not gauged

TABLE 2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (BTEX & TPH)

PLAINS ALL AMERICAN PIPELINE, L.P.  
 SOUTH MATTIX - REF. #2000-10410  
 LEA COUNTY, NEW MEXICO

Monitor Well Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Chloride (mg/L)	Total Dissolved Solids (mg/L)	TPH as Gasoline (mg/L)	TPH as Diesel (mg/L)	Total TPH (mg/L)
MW-1	28-Dec-01	2	1	1	7	2	9	46	655	<3	<3	<6
	3-Apr-02	26.1	26.0	10.1	25.5	13.2	38.7					
	9-Jul-02	26.1	13.4	5.93	16.7	7.48	24.2	38	667			
	5-Oct-02	16	5.82	2.88	7.89	2.54	10.4					
	13-Dec-02	10.2	<1	1.06	5.18	<1	5.18					
	17-Feb-03	<1	<1	<1	<1	<1	<2					
	2-Apr-03	7.63	<1	<1	4.54	1.30	5.84					
	25-Jul-03	4.68	3.07	1.41	3.32	1.63	4.95			<0.5	<0.5	<1
	1-Oct-03	<1	<1	<1	<1	<1	<2					
	27-Jan-04	12.2	9.57	4.19	12.3	5.71	18.0					
	21-Apr-04	21.4	21.1	6.78	17.2	8.80	26.0					
	14-Jul-04	<1	<1	<1	<2	<1	<3					
	20-Oct-04	<1	<1	<1	<2	<1	<3					
	22-Mar-05	<1	<1	<1	<2	<1	<3					
9-May-05	<1	<1	<1	<2	<1	<3						
17-Aug-05	<1	<1	<1	<2	<1	<3						
15-Nov-05	<1	<1	<1	<2	<1	<3						
NMOC Remedial Thresholds		10	750	750			620	250	1,000			

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



**APPENDICES**

**APPENDIX A**

**Analytical Reports  
and  
Chain-of-Custody Forms**

## Sample Analysis Case Narrative

Client: Environmetal Plus, Inc. Project ID: 2000-10410

Attn: Iain Olness

for Sample #'s: 165026

Analyzed by AnalySys, Inc.

Final Review Date: 4/20/2005 By:  (D. Wagner)

### Case Narrative:

The recoveries of several PAH compounds in the Matrix Spikes (MS and/or MSD) for the analytical batch that contained sample # 165026 were outside normal laboratory acceptance criteria due to matrix effects in the randomly selected spiked sample. The Laboratory Control Sample (LCS) run with this batch met recovery criteria for each compound indicating the analytical method was operating correctly and in control. When viewed within the context of the passing LCS data, this deviation in spike recovery should have minimal impact on data usability.



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#:** 165026 **Report Date:** 04/11/05  
**Project ID:** 2000-10410  
**Sample Name:** SMO32205MW-1  
**Sample Matrix:** water  
**Date Received:** 03/24/2005 **Time:** 09:25  
**Date Sampled:** 03/22/2005 **Time:** 14:28

**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>
A/BN Extraction-PAH	---	---	---	---	03/29/05	3520	---	---	---	---	---
Extractable organics-PAH	---	---	---	---	04/07/05	610 & 8270c	---	---	---	---	---
Volatile organics-8260b/BTEX	---	---	---	---	03/28/05	8260b(5030/5035)	---	---	---	---	---
Benzene	<1	µg/L	1	<1	03/28/05	8260b	---	3.3	96.7	96	95
Ethylbenzene	<1	µg/L	1	<1	03/28/05	8260b	---	5.5	99.5	97.3	103.1
m,p-Xylenes	<2	µg/L	2	<2	03/28/05	8260b	---	5.2	97.3	97	98.6
o-Xylene	<1	µg/L	1	<1	03/28/05	8260b	---	6.2	108.9	105.1	109.8
Toluene	<1	µg/L	1	<1	03/28/05	8260b	---	7.2	105.3	109.7	100.4
Acenaphthene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	9.2	56.3	104.4	34.4
Acenaphthylene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	7.2	57.8	111.4	36.8
Anthracene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	1.4	50	110.5	33.4
Benzo[a]anthracene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	0.3	12.3	109.8	35.7
Benzo[a]pyrene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	S,M	13.7	4	104	32.2
Benzo[b]fluoranthene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	S,M	17	4.5	113.9	37.7
Benzo[g,h,i]perylene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	S,M	14.2	3	109.4	35.8
Benzo[k]fluoranthene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	S,M	16.5	4.4	102.2	34.4
Chrysene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	7.4	15.3	105	44.6
Dibenz[a,h]anthracene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	S,M	12.9	3.7	114.1	43.5
Fluoranthene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	5.3	39.4	110.6	38.3
Fluorene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	5.5	59.2	105.7	33.6
Indeno[1,2,3-cd]pyrene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	S,M	10.5	2.8	109.5	35.1

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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 normal 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.



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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: 2000-10410  
Sample Name: SMO32205MW-1

Report#/Lab ID#: 165026  
Sample Matrix: water

REPORT OF ANALYSIS-cont.

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>
Naphthalene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	3.3	52.5	107.3	38
Phenanthrene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	0.2	56.5	108	36
Pyrene	<0.05	µg/L	0.05	<0.05	04/07/05	610 & 8270c	---	8.7	37.1	104.6	35.1



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Client: Environmental Plus, Inc.  
Attn: Iain Olness

Project ID: 2000-10410  
Sample Name: SMO32205MW-1

Report#/Lab ID#: 165026  
Sample Matrix: water

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
2-Fluorobiphenyl	610 & 8270c	53.5	30-110	---
Nitrobenzene-d5	610 & 8270c	55.3	12-110	---
Terphenyl-d14	610 & 8270c	47.9	25-110	---
1,2-Dichloroethane-d4	8260b	107	74-124	---
Toluene-d8	8260b	98.2	89-115	---

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

**Exceptions Report:**

**Report #/Lab ID#:** 165026 **Matrix:** water  
**Client:** Environmental Plus, Inc. **Attn:** Iain Olness  
**Project ID:** 2000-10410  
**Sample Name:** SMO32205MW-1

**Sample Temperature/Condition:** <=6°C.

The typical sample temperature criteria (except for metals by ICP, GFAA and AA and a very few other tests) is <=6°C. Possible exceptions include samples submitted to laboratory within such a short time after sampling that cooling measures used in the field and during transport had insufficient time to achieve desired temperatures in the samples (see sample collection and sample receipt times) and samples where the temperature could not be measured due to sample submission in a manner precluding temperature measurement without impacting sample integrity (ex. in a bottle with no cooler).

**Sample Bottles & Preservation:**

- Sample received in appropriate container(s) and appear to be appropriately preserved.
- Sample received in appropriate container(s). State of sample preservation unknown.
- Sample received in inappropriate container(s) and/or with unknown state of preservation.

**J flag Discussion:**

A J flag data qualifier indicates (as required under TCEQ-TRRP reporting requirements) that the raw calculated analyte concentration in the sample (uncorrected for background levels/blanks and other potential sources of sampling and analytical contamination), though less than the Reported Quantitation Limit (RQL) is greater than the Detection Limit. Because the reported result is below the quantitation limit for this project/sample (or test procedure), GC/MS organics results may or MAY NOT have been verified as to the presence and relative ratio of target ions (eg. the material causing the J flag "hit" in such situations may be nothing more than background ion-fragment noise.)

**Comments pertaining to Data Qualifiers and QC data:**

Parameter	Qualif	Comment
Benzol[a]pyrene	S, M	MS and/or MSD recoveries outside target recov. limits. LCS recovery in-limits; indicative of potential matrix interference as evidenced by M-flag.
Benzol[b]fluoranthene	S, M	MS and/or MSD recoveries outside target recov. limits. LCS recovery in-limits; indicative of potential matrix interference as evidenced by M-flag.
Benzol[g,h,i]perylene	S, M	MS and/or MSD recoveries outside target recov. limits. LCS recovery in-limits; indicative of potential matrix interference as evidenced by M-flag.
Benzol[j,k]fluoranthene	S, M	MS and/or MSD recoveries outside target recov. limits. LCS recovery in-limits; indicative of potential matrix interference as evidenced by M-flag.
Dibenz[a,h]anthracene	S, M	MS and/or MSD recoveries outside target recov. limits. LCS recovery in-limits; indicative of potential matrix interference as evidenced by M-flag.
Indeno[1,2,3-cd]pyrene	S, M	MS and/or MSD recoveries outside target recov. limits. LCS recovery in-limits; indicative of potential matrix interference as evidenced by M-flag.

**Notes:**

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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#:** 167103 **Report Date:** 05/19/05  
**Project ID:** 2000-10410  
**Sample Name:** SM032205MW-1  
**Sample Matrix:** water  
**Date Received:** 05/12/2005 **Time:** 13:00  
**Date Sampled:** 05/09/2005 **Time:** 14:55

**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	---		---		05/18/05	8260b(5030/5035)	---	---	---	---	---
Benzene	<1	µg/L	1	<1	05/18/05	8260b	---	0.6	90.2	96.8	97.5
Ethylbenzene	<1	µg/L	1	<1	05/18/05	8260b	---	3.1	113.1	106.8	128.7
m,p-Xylenes	<2	µg/L	2	<2	05/18/05	8260b	---	2.1	111.8	107.6	128
o-Xylene	<1	µg/L	1	<1	05/18/05	8260b	---	2.7	111	107.8	125.9
Toluene	<1	µg/L	1	<1	05/18/05	8260b	---	2.2	97.8	100.6	106.7

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Respectfully Submitted,  
  
 Dale Wagner

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Client: Environmental Plus, Inc.  
Attn: Ian Ohness

Project ID: 2000-10410  
Sample Name: SM032205MW-1

Report#/Lab ID#: 167103  
Sample Matrix: water

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
1,2-Dichloroethane-d4	8260b	100	74-124	---
Toluene-d8	8260b	108	89-115	---

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





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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#:** 170107 **Report Date:** 09/01/05  
**Project ID:** 2000-10410  
**Sample Name:** MW-1  
**Sample Matrix:** water  
**Date Received:** 08/23/2005 **Time:** 11:20  
**Date Sampled:** 08/17/2005 **Time:** 14:30

**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											
Benzene	<1	µg/L	1	<1	08/26/05	8260b	---	1.4	90.6	97.6	91.5
Ethylbenzene	<1	µg/L	1	<1	08/26/05	8260b	---	1.7	101	104.4	101.4
m,p-Xylenes	<2	µg/L	2	<2	08/26/05	8260b	---	1.4	100.8	105.4	102.1
o-Xylene	<1	µg/L	1	<1	08/26/05	8260b	---	0.8	93	109	105.8
Toluene	<1	µg/L	1	<1	08/26/05	8260b	---	2	97.7	104.8	98

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Respectfully Submitted,

*DW*

Dale Wagner

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**Client:** Environmental Plus, Inc.  
**Attn:** Iain Olness

**Project ID:** 2000-10410  
**Sample Name:** MW-1

**Report#/Lab ID#:** 170107  
**Sample Matrix:** water

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
1,2-Dichloroethane-d4	8260b	90.8	70-130	---
Toluene-d8	8260b	106	80-127	---

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

# 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

<b>Company Name:</b> Environmental Plus, Inc. <b>EPI Project Manager:</b> Iain Olness <b>Mailing Address:</b> P.O. BOX 1558 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> South Mattix <b>Project Reference:</b> 2000-10410 <b>Project Location:</b> UL-G, Sec. 15, T 24 S, R 37 E <b>EPI Sampler Name:</b> George Blackburn		<b>Bill To</b>  Attn: ENV Accounts Payable PO Box 4648, Houston, TX 77210-4648		<b>ANALYSIS REQUEST</b> TPH 8015M BTEX 8021B X CHLORIDES (Cl) SULFATES (SO <sub>4</sub> ) PH TCLP OTHER >>> PAH														
<b>LAB I.D.</b>  170107 1 MW-1 2 3 4 5 6 7 8 9 10	<b>SAMPLE I.D.</b>		(G)RAB OR (COMP.	# CONTAINERS	GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE	ICE/COOL	OTHER	PRESERV.	DATE	TIME	SAMPLING	
				4	X						X	X			17-Aug-05	14:30	X	

**Sampler Relinquished:** *[Signature]* Date: 8/22/05 Time: 3:30 Received By: *[Signature]*  
**Relinquished by:** *[Signature]* Date: 8/22/05 Time: 16:30 Relinquished By: (Lab staff) *[Signature]* 8/23/05  
**Delivered by:** *[Signature]* Sample Cool & Intact: Yes  No  Checked By: *[Signature]* 11:40

E-mail results to: iolness@envplus.net and cijreynolds@paaip.com

REMARKS:

T=5.20C



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 (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#:** 173921 **Report Date:** 11/29/05  
**Project ID:** 2000-10410 South Mattix  
**Sample Name:** MW-1  
**Sample Matrix:** water  
**Date Received:** 11/22/2005 **Time:** 10:30  
**Date Sampled:** 11/15/2005 **Time:** 07:00

**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	---		---		11/23/05	8260b(5030/5035)	---	---	---	---	---
Benzene	<1	µg/L	1	<1	11/23/05	8260b	---	3.4	109.3	117.4	152.6
Ethylbenzene	<1	µg/L	1	<1	11/23/05	8260b	---	2.4	115.3	122.5	114.5
m,p-Xylenes	<2	µg/L	2	<2	11/23/05	8260b	J	2.4	114	121.7	115
o-Xylene	<1	µg/L	1	<1	11/23/05	8260b	---	2.6	106.9	114.1	107.9
Toluene	<1	µg/L	1	<1	11/23/05	8260b	---	1.5	109	113.7	156.9

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program. © Copyright 2003, AnalySys, Inc., Austin, TX. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without the express written consent of AnalySys, Inc.  
 Respectfully Submitted,  
  
 Richard Elton

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.



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**Client:** Environmental Plus, Inc.  
**Attn:** Iain Olness

**Project ID:** 2000-10410 South Mattux  
**Sample Name:** MW-1

**Report#/Lab ID#:** 173921  
**Sample Matrix:** water

**REPORT OF SURROGATE RECOVERY**

Surrogate Compound	Method	Recovery	Recovery Limits	Data Qualifiers
1,2-Dichloroethane-d4	8260b	91.6	70-130	---
Toluene-d8	8260b	101	80-127	---

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

**Exceptions Report:**

**Report #/Lab ID#:** 173921 **Matrix:** water  
**Client:** Environmental Plus, Inc. **Attn:** Iain Olness  
**Project ID:** 2000-10410 South Mattix  
**Sample Name:** MW-1

**Sample Temperature/Condition:** <=6°C

The typical sample temperature criteria (except for metals by ICP, GFAA and AA and a very few other tests) is <= 6°C. Possible exceptions include samples submitted to laboratory within such a short time after sampling that cooling measures used in the field and during transport had insufficient time to achieve desired temperatures in the samples (see sample collection and sample receipt times) and samples where the temperature could not be measured due to sample submission in a manner precluding temperature measurement without impacting sample integrity (ex. in a bottle with no cooler).

**Sample Bottles & Preservation:**

- Sample received in appropriate container(s) and appear to be appropriately preserved.
- Sample received in appropriate container(s). State of sample preservation unknown.
- Sample received in inappropriate container(s) and/or with unknown state of preservation.

**J flag Discussion:**

A J flag data qualifier indicates (as required under TCEQ-TRRP reporting requirements) that the raw calculated analyte concentration in the sample (uncorrected for background levels/blanks and other potential sources of sampling and analytical contamination), though less than the Reported Quantitation Limit (RQL) is greater than the Detection Limit. Because the reported result is below the quantitation limit for this project/sample (or test procedure), GC/MS organics results may or MAY NOT have been verified as to the presence and relative ratio of target ions (eg. the material causing the J flag "hit" in such situations may be nothing more than background ion-fragment noise.)

**Comments pertaining to Data Qualifiers and QC data:**

Parameter	Qualif	Comment
m,p-Xylenes	J	See J-flag discussion above.

**Notes:**

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# AnalySys Inc.

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# Chain of Custody Form

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

<b>Company Name:</b> Environmental Plus, Inc. <b>EPI Project Manager:</b> Iain Olness <b>Mailing Address:</b> P.O. BOX 1558 <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> South Mattix <b>Project Reference:</b> 2000-10410 <b>Project Location:</b> UL-G, Sec. 15, T 24 S, R 37 E <b>EPI Sampler Name:</b> George Blackburn		<b>Bill To</b>  Attn: ENV Accounts Payable PO Box 4648, Houston, TX 77210-4648		<b>ANALYSIS REQUEST</b> TPH 8015M CHLORIDES (Cl) SULFATES (SO <sub>4</sub> ) PH TCLP OTHER >> PAH														
<b>LAB I.D.</b>  17321 1 MW-1 2 3 4 5 6 7 8 9 10	<b>SAMPLE I.D.</b>		(G)RAB OR (C)OMP.	# CONTAINERS	GROUND WATER X	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE	ICE/COOL	X	OTHER	DATE	TIME	BTEX 8021B	X
	Matrix: MATRIX PRESERV. SAMPLING																	
	Remarks: E-mail results to: iolness@envplus.net and cjreynolds@paalp.com																	
	Date: 11-21-05 Time: 7:00 Received By: (lab staff) Papi Pella Date: 11-21-05 Time: 10:30 AM Received By: ASI Sample Cool & Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Checked By:																	
	Relinquished by: Jaron Atzenmiller Delivered by:																	
	Temp: 2.1°																	

**APPENDIX B**

**NMOCD Approval Letter for**

*Soil Characterization*

*and*

*Interim Remediation Plan (January 2006)*



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joanna Prukop**

Cabinet Secretary

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

Director

Oil Conservation Division

January 30, 2006

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

RE: Soil Characterization Report and Interim Remediation Plan  
Prepared by Environmental Plus, Inc. and Dated January 2006  
Plains All American Pipeline, L.P. South Mattix Release Site  
Plains Reference 2000-10410 Located in the  
SW/4 NE/4 of Section 15, Township 24 South, Range 37 East  
NMPM, Lea County New Mexico  
NMOCD Reference Number 1R-0091

Dear Ms. Reynolds:

The New Mexico Oil Conservation Division (NMOCD) has reviewed the above plan submitted by Plains All American Pipeline, L.P. (Plains). This plan is hereby approved with the following understandings and conditions:

1. Plains will complete an excavation, five feet below ground surface, in the area outlined in Figure 9 or the plan.
2. Samples will be collected from the sidewalls of such excavation. Such samples shall be analyzed for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylene (BTEX). Sample analyses results shall be submitted to the NMOCD Santa Fe office prior to the installation of any impermeable barrier in the bottom of the excavation or backfilling operations.
3. Upon further approval by the NMOCD, Plains will install an impermeable barrier in the base of the excavation to prevent further migration of contaminants. Material to be used for this barrier shall be proposed in the report referred to in #2 above.
4. Upon further NMOCD approval, Plains will backfill the excavation with clay and caliche.
5. Groundwater monitoring shall continue at this site.

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: Iain Olness, EPI