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**Annual GW Mon.  
REPORTS**

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ANNUAL MONITORING REPORT

LEA MAR 18 PM 1 27

**MONUMENT 18**  
NW ¼ NW ¼ SECTION 7, TOWNSHIP 20 SOUTH, RANGE 37 EAST  
LEA COUNTY, NEW MEXICO  
PLAINS SRS NUMBER: TNM MONUMENT 18-KNOWN  
NMOCD Reference 1R-0124

Prepared For:

**PLAINS MARKETING, L.P.**  
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Prepared By:

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January 2009

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Project Manager

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President

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### **ENCLOSED ON DATA DISK**

2008 Annual Monitoring Report

2008 Tables 1, 2 and 3 – Groundwater Elevation, BTEX, TPH and PAH Concentration Data

2008 Figures 1, 2A-2D, and 3A-3D

Electronic Copies of Laboratory Reports

Historic Table 1 and 2 – Groundwater Elevation and BTEX, TPH, PAH Concentration Tables

## **INTRODUCTION**

On behalf of Plains Marketing, L.P., (Plains), NOVA Safety and Environmental (NOVA) is pleased to submit this Annual Monitoring Report in compliance with the New Mexico Oil Conservation Division (NMOCD) letter of May 1998, requiring submittal of an Annual Monitoring Report by April 1 of each year. Beginning on May 29, 2004, project management responsibilities were assumed by NOVA. The Monument 18 Site (the site), formally the responsibility of Enron Oil Trading and Transportation (EOTT), is now the responsibility of Plains. This report is intended to be viewed as a complete document with figures, attachments, tables and text. The report presents the results of the quarterly groundwater monitoring events conducted in calendar year 2008 only. For reference, the Site Location Map is provided as Figure 1. Cumulative tables and laboratory data are provided on the enclosed data disk.

Groundwater monitoring was conducted each quarter of 2008 to assess the levels and extent of dissolved phase constituents and Phase Separated Hydrocarbon (PSH). The groundwater monitoring events consisted of measuring static water levels in the monitor wells, checking for the presence of PSH and purging and sampling of each well exhibiting sufficient recharge. Monitor wells containing a thickness of PSH greater than 0.01 foot were sampled as per a NMOCD directive.

## **SITE DESCRIPTION AND BACKGROUND INFORMATION**

The legal description of the site is NW ¼ NW ¼, Section 7, Township 20 South, Range 37 East, Lea County, New Mexico. No information with respect to the release date or volume of crude oil released and recovered is available as the release occurred while the pipeline was operated by Texas New Mexico Pipeline Company (TNM). The Release Notification and Corrective Action Form (C-141) is provided as Appendix A.

Currently, there are nine monitor wells (MW-1 and MW-3 through MW-10) on site. Manual recovery of PSH is performed on a weekly schedule.

## **FIELD ACTIVITIES**

### **Product Recovery Efforts**

A measurable thickness of PSH was present in monitor well MW-4 during the 4<sup>th</sup> quarter of the reporting period. PSH thickness in monitor well MW-4 measured 0.38 feet. The average PSH thickness in monitor wells containing PSH was 0.25 feet. PSH data for the 2008 gauging events can be found in Table 1. Approximately 6.5 gallons (approximately 0.15 barrels) of PSH was recovered from the site during the 2008 reporting period. Approximately 305 gallons (7.25 barrels) of PSH have been recovered since project inception. Recovery of PSH at the site is by manual recovery methods and is monitored on a weekly schedule. Monitor wells MW-1 and MW-3 exhibited a sheen throughout the 2008 reporting period.

### **Groundwater Monitoring**

Quarterly monitoring events for the reporting period were performed according to the following sampling schedule, which was approved by the NMOCD in correspondence dated April 28, 2004 and amend by NMOCD correspondence dated June 22, 2005.

NMOCD APPROVED SAMPLING SCHEDULE			
Location	Schedule	Location	Schedule
MW-1	Quarterly	MW-6	Annually
MW-2	Plugged and Abandoned	MW-7	Annually
MW-3	Quarterly	MW-8	Annually
MW-4	Quarterly	MW-9	Quarterly
MW-5	Semi-Annually	MW-10	Quarterly

The site monitor wells were gauged and sampled on February 7, May 6, August 6, and November 5, 2008. During each sampling event the monitor wells were purged of a minimum of three well volumes of water or until the wells were dry using a disposable polyethylene bailer or electrical Grundfos pump. Groundwater was allowed to recharge and samples were obtained using disposable Teflon samplers. Water samples were collected in clean glass containers provided by the laboratory and placed on ice in the field. Purge water was collected in a polystyrene tank and disposed of at a licensed disposal facility.

Locations of the monitor wells and the inferred groundwater gradient, which were constructed from measurements collected during the four quarterly monitoring events, are depicted on Figures 2A through 2D, the Inferred Groundwater Gradient Maps. Groundwater elevation data for 2008 is provided as Table 1. Historic groundwater elevation data beginning at project inception is provided on the enclosed data disk.

The most recent Groundwater Gradient Map, Figure 2D, indicates a general gradient of approximately 0.001 feet/foot to the southeast. This is consistent with data presented on Figures 2A through 2C from earlier in the year. The corrected groundwater elevations ranged between 3,526.37 to 3,527.62 feet above mean sea level, in monitor well MW-4 on October 30, 2008 and in monitor well MW-3 on January 22, 2008, respectively.

## LABORATORY RESULTS

Groundwater samples obtained during the quarterly sampling events of 2008 were delivered to TraceAnalysis, Inc. in Midland, Texas for determination of Benzene, Toluene, Ethylbenzene and Xylene (BTEX) constituent concentrations by EPA Method 8021B, and Polynuclear Aromatic Hydrocarbons (PAH) concentrations by EPA Method 8270C. Monitoring wells containing measurable amounts of PSH were analyzed for Total Petroleum Hydrocarbons (TPH) concentrations by EPA Method 8015M. A listing of BTEX and TPH constituent concentrations for 2008 are summarized in Table 2 and the PAH constituent concentrations for 2008 are summarized in Table 3. Copies of the laboratory reports generated for 2008 are provided on the enclosed data disk. The quarterly groundwater sample results for BTEX constituent concentrations are depicted on Figures 3A through 3D.

**Monitor well MW-1** is sampled on a quarterly schedule and was inadvertently not sampled during the 1<sup>st</sup> quarter of the reporting period. Analytical results indicate benzene concentrations ranged from <0.005 mg/L during the 3<sup>rd</sup> quarter to 0.0203 mg/L during the 2<sup>nd</sup> quarter of 2008. Benzene concentrations were above NMOCD regulatory standards of 0.01 mg/L, for the 2<sup>nd</sup> and 4<sup>th</sup> quarters of the reporting period. Toluene concentrations ranged from <0.005 mg/L during the 2<sup>nd</sup> and 3<sup>rd</sup> quarters to 0.004 mg/L during the 4<sup>th</sup> quarter of 2008. Toluene concentrations were below the NMOCD regulatory standard of 0.75 mg/L during the three quarters of the reporting

period. Ethyl-benzene concentrations ranged from <0.005 mg/L during the 3<sup>rd</sup> quarter to 0.0116 mg/L during the 4<sup>th</sup> quarter of 2008. Ethyl-benzene concentrations were below NMOCD regulatory standard of 0.75 mg/L, during the three quarters of the reporting period. Xylene concentrations ranged from 0.0243 mg/L during the 3<sup>rd</sup> quarter to 0.0356 mg/L during the 2<sup>nd</sup> quarter of 2008. Xylene concentrations were below NMOCD regulatory standard of 0.62 mg/L, during the three quarters of the reporting period. Laboratory analysis for PAH indicated during the 4<sup>th</sup> quarter sampling event elevated concentrations above WQCC Drinking Water Standards of 1-methylnaphthalene (0.0678 mg/L), and 2- methylnaphthalene (0.0197 mg/L). Additional PAH constituents detected above method detection limits (MDLs) include naphthalene (0.00796 mg/L), anthracene (0.00362 mg/L), fluorine (0.0169 mg/L), phenanthrene (0.0165 mg/L), and dibenzofuran (0.0134 mg/L).

**Monitor well MW-3** is sampled on a quarterly schedule and was inadvertently not sampled during the 1<sup>st</sup> quarter of the reporting period. Analytical results indicate benzene concentrations ranged from 0.0285 mg/L during the 3<sup>rd</sup> quarter to 0.1150 mg/L during the 1<sup>st</sup> quarter of 2008. Benzene concentrations were above the NMOCD regulatory standard during the three quarters of the reporting period. Toluene concentrations ranged from <0.005 mg/L during the 3<sup>rd</sup> and 4<sup>th</sup> quarters to 0.0868 mg/L during the 2<sup>nd</sup> quarter of 2008. Toluene concentrations were below NMOCD regulatory standard during the three quarters of the reporting period. Ethylbenzene concentrations ranged from 0.0091 mg/L during the 3<sup>rd</sup> quarter to 0.0413 mg/L during the 2<sup>nd</sup> quarter of 2008. Ethyl-benzene concentrations were below NMOCD regulatory standard during the three quarters of the reporting period. Xylene concentrations ranged from 0.0324 mg/L during the 3<sup>rd</sup> quarter to 0.127 mg/L during the 1<sup>st</sup> quarter of 2008. Xylene concentrations were below NMOCD regulatory standard during the three quarters of the reporting period. Laboratory analysis for PAH indicated during the 4<sup>th</sup> quarter sampling event elevated concentrations above WQCC Drinking Water Standards of 1-methylnaphthalene (0.0563 mg/L), and 2-methylnaphthalene (0.0259 mg/L). Additional PAH constituents detected above MDLs include naphthalene (0.0076 mg/L), anthracene (0.0018 mg/L), fluorine (0.0131 mg/L), phenanthrene (0.0187 mg/L), and dibenzofuran (0.0122 mg/L).

**Monitor well MW-4** is sampled on a quarterly schedule. Analytical results indicate benzene concentrations ranged from 0.0135 mg/L during the 3<sup>rd</sup> quarter to 0.0744 mg/L during the 1<sup>st</sup> quarter of 2008. Benzene concentrations were above NMOCD regulatory standard during all four quarters of the reporting period. Toluene concentrations were below the MDL of <0.001 mg/L and <0.005 mg/L during all four quarters of the reporting period. Toluene concentrations were below the NMOCD regulatory standard during all four quarters of the reporting period. Ethyl-benzene concentrations ranged from 0.0252 mg/L during the 3<sup>rd</sup> quarter to 0.137 mg/L during the 1<sup>st</sup> quarter of 2008. Ethyl benzene concentrations were below NMOCD regulatory standard during all four quarters of the reporting period. Xylene concentrations ranged from 0.0185 mg/L during the 3<sup>rd</sup> quarter to 0.126 mg/L during the 1<sup>st</sup> quarter of 2008. Xylene concentrations were below NMOCD regulatory standard during all four quarters of the reporting period. Analytical results for TPH indicated a total concentration of 85 mg/L. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated elevated concentrations above WQCC Drinking Water Standards for naphthalene (0.00378 mg/L), 1-methylnaphthalene (0.163 mg/L), 2-methylnaphthalene (0.00778 mg/L), fluorine (0.00648 mg/L), phenanthrene (0.0084 mg/L), and dibenzofuran (0.00584 mg/L).

**Monitor well MW-5** is sampled on a semi-annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 1<sup>st</sup> and 4<sup>th</sup> quarter sampling events. Monitor well MW-5 has exhibited 30 consecutive monitoring events below NMOCD regulatory limits. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated elevated concentrations above MDLs for naphthalene (0.001 mg/L) and dibenzofuran (0.000825 mg/L), which are below the WQCC Drinking Water Standards.

**Monitor well MW-6** is sampled on an annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 4<sup>th</sup> quarter sampling event. Monitor well MW-6 has exhibited 24 consecutive monitoring events below NMOCD regulatory limits. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated elevated concentrations above MDLs for dibenzofuran (0.000429 mg/L), which are below the WQCC Drinking Water Standards.

**Monitor well MW-7** is sampled on an annual schedule. Analytical results indicate a benzene concentration of 0.0027 mg/L and an ethyl-benzene concentration of 0.0026 mg/L during the 4<sup>th</sup> quarter of the reporting period. Analytical results indicate benzene, toluene, ethyl-benzene and xylenes concentrations were below the NMOCD regulatory standards for each BTEX constituent during the 4<sup>th</sup> quarter sampling event. Monitor well MW-7 has exhibited 23 consecutive monitoring events below NMOCD regulatory limits. Laboratory analysis for PAH during the 4<sup>th</sup> quarter sampling event indicated elevated concentrations above WQCC Drinking Water Standards of benzo[a]anthracene (0.000403 mg/L), and chrysene (0.000371 mg/L). Additional PAH constituents detected above MDLs include anthracene (0.000538 mg/L), fluoranthene (0.000407 mg/L), phenanthrene (0.000577 mg/L), pyrene (0.000443 mg/L), dibenzofuran (0.000774 mg/L).

**Monitor well MW-8** is sampled on an annual schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the 4<sup>th</sup> quarter sampling event. Monitor well MW-8 has exhibited 23 consecutive monitoring events below NMOCD regulatory limits. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated elevated concentrations above MDLs for dibenzofuran (0.00067 mg/L), which are below the WQCC Drinking Water Standards.

**Monitor well MW-9** is sampled on a quarterly schedule. Analytical results indicate a total xylenes concentration of 0.0039 mg/L during the 2<sup>nd</sup> quarter of the reporting period and analytical results indicate BTEX constituent concentrations were below the MDL and/or NMOCD regulatory standards for each BTEX constituent during the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> quarters of the reporting period. Monitor well MW-9 has exhibited 17 consecutive monitoring events below NMOCD regulatory limits. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated no elevated concentrations were detected above the respective MDLs.

**Monitor well MW-10** is sampled on a quarterly schedule and analytical results indicate BTEX constituent concentrations were below the MDL and NMOCD regulatory standards for each BTEX constituent during the each quarter of the reporting period. Monitor well MW-10 has exhibited 17 consecutive monitoring events below NMOCD regulatory limits. PAH analysis during the 4<sup>th</sup> quarter sampling event indicated no elevated concentrations were detected above the respective MDLs.

Laboratory analytical results were compared to NMOCD regulatory limits based on the New Mexico groundwater standards found in section 20.6.2.3103 of the New Mexico Administrative Code.

### **SUMMARY**

This report presents the results of monitoring activities for the 2008 annual monitoring period. Currently, there are nine groundwater monitor wells (MW-1 and MW-3 through MW-10) on site. Recovery of PSH at the site is achieved using manual recovery methods and is monitored on a weekly schedule. The most recent Groundwater Gradient Map, Figure 2D, indicates a general gradient of approximately 0.001 feet/foot to the southeast.

As discussed above, one monitor well contained measurable PSH thicknesses during 2008. PSH thicknesses have fluctuated, with an overall increasing trend throughout the 2008 reporting period, with an average PSH thickness of 0.25 feet in monitor well MW-4. Monitor wells MW-1 and MW-3 exhibited a sheen throughout the 2008 reporting period.

BTEX constituent concentrations were below NMOCD regulatory standards in six of the nine monitor wells during 2008. There was one monitor well (MW-4) containing measurable thicknesses of PSH during the annual monitoring period. Dissolved phase and phase separated hydrocarbon impact appears to be limited to monitor wells MW-1, MW-3 and MW-4. Groundwater samples from MW-4 exhibited elevated TPH concentrations for GRO and DRO. Analytical results on groundwater samples collected indicate PAH distributions mirrored those of BTEX distributions over the site.

### **ANTICIPATED ACTIONS**

Quarterly monitoring, PSH recovery (as necessary) and groundwater sampling will continue in 2009. Manual product recovery and gauging will be conducted on a weekly schedule and will be adjusted according to site conditions.

### **LIMITATIONS**

NOVA has prepared this Annual Monitoring Report to the best of its ability. No other warranty, expressed or implied, is made or intended.

NOVA has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. NOVA has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. NOVA has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. NOVA also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Plains. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of NOVA and/or Plains.

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Oil Conservation Division  
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Santa Fe, NM 87505

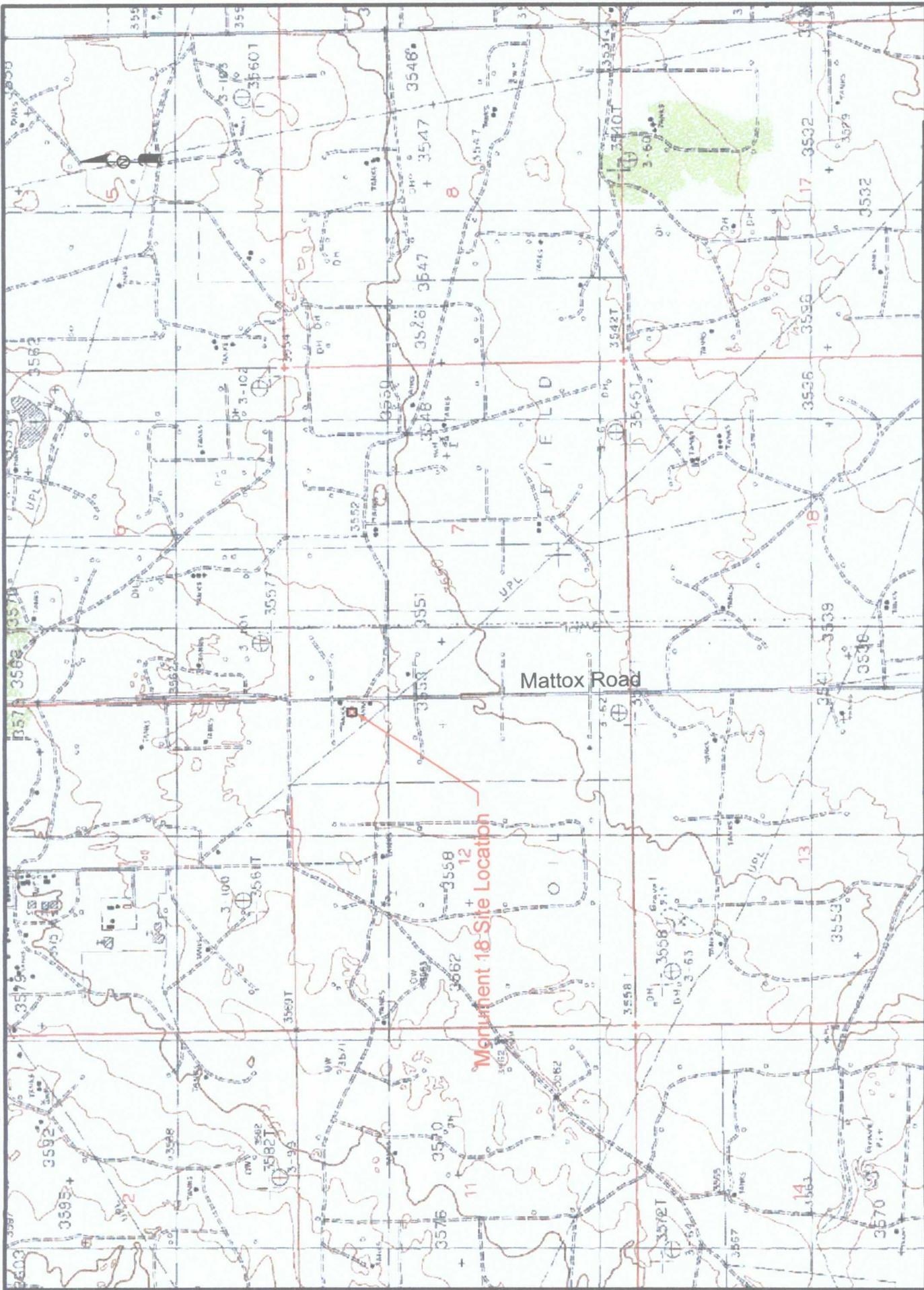
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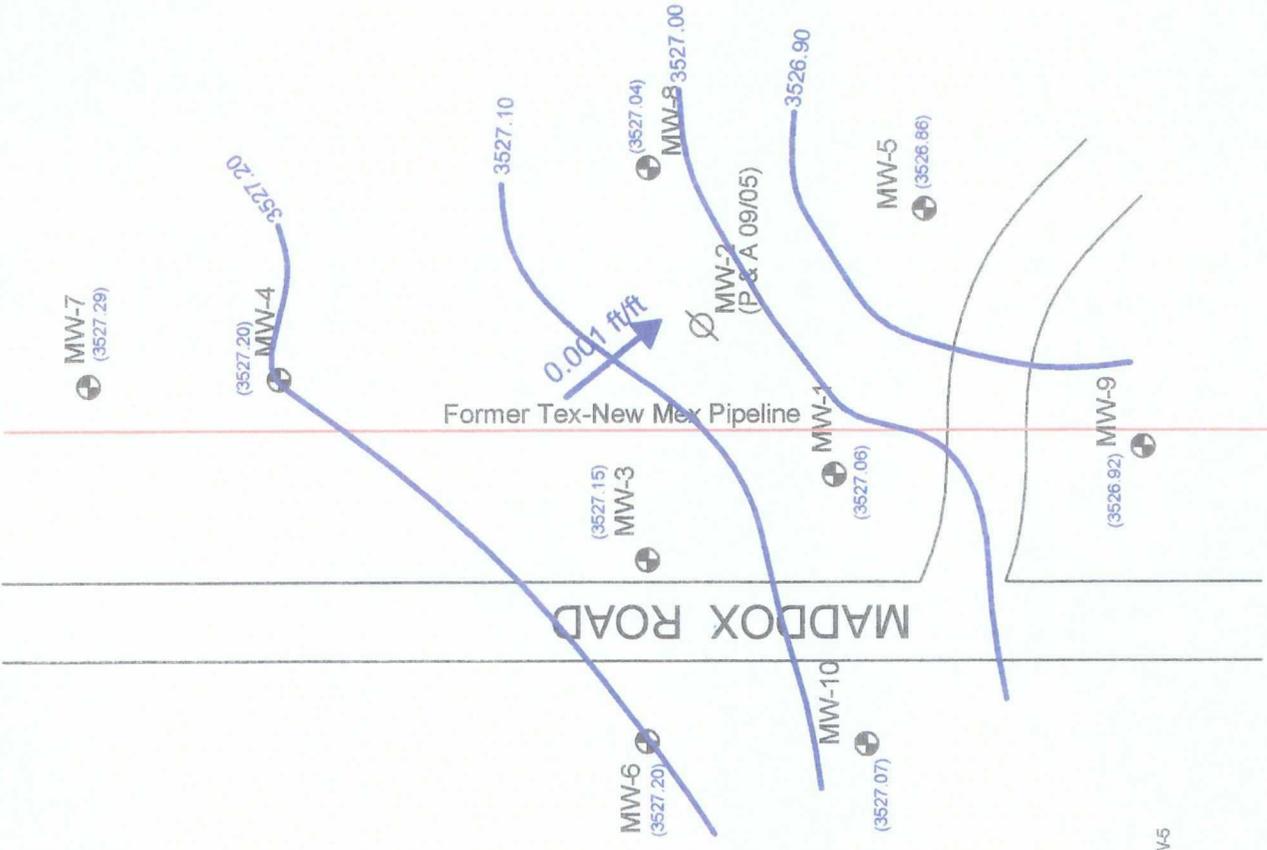
Figures



**Figure 1**  
 Site Location Map  
 Plains Marketing, L.P.  
 Monument 18  
 Lea County, NM

NW1/4 NW1/4 Sec 7 T20S R37E  
 NE1/4 NE1/4 Sec 12 T20S R36E  
 NMOCD Reference #1R-0124





**NOTE:**  
 Contour Interval = 0.10'  
 Groundwater Gradient Measured Between MW-3 and MW-5



- Legend:**
- Monitor Well Locations
  - Ground Water Contour Lines
  - Plugged and Abandoned

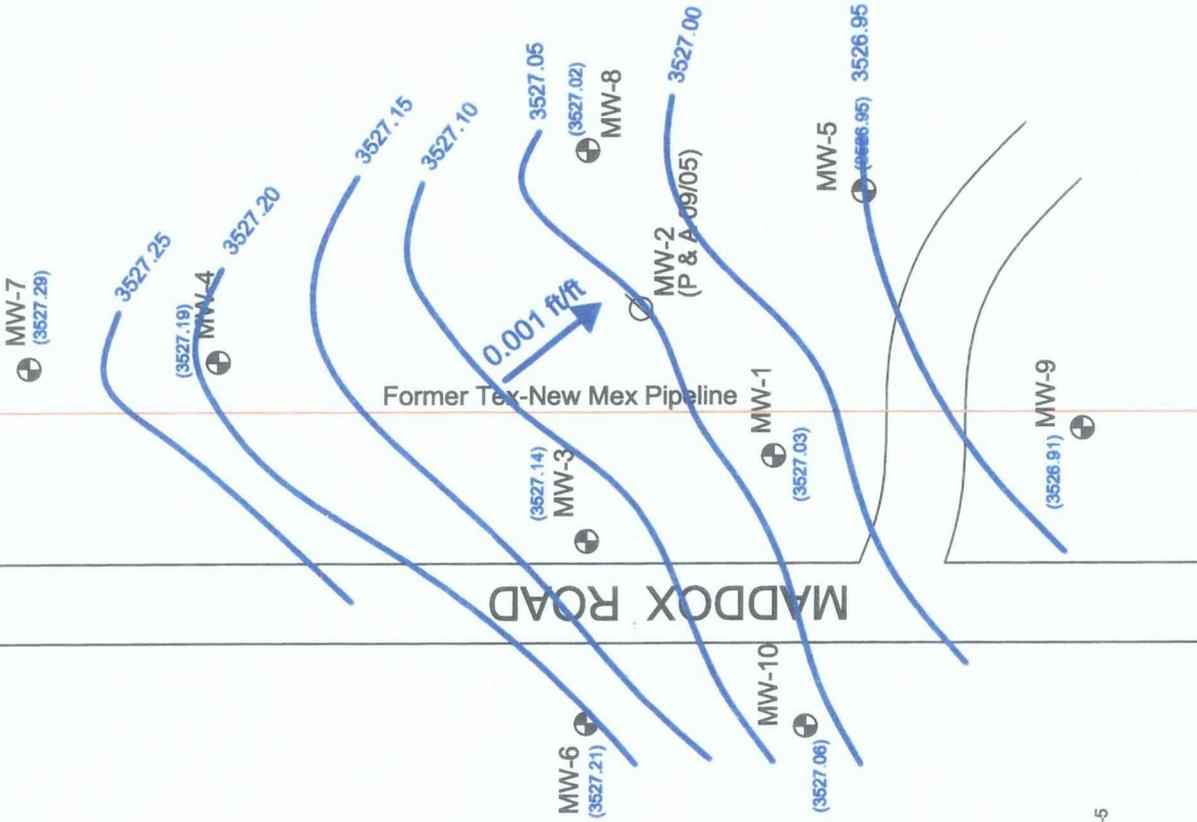
- (3587.54) Groundwater Elevation
- 0.001 ft/ft Groundwater Gradient and Magnitude

Figure 2A  
 Inferred Groundwater  
 Gradient Map  
 (02/07/08)  
 Plains Marketing, L.P.  
 Monument 16  
 Lea County, NM  
 NMOCD Ref# 1R-0124

NOVA Safety and Environmental



Scale: 1" = 80'  
 CAD By: DGC  
 Checked By: CDS  
 October 9, 2008



NOTE:  
 Contour Interval = 0.05'  
 Groundwater Gradient Measured Between MW-3 and MW-5



- Legend:
- Monitor Well Locations
  - Ground Water Contour Lines
  - Plugged and Abandoned
  - Groundwater Elevation
  - Groundwater Gradient and Magnitude

Figure 2B  
 Inferred Groundwater  
 Gradient Map  
 (05/06/08)  
 Plains Marketing, L.P.  
 Monument 18  
 Lea County, NM  
 NMOCD Ref# 1R-0124



**NOTE:**  
 Contour Interval = 0.10'  
 Groundwater Gradient Measured Between MW-3 and MW-5



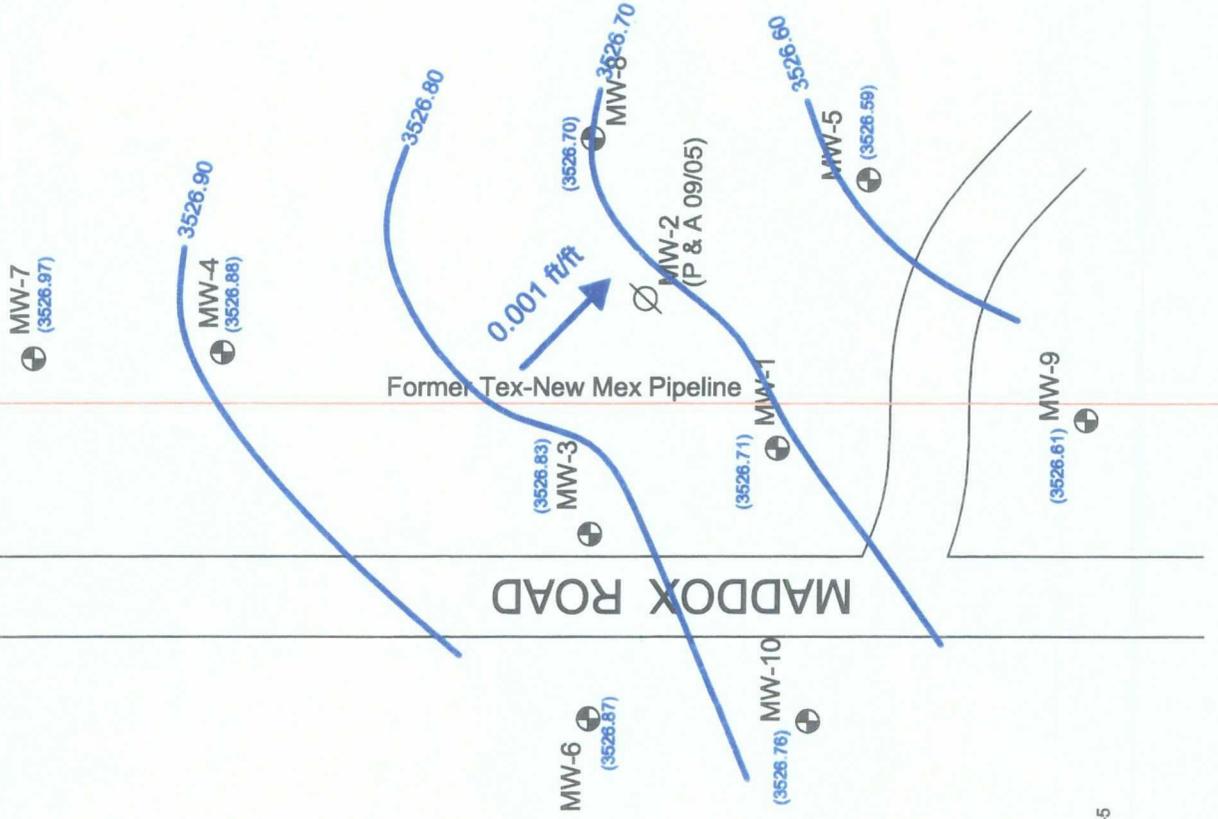
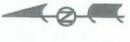
- Legend:**
- Monitor Well Locations
  - Ground Water Contour Lines
  - Plugged and Abandoned

- (3526.54) Groundwater Elevation
- 0.001 ft/ft Groundwater Gradient and Magnitude

**Figure 2C**  
 Inferred Groundwater  
 Gradient Map  
 (08/06/08)  
 Plains Marketing, L.P.  
 Monument 18  
 Lea County, NM  
 NMOCID Ref# 1R-0124

**NOVA Safety and Environmental**

Scale: 1" = 60'  
 CAD By: DGC  
 Checked By: CDS  
 October 9, 2008



**NOTE:**  
 Contour Interval = 0.10'  
 Groundwater Gradient Measured Between MW-3 and MW-5



- Legend:**
- Monitor Well Locations
  - Ground Water Contour Lines
  - Plugged and Abandoned
  - Groundwater Elevation
  - Groundwater Gradient and Magnitude

Figure 2D  
 Inferred Groundwater  
 Gradient Map  
 (11/05/08)  
 Plains Marketing, L.P.  
 Monument 1b  
 Lea County, NM  
 NMOCD Ref# 1R-0124



MW-7  
(NS)

MW-4

**Benzene** 0.0744 mg/L  
Toluene <0.005 mg/L  
Ethylbenzene 0.137 mg/L  
Xylene 0.126 mg/L

MW-3  
(NS)

MW-2  
(P & A 09/05)

MW-6

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

MW-10

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

MW-1  
(NS)

MW-5

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

MW-9

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

MADDOX ROAD

Former Tex-New Mex Pipeline

**NOTE:**

• Bold indicates Concentration Above NMOCD Regulatory Standards.



**Legend:**

⊕ Monitor Well Location

— Pipeline

⊘ Plugged and Abandoned

Inferred PSH Extent

<0.001 Constituent Concentration (mg/L)

Thickness of PSH (feet)

(NS) Not Sampled

Figure 3A  
Groundwater Concentration  
and Inferred PSH Extent Map  
of the Former Tex-New Mex  
Pipeline

Platts Marketing, L.P.  
Monument 8  
Lea County, NM  
NMOCD Ref# 1R-0124



MW-7  
(NS)

MW-4

**Benzene 0.0541 mg/L**  
Toluene <0.001 mg/L  
Ethylbenzene 0.0773 mg/L  
Xylene 0.0622 mg/L

(NS) MW-8

MW-2  
(P & A 09/05)

**Benzene 0.0203 mg/L**  
Toluene <0.005 mg/L  
Ethylbenzene 0.0107 mg/L  
Xylene 0.0356 mg/L

(NS) MW-5

Former Tex-New Mex Pipeline

MW-9

**Benzene <0.001 mg/L**  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene 0.0039 mg/L

MADDOX ROAD

MW-3

(NS) MW-6

**Benzene 0.115 mg/L**  
Toluene 0.0868 mg/L  
Ethylbenzene 0.0413 mg/L  
Xylene 0.127 mg/L

MW-10

**Benzene <0.001 mg/L**  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

**NOTE:**

• Bold indicates Concentration Above NMOC Regulatory Standards.



**Legend:**

- Monitor Well Location
- Pipeline
- Plugged and Abandoned

- Inferred PSH Extent
- Constituent Concentration (mg/L)
- Thickness of PSH (feet)

(NS) Not Sampled

Figure 3B

Groundwater Concentration and Inferred PSH Extent Map (08/08/08) Phase 1, L.P. Monument #8 Lea County, NM NMOCD Ref# 1R-0124



MW-7  
(NS)

MW-4

Benzene 0.0135 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene 0.0252 mg/L  
Xylene 0.0185 mg/L

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

MW-8

Benzene <0.005 mg/L  
Toluene <0.005 mg/L  
Ethylbenzene <0.005 mg/L  
Xylene 0.0243 mg/L

MW-5  
(NS)

MW-2  
(P & A 09/05)

Former Tex-New Mex Pipeline

MW-1

MW-9

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

MADDOX ROAD

MW-3

MW-6  
(NS)

Benzene 0.285 mg/L  
Toluene <0.005 mg/L  
Ethylbenzene 0.0091 mg/L  
Xylene 0.0324 mg/L

MW-10

Benzene <0.001 mg/L  
Toluene <0.001 mg/L  
Ethylbenzene <0.001 mg/L  
Xylene <0.001 mg/L

**NOTE:**

• Bold indicates Concentration Above NMCCD Regulatory Standards.



**Legend:**

- Monitor Well Location
- Pipeline
- Plugged and Abandoned

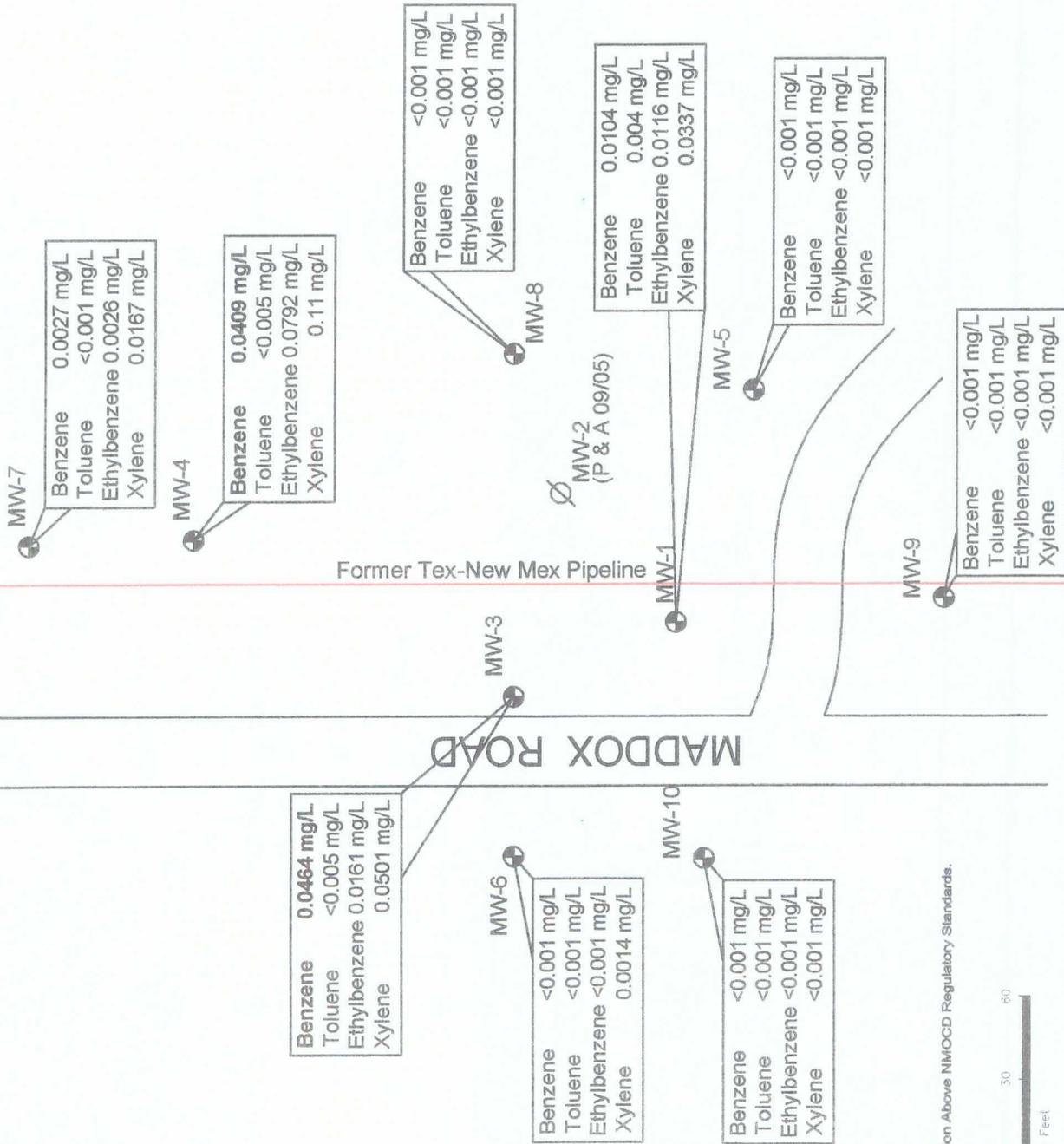
- Inferred PSH Extent
- Constituent Concentration (mg/L)
- Thickness of PSH (feet)

(NS) Not Sampled

**Figure 3C**  
Groundwater Concentration  
and Inferred PSH Extent Map

Plains Water Services, L.P.  
Monument 18  
Lea County, NM  
NMCCD Ref# 1R-0124





**NOTE:**  
 • Bold Indicates Concentration Above NIMOCED Regulatory Standards.



- Legend:**
- Monitor Well Location
  - Pipeline
  - ⊘ Plugged and Abandoned
  - Inferred PSH Extent
  - <0.001 Constituent Concentration (mg/L)
  - Thickness of PSH (feet)
  - (NS) Not Sampled

**Figure 3D**  
 Groundwater Concentration and Inferred PSH Extent Map  
 (10/09/05)  
 Plains Monument # L.P.  
 Lea County, NM  
 NIMOCED Ref# 1R-0124



# Tables

TABLE 1

## 2008 - GROUNDWATER ELEVATION DATA

PLAINS MAREKTING, L.P.  
 MONUMENT 18  
 LEA COUNTY, NEW MEXICO  
 NMOCD REFERENCE NUMBER 1R-0124

SAMPLE LOCATION	SAMPLE DATE	TOP OF CASING ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUND WATER ELEVATION
MW - 1	01/11/08	3,558.71	sheen	31.64	0.00	3,527.07
MW - 1	01/17/08	3,558.71	sheen	31.66	0.00	3,527.05
MW - 1	01/22/08	3,558.71	sheen	31.66	0.00	3,527.05
MW - 1	02/07/08	3,558.71	sheen	31.65	0.00	3,527.06
MW - 1	02/13/08	3,558.71	sheen	31.64	0.00	3,527.07
MW - 1	02/21/08	3,558.71	sheen	33.65	0.00	3,525.06
MW - 1	02/29/08	3,558.71	sheen	31.68	0.00	3,527.03
MW - 1	03/14/08	3,558.71	sheen	31.63	0.00	3,527.08
MW - 1	03/20/08	3,558.71	sheen	31.66	0.00	3,527.05
MW - 1	04/03/08	3,558.71	sheen	31.68	0.00	3,527.03
MW - 1	04/10/08	3,558.71	sheen	31.64	0.00	3,527.07
MW - 1	04/17/08	3,558.71	sheen	31.69	0.00	3,527.02
MW - 1	04/24/08	3,558.71	sheen	31.67	0.00	3,527.04
MW - 1	05/01/08	3,558.71	sheen	31.69	0.00	3,527.02
MW - 1	05/06/08	3,558.71	sheen	31.68	0.00	3,527.03
MW - 1	05/08/08	3,558.71	sheen	31.66	0.00	3,527.05
MW - 1	05/15/08	3,558.71	sheen	31.69	0.00	3,527.02
MW - 1	05/20/08	3,558.71	sheen	31.70	0.00	3,527.01
MW - 1	05/30/08	3,558.71	sheen	31.74	0.00	3,526.97
MW - 1	06/04/08	3,558.71	sheen	31.73	0.00	3,526.98
MW - 1	06/12/08	3,558.71	sheen	31.80	0.00	3,526.91
MW - 1	06/17/08	3,558.71	sheen	31.86	0.00	3,526.85
MW - 1	06/24/08	3,558.71	sheen	31.88	0.00	3,526.83
MW - 1	07/03/08	3,558.71	sheen	31.92	0.00	3,526.79
MW - 1	07/09/08	3,558.71	sheen	31.92	0.00	3,526.79
MW - 1	07/14/08	3,558.71	sheen	31.91	0.00	3,526.80
MW - 1	07/23/08	3,558.71	sheen	31.89	0.00	3,526.82
MW - 1	08/05/08	3,558.71	sheen	31.92	0.00	3,526.79
MW - 1	08/06/08	3,558.71	sheen	31.88	0.00	3,526.83
MW - 1	08/11/08	3,558.71	sheen	31.94	0.00	3,526.77
MW - 1	08/28/08	3,558.71	sheen	32.02	0.00	3,526.69
MW - 1	09/25/08	3,558.71	sheen	32.02	0.00	3,526.69
MW - 1	09/30/08	3,558.71	sheen	32.01	0.00	3,526.70
MW - 1	10/07/08	3,558.71	sheen	32.01	0.00	3,526.70
MW - 1	10/15/08	3,558.71	sheen	32.08	0.00	3,526.63
MW - 1	10/22/08	3,558.71	sheen	32.06	0.00	3,526.65
MW - 1	10/30/08	3,558.71	sheen	32.11	0.00	3,526.60
MW - 1	11/05/08	3,558.71	sheen	32.00	0.00	3,526.71
MW - 1	11/07/08	3,558.71	sheen	32.02	0.00	3,526.69
MW - 1	11/14/08	3,558.71	sheen	32.01	0.00	3,526.70
MW - 1	11/21/08	3,558.71	sheen	31.89	0.00	3,526.82
MW - 1	11/24/08	3,558.71	sheen	32.01	0.00	3,526.70
MW - 1	12/05/08	3,558.71	31.95	31.96	0.01	3,526.76
MW - 3	01/11/08	3,558.53	sheen	31.38	0.00	3,527.15
MW - 3	01/17/08	3,558.53	sheen	31.39	0.00	3,527.14
MW - 3	01/22/08	3,558.53	sheen	30.91	0.00	3,527.62
MW - 3	02/07/08	3,558.53	sheen	31.38	0.00	3,527.15
MW - 3	02/21/08	3,558.53	sheen	31.37	0.00	3,527.16
MW - 3	02/29/08	3,558.53	sheen	31.39	0.00	3,527.14
MW - 3	03/14/08	3,558.53	sheen	31.34	0.00	3,527.19
MW - 3	03/20/08	3,558.53	sheen	31.34	0.00	3,527.19
MW - 3	04/03/08	3,558.53	sheen	31.38	0.00	3,527.15
MW - 3	04/10/08	3,558.53	sheen	31.36	0.00	3,527.17
MW - 3	04/17/08	3,558.53	sheen	31.40	0.00	3,527.13

TABLE 1

## 2008 - GROUNDWATER ELEVATION DATA

PLAINS MAREKTING, L.P.  
 MONUMENT 18  
 LEA COUNTY, NEW MEXICO  
 NMOCD REFERENCE NUMBER 1R-0124

SAMPLE LOCATION	SAMPLE DATE	TOP OF CASING ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUND WATER ELEVATION
MW - 3	04/24/08	3,558.53	sheen	31.41	0.00	3,527.12
MW - 3	05/01/08	3,558.53	sheen	31.39	0.00	3,527.14
MW - 3	05/06/08	3,558.53	sheen	31.39	0.00	3,527.14
MW - 3	05/08/08	3,558.53	sheen	31.39	0.00	3,527.14
MW - 3	05/15/08	3,558.53	sheen	31.42	0.00	3,527.11
MW - 3	05/30/08	3,558.53	sheen	31.45	0.00	3,527.08
MW - 3	06/04/08	3,558.53	sheen	31.46	0.00	3,527.07
MW - 3	06/24/08	3,558.53	sheen	31.59	0.00	3,526.94
MW - 3	07/03/08	3,558.53	sheen	31.63	0.00	3,526.90
MW - 3	07/09/08	3,558.53	sheen	31.64	0.00	3,526.89
MW - 3	07/14/08	3,558.53	sheen	31.64	0.00	3,526.89
MW - 3	07/23/08	3,558.53	sheen	31.63	0.00	3,526.90
MW - 3	08/06/08	3,558.53	sheen	31.64	0.00	3,526.89
MW - 3	09/09/09	3,558.53	sheen	31.74	0.00	3,526.79
MW - 3	09/25/08	3,558.53	sheen	31.73	0.00	3,526.80
MW - 3	09/30/08	3,558.53	sheen	31.75	0.00	3,526.78
MW - 3	10/07/08	3,558.53	sheen	31.76	0.00	3,526.77
MW - 3	10/15/08	3,558.53	sheen	31.85	0.00	3,526.68
MW - 3	10/22/08	3,558.53	sheen	31.79	0.00	3,526.74
MW - 3	11/03/08	3,558.53	sheen	31.26	0.00	3,527.27
MW - 3	11/05/08	3,558.53	sheen	31.70	0.00	3,526.83
MW - 3	11/07/08	3,558.53	sheen	31.75	0.00	3,526.78
MW - 3	11/14/08	3,558.53	sheen	31.74	0.00	3,526.79
MW - 3	11/21/08	3,558.53	sheen	31.81	0.00	3,526.72
MW - 3	11/24/08	3,558.53	sheen	31.48	0.00	3,527.05
MW - 3	12/05/08	3,558.53	31.37	31.38	0.01	3,527.16
MW - 4	01/11/08	3,558.14	sheen	30.91	0.00	3,527.23
MW - 4	01/17/08	3,558.14	sheen	30.93	0.00	3,527.21
MW - 4	01/22/08	3,558.14	sheen	30.92	0.00	3,527.22
MW - 4	02/07/08	3,558.14	sheen	30.94	0.00	3,527.20
MW - 4	02/13/08	3,558.14	sheen	30.90	0.00	3,527.24
MW - 4	02/21/08	3,558.14	sheen	30.92	0.00	3,527.22
MW - 4	02/29/08	3,558.14	sheen	30.93	0.00	3,527.21
MW - 4	03/14/08	3,558.14	sheen	30.89	0.00	3,527.25
MW - 4	03/20/08	3,558.14	sheen	30.93	0.00	3,527.21
MW - 4	04/03/08	3,558.14	sheen	30.92	0.00	3,527.22
MW - 4	04/10/08	3,558.14	sheen	30.91	0.00	3,527.23
MW - 4	04/17/08	3,558.14	sheen	30.95	0.00	3,527.19
MW - 4	04/24/08	3,558.14	sheen	30.94	0.00	3,527.20
MW - 4	05/01/08	3,558.14	sheen	30.93	0.00	3,527.21
MW - 4	05/06/08	3,558.14	-	30.95	0.00	3,527.19
MW - 4	05/08/08	3,558.14	sheen	30.95	0.00	3,527.19
MW - 4	05/15/08	3,558.14	sheen	30.95	0.00	3,527.19
MW - 4	05/20/08	3,558.14	sheen	30.97	0.00	3,527.17
MW - 4	05/30/08	3,558.14	sheen	31.00	0.00	3,527.14
MW - 4	06/04/08	3,558.14	sheen	30.99	0.00	3,527.15
MW - 4	06/12/08	3,558.14	sheen	31.08	0.00	3,527.06
MW - 4	06/17/08	3,558.14	sheen	31.12	0.00	3,527.02
MW - 4	06/24/08	3,558.14	sheen	31.14	0.00	3,527.00
MW - 4	07/03/08	3,558.14	sheen	31.18	0.00	3,526.96
MW - 4	07/09/08	3,558.14	sheen	31.18	0.00	3,526.96
MW - 4	07/14/08	3,558.14	sheen	31.18	0.00	3,526.96
MW - 4	07/23/08	3,558.14	sheen	31.16	0.00	3,526.98
MW - 4	08/05/08	3,558.14	sheen	31.20	0.00	3,526.94

TABLE 1

## 2008 - GROUNDWATER ELEVATION DATA

PLAINS MAREKTING, L.P.  
 MONUMENT 18  
 LEA COUNTY, NEW MEXICO  
 NMOCD REFERENCE NUMBER 1R-0124

SAMPLE LOCATION	SAMPLE DATE	TOP OF CASING ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	PSH THICKNESS	CORRECTED GROUND WATER ELEVATION
MW - 4	08/06/08	3,558.14	sheen	31.20	0.00	3,526.94
MW - 4	08/11/08	3,558.14	sheen	31.21	0.00	3,526.93
MW - 4	08/28/08	3,558.14	sheen	31.24	0.00	3,526.90
MW - 4	09/09/08	3,558.14	sheen	31.27	0.00	3,526.87
MW - 4	09/25/08	3,558.14	31.28	31.38	0.10	3,526.85
MW - 4	09/30/08	3,558.14	31.29	31.38	0.09	3,526.84
MW - 4	10/07/08	3,558.14	31.26	31.43	0.17	3,526.85
MW - 4	10/15/08	3,558.14	31.29	31.49	0.20	3,526.82
MW - 4	10/22/08	3,558.14	31.27	31.30	0.03	3,526.87
MW - 4	10/30/08	3,558.14	sheen	31.77	0.00	3,526.37
MW - 4	11/05/08	3,558.14	31.20	31.58	0.38	3,526.88
MW - 4	11/07/08	3,558.14	31.34	31.98	0.64	3,526.70
MW - 4	11/14/08	3,558.14	31.23	31.64	0.41	3,526.85
MW - 4	11/21/08	3,558.14	31.11	31.68	0.57	3,526.94
MW - 4	11/24/08	3,558.14	31.14	31.60	0.46	3,526.93
MW - 4	11/24/08	3,558.14	31.09	31.20	0.11	3,527.03
MW - 4	12/05/08	3,558.14	31.34	31.68	0.34	3,526.75
MW - 5	02/07/08	3,560.07	-	33.21	0.00	3,526.86
MW - 5	05/06/08	3,560.07	-	33.12	0.00	3,526.95
MW - 5	08/06/08	3,560.07	-	33.44	0.00	3,526.63
MW - 5	11/05/08	3,560.07	-	33.48	0.00	3,526.59
MW - 6	02/07/08	3,557.64	-	30.44	0.00	3,527.20
MW - 6	05/06/08	3,557.64	-	30.43	0.00	3,527.21
MW - 6	08/06/08	3,557.64	-	30.74	0.00	3,526.90
MW - 6	11/05/08	3,557.64	-	30.77	0.00	3,526.87
MW - 7	02/07/08	3,558.65	-	31.36	0.00	3,527.29
MW - 7	05/06/08	3,558.65	-	31.36	0.00	3,527.29
MW - 7	08/06/08	3,558.65	-	31.65	0.00	3,527.00
MW - 7	11/05/08	3,558.65	-	31.68	0.00	3,526.97
MW - 8	02/07/08	3,559.30	-	32.26	0.00	3,527.04
MW - 8	05/06/08	3,559.30	-	32.28	0.00	3,527.02
MW - 8	08/06/08	3,559.30	-	32.54	0.00	3,526.76
MW - 8	11/05/08	3,559.30	-	32.60	0.00	3,526.70
MW-9	02/07/08	3,559.94	-	33.02	0.00	3,526.92
MW-9	05/06/08	3,559.94	-	33.03	0.00	3,526.91
MW-9	08/06/08	3,559.94	-	33.30	0.00	3,526.64
MW-9	11/05/08	3,559.94	-	33.33	0.00	3,526.61
MW-10	02/07/08	3,558.06	-	30.99	0.00	3527.07
MW-10	05/06/08	3,558.06	-	31.00	0.00	3527.06
MW-10	08/06/08	3,558.06	-	31.26	0.00	3526.80
MW-10	11/05/08	3,558.06	-	31.30	0.00	3526.76

\* Complete Historical Tables are Provided on the Attached CD.

TABLE 2

## 2008 - CONCENTRATIONS OF BTEX &amp; TPH IN GROUNDWATER

PLAINS MARKETING, L.P.  
MONUMENT 18  
LEA COUNTY, NEW MEXICO  
NMOCD REFERENCE NUMBER 1R-0124

*All concentrations are reported in mg/L.*

SAMPLE LOCATION	SAMPLE DATE	EPA SW 846-8015M		SW 846-8012B, 5030				
		GRO C6-C12 mg/L	DRO C12-C35 mg/L	BENZENE	TOLUENE	ETHYL-BENZENE	m, p - XYLENES	o - XYLENE
<b>NMOCD REGULATORY LIMIT</b>				<b>0.010</b>	<b>0.750</b>	<b>0.750</b>	<b>0.62</b>	
MW - 1	02/07/08			Not sampled due to sample reduction				
MW - 1	05/06/08			<b>0.0203</b>	<0.005	0.0107	0.0356	
MW - 1	08/06/08			<0.005	<0.005	<0.005	0.0243	
MW - 1	11/05/08			<b>0.0104</b>	0.004	0.0116	0.0337	
MW - 2	09/13/05			Plugged and Abandoned				
MW - 3	02/07/08			Not sampled due to sample reduction				
MW - 3	05/06/08			<b>0.1150</b>	0.08680	0.04130	0.12700	
MW - 3	08/06/08			<b>0.0285</b>	<0.005	0.00910	0.03240	
MW - 3	11/05/08			<b>0.0464</b>	<0.005	0.01610	0.05010	
MW - 4	02/07/08			<b>0.0744</b>	<0.005	0.1370	0.1260	
MW - 4	05/06/08			<b>0.0541</b>	<0.001	0.0773	0.0622	
MW - 4	08/06/08			<b>0.0135</b>	<0.001	0.0252	0.0185	
MW - 4	11/05/08	2.30	82.7	<b>0.0409</b>	<0.005	0.0792	0.110	
MW - 5	02/07/08			<0.001	<0.001	<0.001	<0.001	
MW - 5	05/06/08			Not sampled due to sample reduction				
MW - 5	08/06/08			Not sampled due to sample reduction				
MW - 5	11/05/08			<0.001	<0.001	<0.001	<0.001	
MW - 6	02/07/08			<0.001	<0.001	<0.001	<0.001	
MW - 6	05/06/08			Not sampled due to sample reduction				
MW - 6	08/06/08			Not sampled due to sample reduction				
MW - 6	11/05/08			<0.001	<0.001	<0.001	0.00140	
MW - 7	02/07/08			Not sampled due to sample reduction				
MW - 7	05/06/08			Not sampled due to sample reduction				
MW - 7	08/06/08			Not sampled due to sample reduction				
MW - 7	11/05/08			0.0027	<0.001	0.00260	0.01670	
MW - 8	02/07/08			Not sampled due to sample reduction				
MW - 8	05/06/08			Not sampled due to sample reduction				
MW - 8	08/06/08			Not sampled due to sample reduction				
MW - 8	11/05/08			<0.001	<0.001	<0.001	<0.001	
MW - 9	02/07/08			<0.001	<0.001	<0.001	<0.001	
MW - 9	05/06/08			<0.001	<0.001	<0.001	0.0039	
MW - 9	08/06/08			<0.001	<0.001	<0.001	<0.001	
MW - 9	11/05/08			<0.001	<0.001	<0.001	<0.001	
MW - 10	02/07/08			<0.001	<0.001	<0.001	<0.001	
MW - 10	05/06/08			<0.001	<0.001	<0.001	<0.001	
MW - 10	08/06/08			<0.001	<0.001	<0.001	<0.001	
MW - 10	11/05/08			<0.001	<0.001	<0.001	<0.001	

\* Complete Historical Tables are Provided on the Attached CD.





# Appendices

Appendix A  
Release Notification and Corrective Action  
(Form 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	Plains Pipeline, LP	Contact:	Camille Reynolds
Address:	3705 E. Hwy 158, Midland, TX 79706	Telephone No.	505-441-0965
Facility Name	Monument # 18	Facility Type:	Pipeline

Surface Owner: Jim B Cooper	Mineral Owner	Lease No.
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	7	20S	37E					Lea

Latitude 32 degrees 35' 30.0" Longitude 103 degrees 17' 55.9"

**NATURE OF RELEASE**

Type of Release:	Volume of Release:	Volume Recovered
Source of Release:	Date and Hour of Occurrence Unknown	Date and Hour of Discovery
Was Immediate Notice Given? Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required <input type="checkbox"/>	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

Describe Area Affected and Cleanup Action Taken.\*  
**NOTE: Texas-New Mexico Pipeline was the owner/operator of the pipeline system at the time of the release, initial response information is unavailable.**

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>	
		Approved by District Supervisor:	
Printed Name:	Camille Reynolds	Approval Date:	Expiration Date:
Title:	Remediation Coordinator	Conditions of Approval:	
E-mail Address:	cjreynolds@paalp.com	Attached <input type="checkbox"/>	
Date:	3/21/2005	Phone:	(505)441-0965

\* Attach Additional Sheets If Necessary