# SOIL INVESTIGATION WORK PLAN

## SOUTH MONUMENT GATHERING SOUR

NW ¼, NE ¼, SECTION 5, TOWNSHIP 20 SOUTH, RANGE 37 EAST
SOUTHWEST OF MONUMENT
LEA COUNTY, NEW MEXICO
EMS #: 2001-11193

RP#951

Prepared for:

**Plains Marketing, L.P.**
333 Clay Street, Suite 1600
Houston, Texas 77002

NOVA
safety and environmental

Prepared by:

**NOVA Safety and Environmental**
2057 Commerce Drive
Midland, Texas 79703

June 2006

Brittan K. Byerly, P.G.
President

Todd K. Choban, P.G.
Vice President, Technical Services

incident - nPACd0382 6863
application - pPAC0 71643 1433

RP#951

## TABLE OF CONTENTS

# 1.0 INTRODUCTION

On behalf of Plains Marketing, L.P. (Plains), NOVA Safety and Environmental (NOVA) has prepared this Soil Investigation Work Plan for the site known as South Monument Gathering Sour (EMS # 2001-11193). The site is now the responsibility of Plains, which acquired the assets of Link Energy in April of 2004. Plains has retained NOVA to assess the site and determine further actions that are necessary to achieve closure at the site. A site location map is provided as Figure 1 and a site (details) map is provided as Figure 2.

# 2.0 SITE BACKGROUND

On November 20, 2001 EOTT Energy, Corp.(EOTT) reported a 1200 barrel release of sour crude oil from a pipeline located approximately one half mile southwest of Monument, New Mexico. The site is located in the NW/4 NE/4, Section 5, Township 20 South, Range 37 East, Lea County, New Mexico. The initial response was conducted by Allstate Environmental Services (AES) in November of 2001. According to AES's Summary of Cleanup Activities and Site Delineation (November 27 to December 12, 2001), on November 30, 2001, AES began excavating, stockpiling and transporting impacted soil to the C & C Landfarm. On November 30 and December 1, 2004, a total of approximately 408 cubic yards (cy) of impacted soil was transported to the Landfarm. On December 5, 2001, all work at the site was stopped while EOTT and the landowner (Mr. Jimmy Cooper) entered into negotiations. From December 3 through December 11, 2001, AES collected samples and began mapping the site.

On March 3, 2005, NOVA, on behalf of Plains, collected excavation sidewall, floor, stockpile, and flow path soil samples. Composite soil samples were collected using a post hole digger and were collected on a five point configuration at depths three (3) inches, six (6) inches, twelve (12) inches and eighteen (18) inches, as well as the surface, approximately every 100 linear feet along the flow path and approximately every 300 square feet inside the existing excavation and stockpiles. The soil samples were placed in a clean glass container equipped with a Teflon-lined lid furnished by the laboratory. Each container was labeled and placed on ice in an insulated cooler. Upon selection of samples for laboratory analysis, the cooler was sealed for shipment to the laboratory. Proper chain-of-custody documentation was maintained throughout the sampling and shipping process.

Soil samples were delivered to TraceAnalysis, Inc, in Lubbock, Texas. Samples were analyzed for Total Petroleum Hydrocarbon (TPH) analyses using EPA SW-846 Method 8015M GRO/DRO and the sample exhibiting the highest total TPH concentration was analyzed for Benzene, Toluene, Ethylbenzene and Xylene (BTEX) constituent concentrations utilizing EPA Method SW 846-8021b.

# 3.0 LEAK ZONE INVESTIGATION

## 3.1 Review of Soil Data

A review of soil data generated from the March 3, 2005 sampling event indicates hydrocarbon concentrations above New Mexico Oil Conservation Division (NMOCD) TPH action limits.

Samples analyzed from the excavation floor yielded analytical results for GRO/DRO concentrations of <10.0 mg/Kg and 4,490 mg/Kg in sample locations SM-3 and SM-6, respectively. This indicates that further work will be required in the original excavation area proper.

TPH data collected along the flow path also indicates TPH values remaining in the near-surface exceed NMOCD standards. The maximum concentration of TPH reported by laboratory analysis indicate that the GRO in sample SM-25 was <10.0 mg/Kg while the DRO was 1090 mg/Kg.

The stockpiled material contains hydrocarbons which exceed NMOCD standards. The maximum TPH concentrations in stockpiled material are found in the stockpile located at the far southern edge of the flow path. Sample SP-6 contained GRO of 485 mg/Kg and DRO of 9630 mg/Kg. Samples analyzed from the stockpiles indicate TPH concentrations exceed NMOCD standards in each stockpile. A sample location and contaminant distribution map is provided as Figure 3.

### 3.2 Proposed Soil Investigation Activities

A review of soil data collected during the March 3, 2005 sampling event indicates that the site requires additional characterization, soil excavation and remediation. The site can be divided into three areas of concern for the basis of this proposal:

1) The flow path of the hydrocarbons over the surface to the south of the release point.
2) Stockpiled materials derived from earlier response activities.
3) The immediate area of the pipeline release.

The hydrocarbon impact along the flow path of the hydrocarbons will be delineated by utilizing a backhoe to place trenches intermittently along both sides of the flow path and at ninety degrees across the flow path to investigate the depth of impact. A sufficient number of samples will be collected in the trenches to delineate the extent of hydrocarbon impacts, so that a plan may be developed to remediate the area of impact.

Stockpiles located on the site will be leveled and spread to facilitate aeration and oxidation of the hydrocarbons within the stockpiles. Currently the stockpiles are stacked over 15 feet high in places minimizing the amount of natural attenuation occurring within each pile. Spreading the stockpiles more thinly across the surface of the site will allow more hydrocarbon impacted material contact with sunlight and oxygen, speeding the attenuation process. It is not proposed to sample the stockpiles at this time, but at a date sufficient to allow the natural attenuation process to affect the materials in the stockpiles.

The immediate area surrounding the former release point will be investigated by installing a minimum of four borings, including one boring in the bottom of the excavation to determine the vertical and horizontal extent of contamination. Borings will be installed on the west, north and southeast corners of the existing excavation to gather information on the horizontal distribution of hydrocarbons and information on the vertical extent in the areas of the each boring. Each boring will be placed to groundwater, which is estimated as 25 feet below ground surface (bgs).

If free phase hydrocarbons are found on the groundwater or soil impacts appear to extend to the groundwater, the boring(s) will be converted to monitor/recovery wells. Soil samples will be collected on five-foot intervals (upon refusal of the sampling device, samples will be collected at the next possible foot interval) to a total depth of each boring. Hydrocarbon impact will be field documented by utilizing either Photo-Ionization Detector (PID), visual or olfactory methods. Please refer to Figure 4 (Proposed Soil Boring Location Map) for locations of proposed borings.

Soil samples collected during the above work will be submitted to the laboratory based on field observations and PID readings. Samples will be collected and placed into glassware provided by Trace Analysis in Lubbock, Texas. The samples will then be placed on ice in the field to be cooled to approximately 4°C. Strict chain-of-custody documentation will be maintained at all times. Flow path, excavation, and stockpile samples will be analyzed using SW 846-8015B for Gas and Diesel Range TPH and SW-846 8021 or SW-846 8260 for Benzene, Toluene, Ethyl benzene and total Xylenes (BTEX). .

## 4.0 SUMMARY OF INTENDED ACTIVITIES

The following actions are recommended at the site to gather data for the development of a comprehensive soil remediation plan:

1) Installation of a minimum of four soil borings to groundwater in the general release area. If product should be encountered or soil impacts appear to extend to groundwater, the soil boring(s) will be converted to monitor or recovery well, as necessary.

2) Install trenches along the flow path of hydrocarbons south from the release point to delineate the extent of remaining hydrocarbon impact of NMOCD clean up standards.

3) Level existing stockpiles to facilitate more efficient oxidation and natural attenuation of hydrocarbons within stockpiled soils.

## 5.0 LIMITATIONS

NOVA has prepared this Soil Investigation Work Plan 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 written consent of NOVA and/or Plains.

## 6.0 DISTRIBUTION

Copy 1:
Larry Johnson and Paul Sheeley
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division (District 1)
1625 French Drive
Hobbs, NM 88240

Copy 2:
Camille Reynolds
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3112 Highway 82
Lovington, New Mexico
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jpdann@paalp.com

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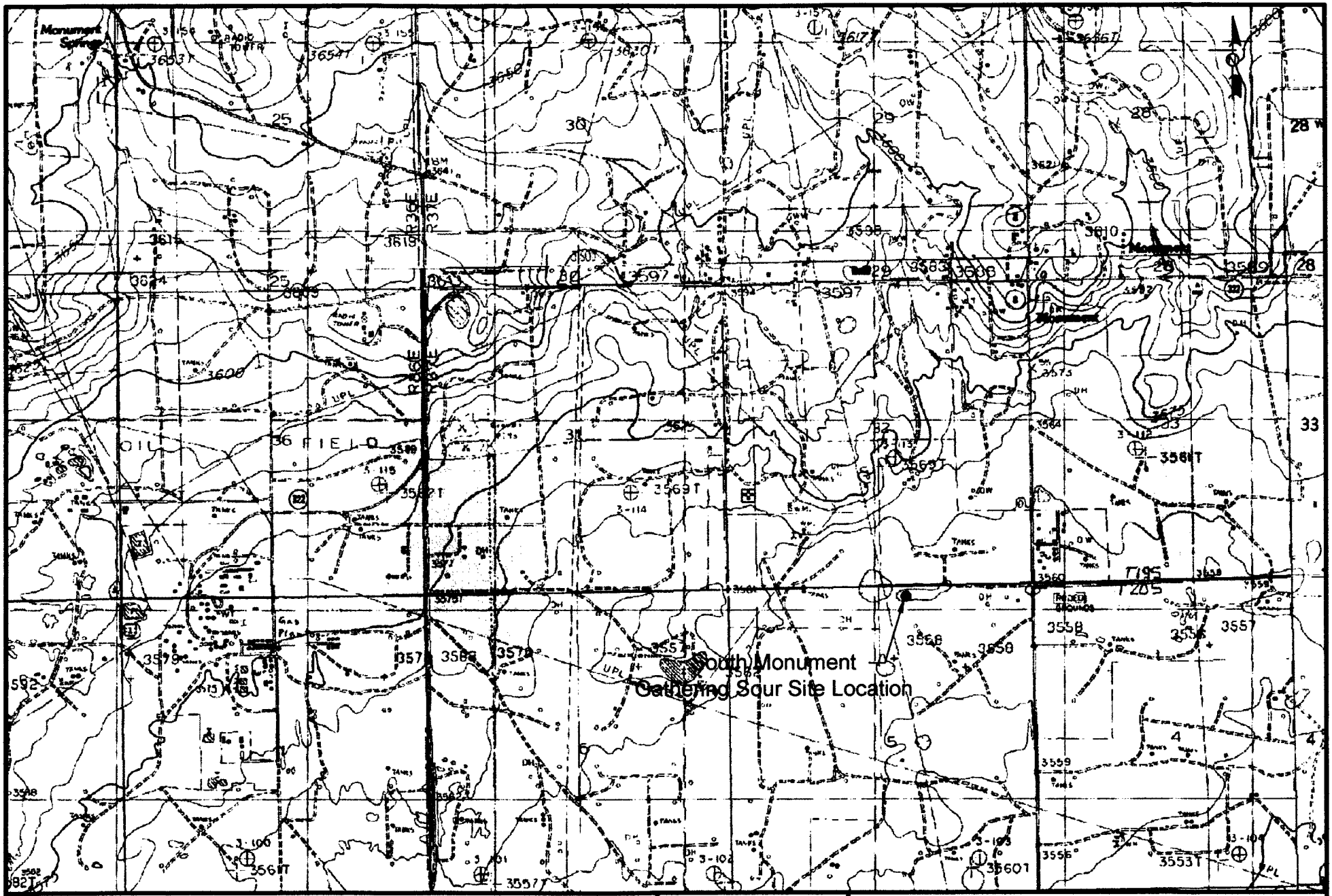
NOVA Safety and Environmental.
2057 Commerce Drive
Midland, Texas 79703
cstanley@novatraining.cc

# Figures



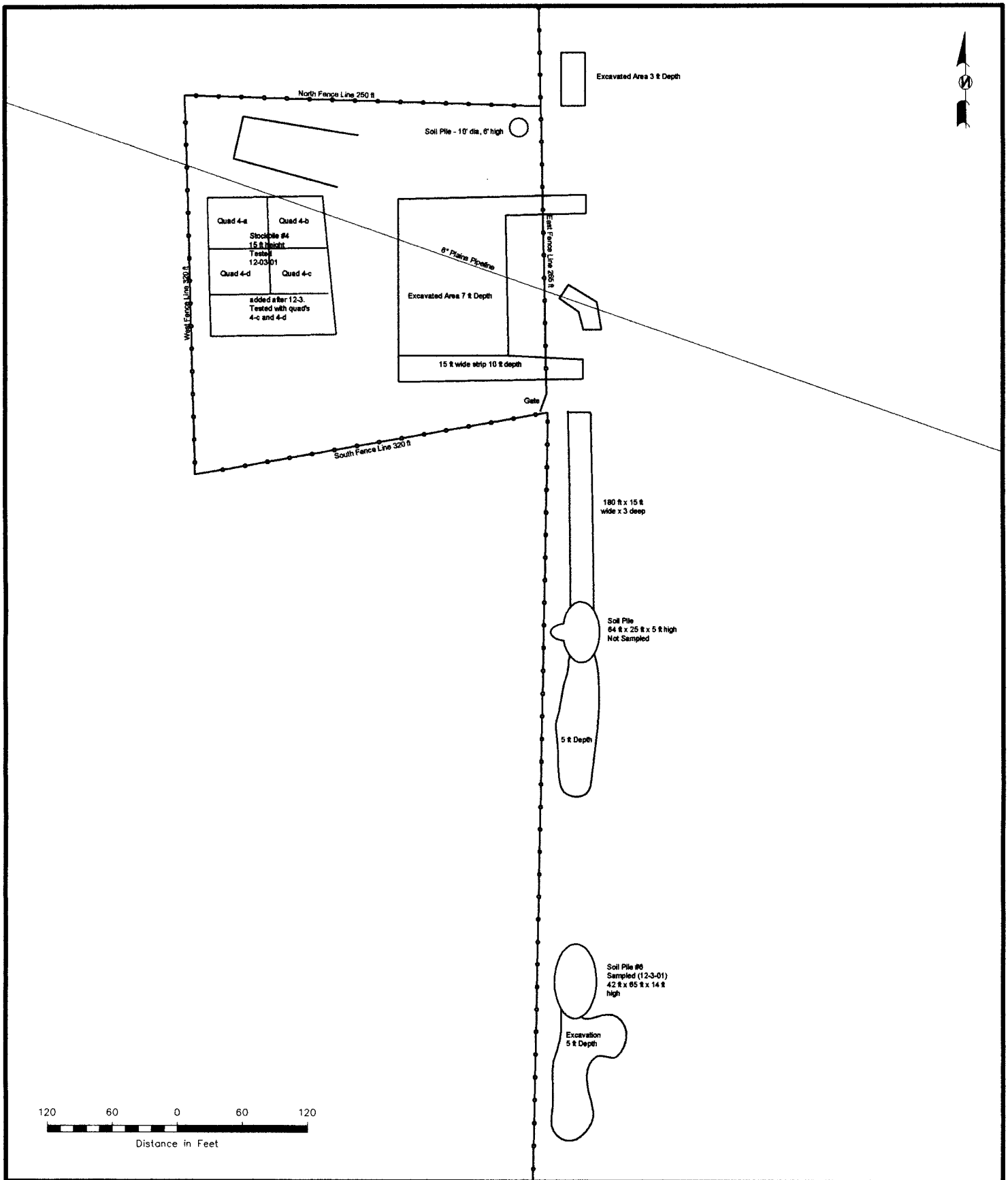

NW 1/4 NE 1/4 Sec 5 T20S, R37E

**Figure 1**
**Site Location Map**
**Plains Marketing, L.P.**
**Plains EMS #2001-11193**
**South Monument**
**Gathering Sour**
**Monument, NM**

**NOVA Safety and Environmental**

NOVA safety and environmental

| Scale: NTS | Prep By: CDS | Checked By: TKC |
|---|---|---|
| December 6, 2004 | | |




LEGEND:

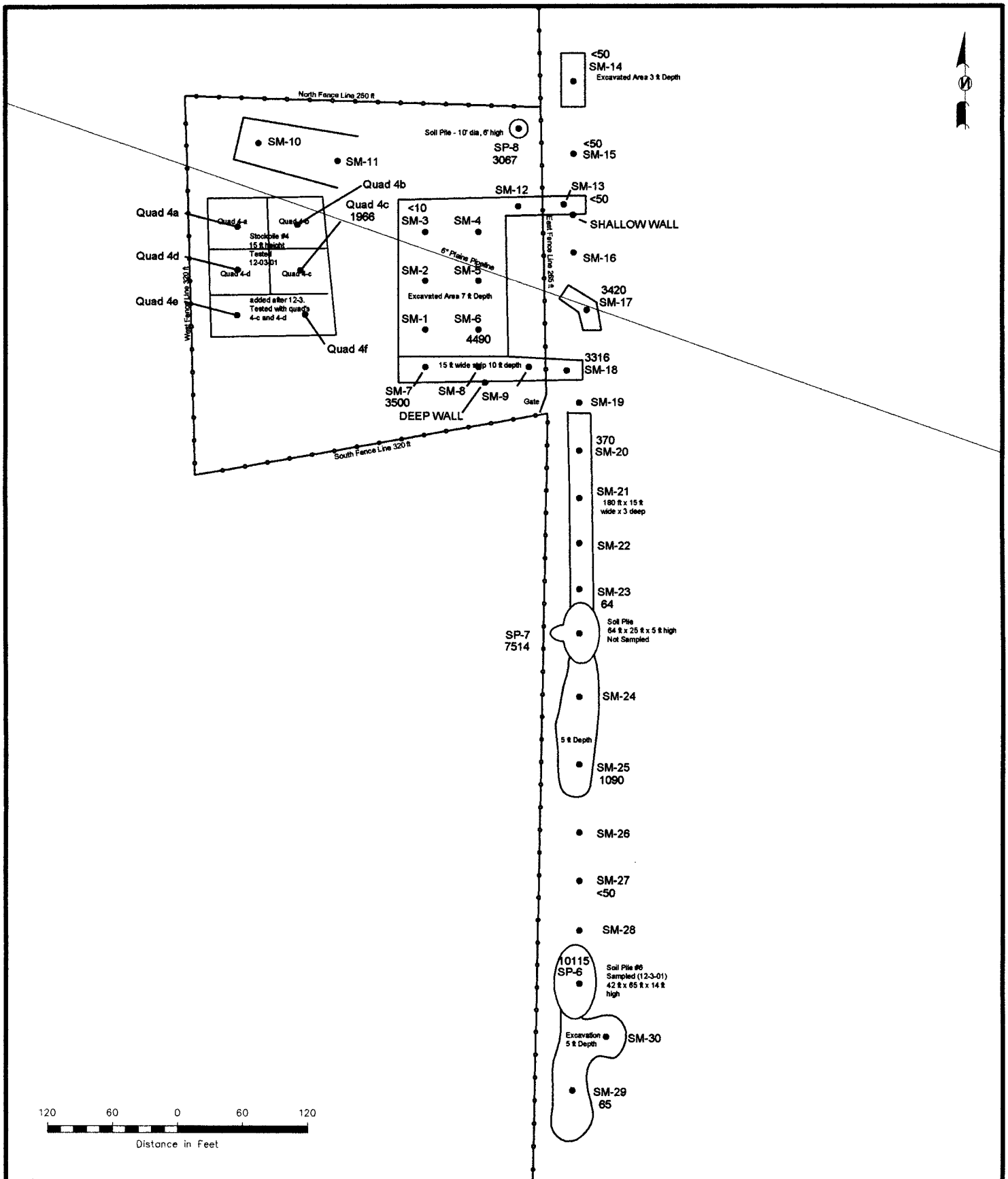
- Pipeline
- Fence
- Excavation
- Stockpile

**Figure 2**
**Site Map**
**Plains Marketing, L.P.**
**Plains EMS# 2001-11193**
**South Monument Gathering Sour**
**Monument, NM**

**NOVA Safety and Environmental**

NOVA safety and environmental

| Scale 1" = 120' | Prep By: CDS | Checked By: CDS |
|---|---|---|
| March 1 , 2005 | | |




LEGEND:

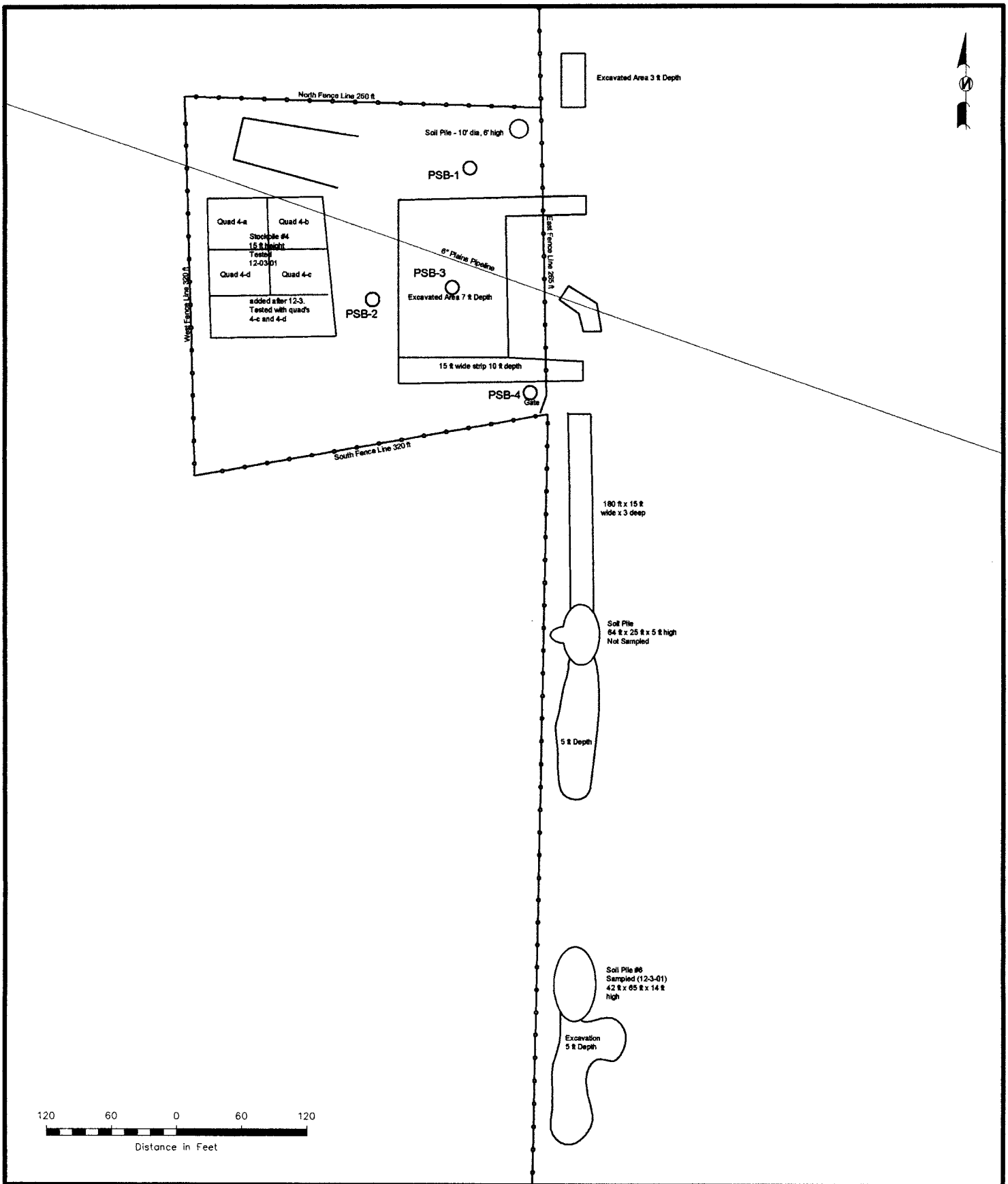
- Pipeline
- Fence
- Excavation
- Stockpile
- SM-29 / 65 — Sample Point / Total TPH

**Figure 3**
**Sample Location and Contaminant Distribution Map**
**Plains Marketing, L.P.**
**Plains EMS #2001-11193**
**South Monument Gathering Sour**
**Monument, NM**

**NOVA Safety and Environmental**

NOVA safety and environmental

| Scale 1" = 120' | Prep By: CDS | Checked By: CDS |
|---|---|---|
| March 1 , 2005 | | |




LEGEND:

- Pipeline
- Fence
- Excavation
- Stockpile
- PSB-1 Proposed Soil Boring

**Figure 4**
**Proposed Soil Boring Location Map**
**Plains Marketing, L.P.**
**Plains EMS #2001-11193**
**South Monument Gathering Sour**
**Monument, NM**

**NOVA Safety and Environmental**

NOVA safety and environmental

| Scale 1" = 120' | Prep By: CDS | Checked By: CDS |
|---|---|---|
| March 1 , 2005 | | |

# Tables

**TABLE 1**
**CONCENTRATIONS OF TPH AND BTEX IN SOIL**

**SOUTH MONUMENT GATHERING SOUR**
**EMS #2001-11193**
**PLAINS MARKETING, L.P.**

| SAMPLE LOCATION | SAMPLE DATE | Methods: EPA S 8260b | | | | | Methods as indicated | |
|---|---|---|---|---|---|---|---|---|
| | | BENZENE (mg/Kg) | TOLUENE (mg/Kg) | ETHYL-BENZENE (mg/Kg) | m,p-XYLENE (mg/Kg) | o-XYLENE (mg/Kg) | GRO $C^6$-$C^{10}$ (mg/Kg) | DRO $<C^{10}$-$C^{28}$ (mg/Kg) |
| | | | | | | | | |
| | | | | | | | SW 846-8015M | |
| * West Stockpile | 11/26/01 | | | | | | **6870** | **41400** |
| * East Stockpile | | | | | | | **9800** | **47700** |
| * South Stockpile | | | | | | | **10500** | **59300** |
| | | | | | | | | |
| | | | | | | | SW 846-8015M | |
| * SP-1 | 11/30/01 | | | | | | **4330** | **19500** |
| * SP-2 | | | | | | | **6870** | **21500** |
| * SP-3 | | | | | | | **6550** | **22400** |
| * SP-4 | | | | | | | **8790** | **19500** |
| | | | | | | | | |
| | | | | | | | TNRCC 1005 | |
| * Stockpile 4-a | 12/3/01 | | | | | | **4430** | **10400** |
| * Stockpile 4-b | | | | | | | **5110** | **15500** |
| * Stockpile 4-c | | | | | | | **3820** | **11000** |
| * Stockpile 4-d | | | | | | | **2500** | **7360** |
| * Stockpile 5 | | | | | | | **1840** | **5320** |
| * Stockpile 6 | | | | | | | **4100** | **12800** |
| | | | | | | | | |
| | | | | | | | mod 8015b | |
| SM-3 | 3/3/05 | | | | | | <10.0 | |
| SM-6 | | <20.0 | <20.0 | <20.0 | 38.8 | | <10.0 | **4490** |
| SM-7 | | | | | | | <10.0 | **3500** |
| SM-13 | | | | | | | 1.07 | <50.0 |
| SM-14 | | | | | | | <1.00 | <50.0 |
| SM-15 | | | | | | | 3.24 | <50.0 |
| SM-17 | | | | | | | 22.4 | **3420** |
| SM-18 | | | | | | | 66.3 | **3250** |
| SM-20 | | | | | | | 6.7 | **363** |
| SM-23 | | | | | | | 1.33 | 62.6 |
| SM-25 | | | | | | | <10.0 | **1090** |
| SM-27 | | | | | | | <1.00 | <50.0 |
| SM-29 | | | | | | | <1.00 | 65.4 |
| QUAD 4C | | | | | | | 95.5 | **1870** |
| SP-6 | | | | | | | **485** | **9630** |
| SP-7 | | | | | | | 84 | **7430** |
| SP-8 | | | | | | | **177** | **2890** |

Samples collected by NOVA on 3/3/05 were 5 Point Composite Samples collected at Surface, 3 inches, 6 inches, 9 inches and 1 foot per location

* Samples collected by Allstate Environmental Services, Inc.

BOLD indicates analytical results in excess of NMOCD regulatory standards

# 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

x Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company Plains Marketing, LP | Contact Camille Reynolds |
| Address 5805 East Hwy. 80, Midland, TX 79706 | Telephone No. 505-441-0965 |
| Facility Name South Monument Gathering Sour | Facility Type 6"Steel Pipeline |

| | | |
|---|---|---|
| Surface Owner Jimmie Cooper | Mineral Owner | Lease No. |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| B | 5 | 20S | 37E | | | | | Lea |

**Latitude** 32° 36'29.0" **Longitude** 103° 16' 26.8"

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release Crude Oil | Volume of Release 1200 barrels | Volume Recovered 910 barrels |
| Source of Release 6" Steel Pipeline | Date and Hour of Occurrence 11-20-01 | Date and Hour of Discovery 11-20-01 |
| Was Immediate Notice Given? x Yes ☐ No ☐ Not Required | If YES, To Whom? Paul Sheeley | |
| By Whom? Frank Hernandez | Date and Hour 11-20-01@16:15 | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Internal corrosion of 6 inch steel pipeline resulted in crude oil release. Clamp was applied to the line to mitigate the release.

Describe Area Affected and Cleanup Action Taken.* The crude oil was vacuumed up and the impacted soil was excavated and stockpiled on plastic. Initial response activities included excavation and stockpiling of approximately 5,000 to 7,000 cubic yards of soil. Future response activities will include a soil and groundwater investigation and preparation of a remedial action plan.

**NOTE: This information was obtained from historical EOTT files, Plains acquired EOTT/Link Energy on April 1, 2004 and Plains assumes this information to be correct.**

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: Camille Reynolds

Printed Name: Camille Reynolds

Title: Remediation Coordinator

E-mail Address: cjreynolds@paalp.com

Date: 12-29-04 Phone:505-441-0965

## OIL CONSERVATION DIVISION

Approved by District Supervisor: ENVIRO ENGR

Approval Date: 6.12.07 Expiration Date: 8.12.07

Conditions of Approval: SUBMITTAL OF A REVISED PLAN BY 7.12.07 RP #951

Attached ☐

* Attach Additional Sheets If Necessary