AP - 54

# STAGE 1 WORKPLANS

DATE: 3-26-03

Rec'd 10 June 03

# PRELIMINARY GROUND WATER CONTAMINATION INVESTIGATION AND DELINEATION PLAN

## HOBBS JUNCTION MAINLINE 012303

## EOTT REF: #2003-00017

UL-M SW¼ OF THE SW¼ OF SECTION 26 T18S R37E
UL-D NW¼ OF THE NW¼ OF SECTION 35 T18S R37E

3 MILES WEST; 1 MILE NORTH OF INTERSECTION
OF US 62/180 AND WEST COUNTY ROAD
HOBBS, LEA COUNTY, NEW MEXICO

LATITUDE: 32°42'40.9"N LONGITUDE: 103°13'42.0"W

MARCH 26, 2003

PREPARED BY:


John Good
*Environmental Consultant*
ENVIRONMENTAL PLUS, INC.
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Eunice, NM 88231
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June 3, 2003

Mr. Randy Bayliss
NM Energy, Minerals, and Natural Resources Department
New Mexico Oil Conservation Division – Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, NM 87505

Subject: EOTT "Hobbs Junction Mainline 012303" (2003-00017)
Preliminary Ground Water Investigation and Delineation Plan

Dear Mr. Bayliss:

Environmental Plus, Inc. (EPI), on behalf of EOTT Energy Pipeline, LP (EOTT) submits for your consideration and approval the "*Preliminary Ground Water Contamination Investigation and Delineation Plan*" for the EOTT "Hobbs Junction Mainline 012303" release site; EOTT Reference #2003-00017. This report documents the initial site delineation, characterization, subsurface soil sampling and analysis, and the confirmation of hydrocarbon contamination on or within the ground water aquifer present beneath the release area.

All activities conducted thus far at the "Hobbs Junction Mainline" site and all investigations proposed in the accompanying "Preliminary Ground Water Contamination Investigation and Delineation Plan" are consistent with the "*EOTT General Work Plan for Remediation of EOTT Pipeline Spills, Leaks and Releases in New Mexico, July 2000.*"

If there are any questions or comments please call Mr. Ben Miller or myself at EPI's offices, or at 505-390-2088 or 505-390-9804 respectively. Mr. Frank Hernandez, EOTT Energy Co., may be contacted through EOTT's Midland office, 915-638-3799.

All official correspondence should be addressed to:

Mr. Frank Hernandez
EOTT Energy Company
P.O. Box 1660
Midland, Texas 79703

Sincerely,

John Good
EPI Environmental Consultant

cc: Larry W. Johnson, NMOCD – Hobbs District Office (w/enclosure)
Frank Hernandez, EOTT Energy Co. (w/enclosure)
William Von Drehle, EOTT Energy Co. (w/enclosure)
Sherry Miller, EPI President
Ben Miller, EPI Vice President and General Manager
Pat McCasland, EPI Technical Manager

ENVIRONMENTAL PLUS, INC.

# Table of Contents

# 1.0 Introduction

This report addresses the results of the initial site characterization and the resultant requirement of a Ground Water Investigation for the EOTT Energy "Hobbs Junction Mainline" (EOTT Reference 2003-00017) pipeline release site. Environmental Plus, Inc. (EPI), Eunice, New Mexico commenced the initial site characterization and delineation process at this site on 23-January-03. To date, the following investigatory activities have taken place:

- GPS demarcation of the release site and relevant surface features.
- Drilling and sampling of 1 borehole down to 50-ft bgs within the visible release area. Due to the presence of crude oil in the zone (36' – 42' bgs), this borehole was immediately developed into a Recovery/Monitor Well designated RW1. Water is present in this well from 42' – 50' bgs.
- Installation an up-gradient Recovery/Monitor Well (RW2) approximately 100-ft northwest of RW1. *(See Plate 4, Attachments).*

# 2.0 Background

Environmental Plus, Inc. (EPI) was notified by EOTT Energy Pipeline, LP (EOTT) on 23-January-03 regarding a remediation project located at EOTT's "Hobbs Junction Mainline" site. The release location is immediately adjacent to the E-W section line between Section 26 to the north (State of NM) and Section 35 to the south (Klein-Linam Ranch, Faye Klein). The initial response consisted of recovering 24 bbl of crude oil pooled at the surface, and disposal of hydrocarbon contaminated soil removed from the two fence-line tracks proceeding east from the Point of Release (POR). Due to the numerous pipe unions and valve structures at this facility, the possibility of historical sub-surface leakage over a considerable time period had to be considered and investigated. The first borehole was drilled as close as possible to the "junction" valve structure with the intent of penetrating through the vadose zone to the zone of saturation. When oil was encountered at 36-ft and water at 42-ft, the decision to drill to 50-ft and install a Recovery/Monitor Well was made. The initial C-141 Form for this project was submitted to NMOCD on 24-January-03, and is included in the Attachments of this document.

# 3.0 Site Description

## *3.1 Site Location*

The EOTT "Hobbs Junction Mainline" site straddles the section line between Sections 26 and 35, approximately 700-ft from the west section line. The Latitude and Longitude coordinates are: 32°42'40.85"N; 103°13'42.01"W. Section 26 is owned by the State of New Mexico and Section 35, immediately south is owned by Mrs. Faye Klein, d.b.a. Klein-Linam Ranch. *(see Attachments, Plates 1, 2 and 3)*

## *3.2 Geohydrology*

The United States Geological Survey (USGS) Ground-Water Report 6, "Geology and Ground-Water Conditions in Southern Lea County, New Mexico," A. Nicholson and A. Clebsch, 1961, describes the near surface geology of southern Lea County as an intergrade of the Quaternary Alluvium (QA) sediments, i.e., fine to medium sand, with the mostly eroded Cenozoic Ogallala (CO) formation. Typically, the QA and CO formations in the area are capped by a thick interbed of caliche and generally overlain by sandy soil. The release site is located in the High

Plains physiographic subdivision, described by Nicholson & Clebsch as an area that is "uniformly flat and slopes about 17 feet per mile between 15 degrees and 20 degrees south of east. Shallow depressions and small sand dunes are the only significant relief features on the Llano Estacado. Otherwise it is a flat, gently sloping plain, treeless, and marred only by slight undulations and covered with short prairie grass."

The subsurface at the site is composed of a hard caliche base covered with just a few inches of sandy clay topsoil. The hard caliche extends ~35 feet where it is underlain by the upper boundary of the alluvial Ogallala Aquifer.

### *3.3 Ecology*

The area is typical of the Upper Chihuahuan Desert Biome consisting primarily of hummocky sand hills covered with Harvard Shin Oak (Querqus harvardi) interspersed with Honey Mesquite (Prosopis glandulosa) along with typical desert grasses, flowering annuals and flowering perennials. Mammals represented, include Orrd's and Merriam's Kangaroo Rat, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Mule Deer, Bobcat, Red Fox and Coyote. Reptiles, Amphibians, and Birds are numerous and typical of area. A survey of Listed, Threatened, or Endangered species was not conducted.

### *3.4 Area Water Wells and/or Surface Water Features*

There are no water wells and/or surface water features within 1000-ft of the release site.

There are no surface water bodies within 1000-ft of the site.

## 4.0 NMOCD Site Ranking

Contaminant delineation and site characterization done at this site thus far indicate that the chemical parameters of the soil and ground water were characterized consistent with the characterization and remediation/abatement goals and objectives set forth in the New Mexico Oil Conservation Division (NMOCD) approved "***General Work Plan for Remediation of E.O.T.T. Pipeline Spills, Leaks and Releases in New Mexico, July 2000***" and the NMOCD guidelines published in the following documents:

- ***Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)***
- ***Unlined Surface Impoundment Closure Guidelines (February 1993)***

Acceptable thresholds for **contaminants/constituents of concern** (CoCs), i.e., $TPH^{8015m}$, Benzene, and the mass sum of Benzene, Toluene, Ethyl Benzene, and total Xylene (BTEX), was determined based on the NMOCD Ranking Criteria as follows:

- Depth to Ground water, i.e., distance from the lower most acceptable concentration to the ground water.
- Wellhead Protection Area, i.e., distance from fresh water supply wells.
- Distance to Surface Water Body, i.e., horizontal distance to all down gradient surface water bodies.

Based on the proximity of the site to protectable area water wells, surface water bodies, and depth to ground water from the lower most contamination, the NMOCD ranking score for the site is 20 points with the soil remedial goals highlighted in the Site Ranking Matrix presented as Table 1 on the following page.

**Table 1 - Site Ranking Matrix**

| 1. Ground Water | 2. Wellhead Protection Area | 3. Distance to Surface Water |
|---|---|---|
| **Depth to GW <50 feet: *20 points*** | **If <1000' from water source, or; <200' from private domestic water source: *20 points*** | **<200 horizontal feet: *20 points*** |
| **Depth to GW 50 to 99 feet: *10 points*** | | **200-1000 horizontal feet: *10 points*** |
| **Depth to GW >100 feet: 0 points** | **If >1000' from water source, or; >200' from private domestic water source: *0 points*** | **>1000 horizontal feet: *0 points*** |
| Ground Water Score = 20 | Wellhead Protection Score = 0 | Surface Water Score= 0 |
| **Site Rank (1+2+3) = 20 + 0 + 0 = 20 points (for soil 0-50'bgs)** | | |

| Total Site Ranking Score and Acceptable Remedial Goal Concentrations | | | |
|---|---|---|---|
| Parameter | **20+ (soil 0 – 36' bgs)** | 10 | 0 |
| Benzene[1] | **10 ppm** | 10 ppm | 10 ppm |
| BTEX[1] | **50 ppm** | 50 ppm | 50 ppm |
| TPH | **100 ppm** | 1000 ppm | 5000 ppm |
| [1]100 ppm field VOC headspace measurement may be substituted for lab analysis | | | |

# 5.0 Subsurface Soil Investigation

The initial subsurface soil analyses were accomplished on 13-Feb-03 with the drilling and sampling of the first borehole (ultimately designated RW1) down to 28-ft bgs. Drilling was halted at the 28-ft level due to the hardness of the rock encountered at that depth. Field VOC readings and samples for TPH and BTEX analysis were taken at the 2, 5, 10, 15, 20 and 25-ft intervals. Eades Drilling Co. was subsequently utilized to extend the borehole beyond the 28-ft level on 05-March-03. Samples were taken at the 30 and 35-ft levels. The material at 30-ft was still caliche with obvious petroleum presence. At 35-ft the material was sandy and saturated with oil. Liquid crude oil was encountered at 36-ft bgs. VOC measurements ranged from 1670 ppm at the 5-ft bgs level down to 400 ppm at the 30-ft bgs level. The bore was extended to 50-ft and a 4" monitor/recovery well was installed and designated MW1. *(Lab analyses results for this boring are included in the Attachments as Plates 7 and 8)*. Upon installation of RW1, an up-gradient monitor well was installed ~100-ft northwest of RW1. The initial purpose for the placement of this up-gradient well was to establish uncontaminated background water quality data for the project, however, the necessary up-gradient distance required for this purpose was under-estimated. Upon development of this well, it proved to have 15.6-in of petroleum product on top of the water. This well was designated RW2.

# 6.0 Ground Water Investigation

The boring of RW1 confirmed that the hydrocarbon contamination at this site had penetrated the vadose zone and that ground water impact was significant. The presence of ~16-in of petroleum product on top of the ground water in RW2, ~100-ft up-gradient from RW1, indicates that the petroleum leakage at this site has been a long-term and relatively low-release rate event. The leak was

not discovered until the rate of release increased enough to overcome the soil's absorptive capabilities, thus allowing visible surface impact. The NMOCD Hobbs District Office and the NMOCD Environmental Bureau (Mr. Randy Bayliss) were notified verbally and in writing of the ground water contamination at this site on 03-05-03.

EPI proposes to conduct a Ground Water Investigation with the purpose of delineating the lateral extents of the ground water contamination at this site through the use of recovery wells, monitor wells and "SURFER 8.0" contour mapping software. Phase I of the investigation, the installation of RW1 and RW2, was completed on 03-05-03 *(See Plate 4, Attachments)*. Phase II of the investigation will be the installation of four additional recovery wells (RW3 – RW6) within the contaminant plume. The Phase I and Phase II recovery wells will provide data with sufficient statistical divergence to allow the "Surfer" software to generate a reasonably accurate projection of the lateral and vertical extents of the contaminant plume. Once the lateral extents have been computer modeled from the RW1 – RW6 data, Phase III will be initiated with the installation of four monitor wells (MW1 – MW4). These wells will be installed up-gradient, side-gradient and down-gradient of the release to confirm the uncontaminated lateral boundaries of the ground water contaminant plume *(see Plate 5, Attachments)*.

*Plate 6, Attachments,* is a cross-sectional diagram of the installed Recovery Wells 1 and 2. Additional product recovery wells and ground water monitoring wells at this site will be installed and constructed in a similar fashion.

## 7.0 Ground Water Remediation

Once the lateral extents of the ground water contaminant plume at this site have been determined, ground water remediation options will be evaluated and will consist of one or more of the following remediation alternatives:

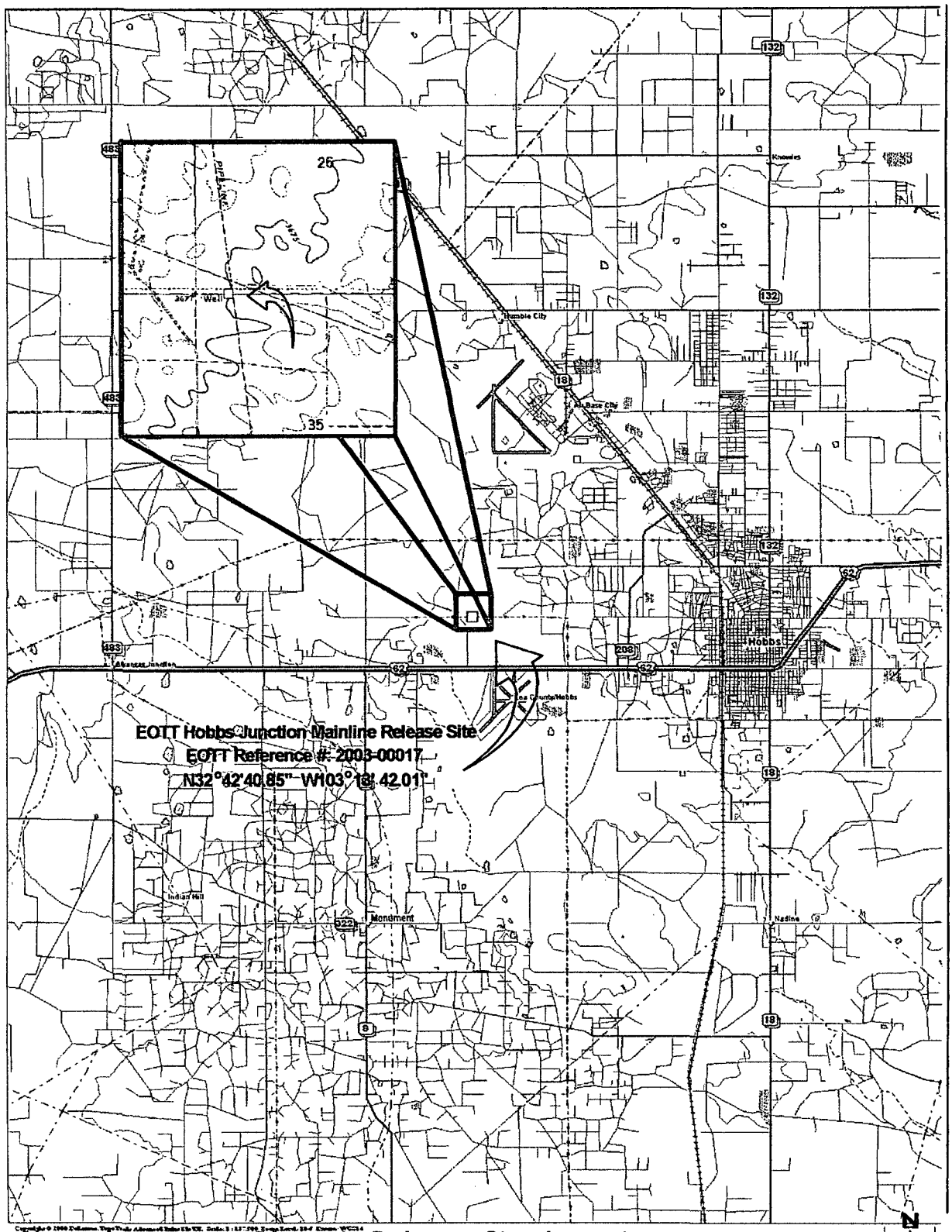
- Bulk product recovery utilizing direct pumping and/or eductor units with separation
- Skimming and/or absorption of free-phase product
- Air sparge and/or Ground Water sparge
- Natural attenuation

Ground water remediation will involve a comprehensive monitoring protocol to ensure remediation progress and confirmation of remedial goal achievement and NMWQCC ground water standards.

## 8.0 Soil Remediation

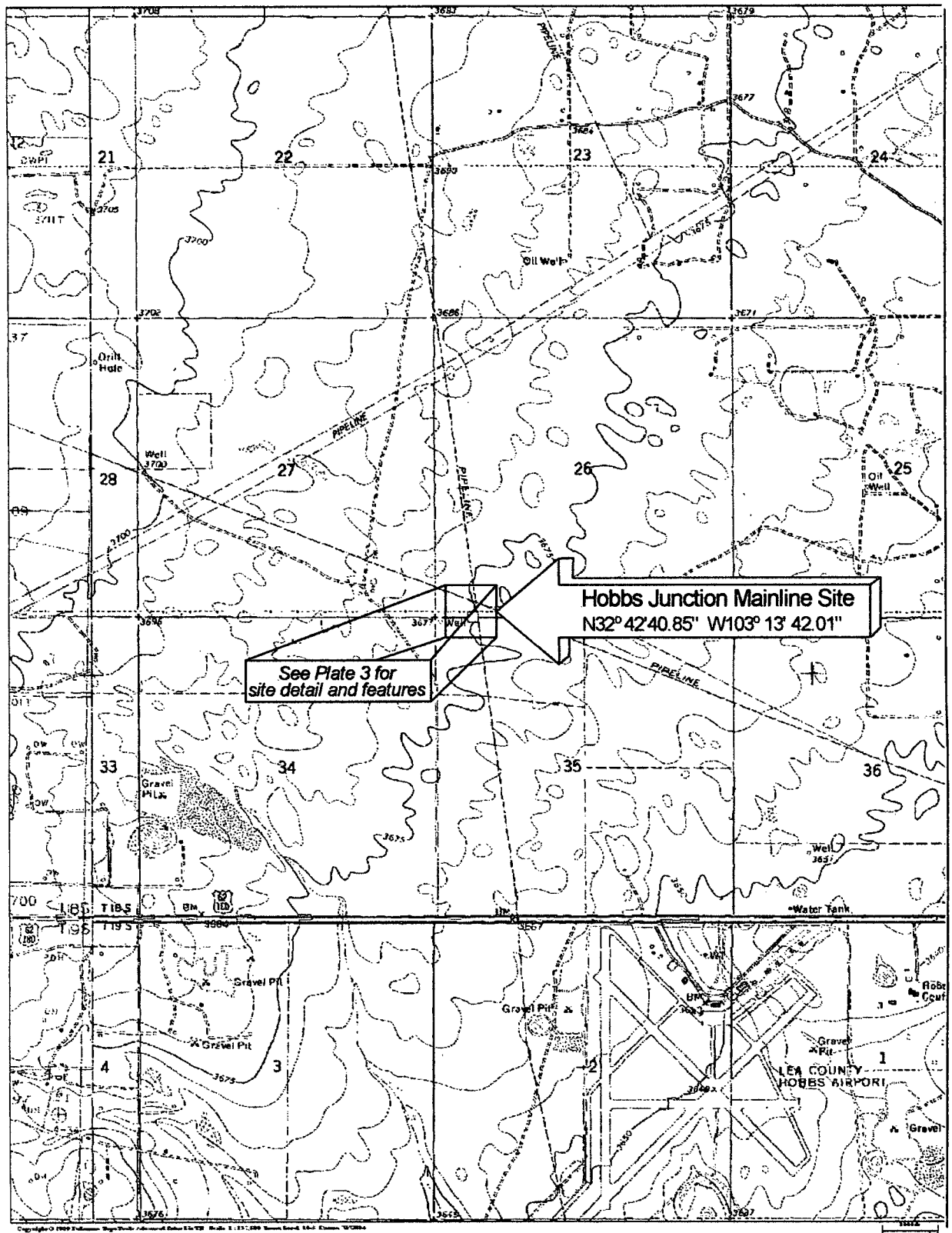
Soil remediation options will be addressed after the sub-surface data from the Phase II and Phase III recovery/monitor wells is obtained and processed with modeling software. The most likely scenario is that soil contamination will not be as extensive as the ground water contamination, except within the contact area between the aquifer and vadose zone.

# Attachments:



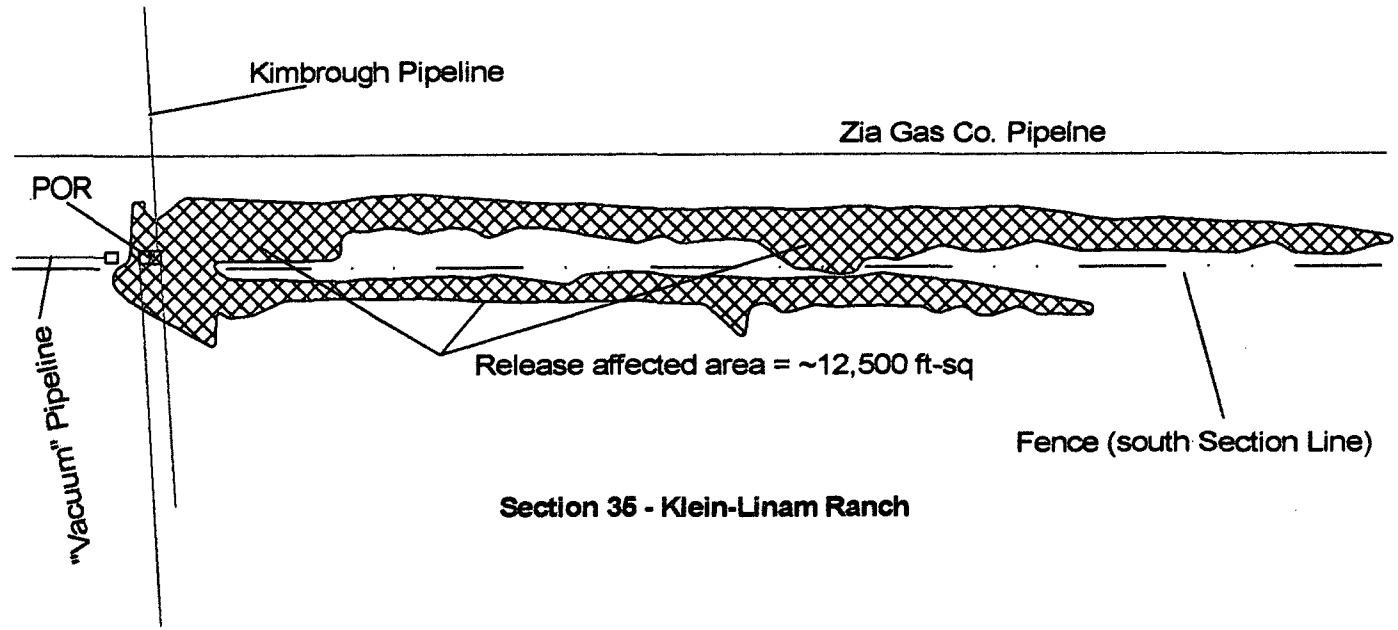

## Plate 1: Release Site Location

EOTT Energy Pipeline, LP - Hobbs Junction Mainline (2003-00017)
Lea County, NM; UL-M Section 26 T18S R37E
Lea County, NM; UL-D Section 35 T18S R37E

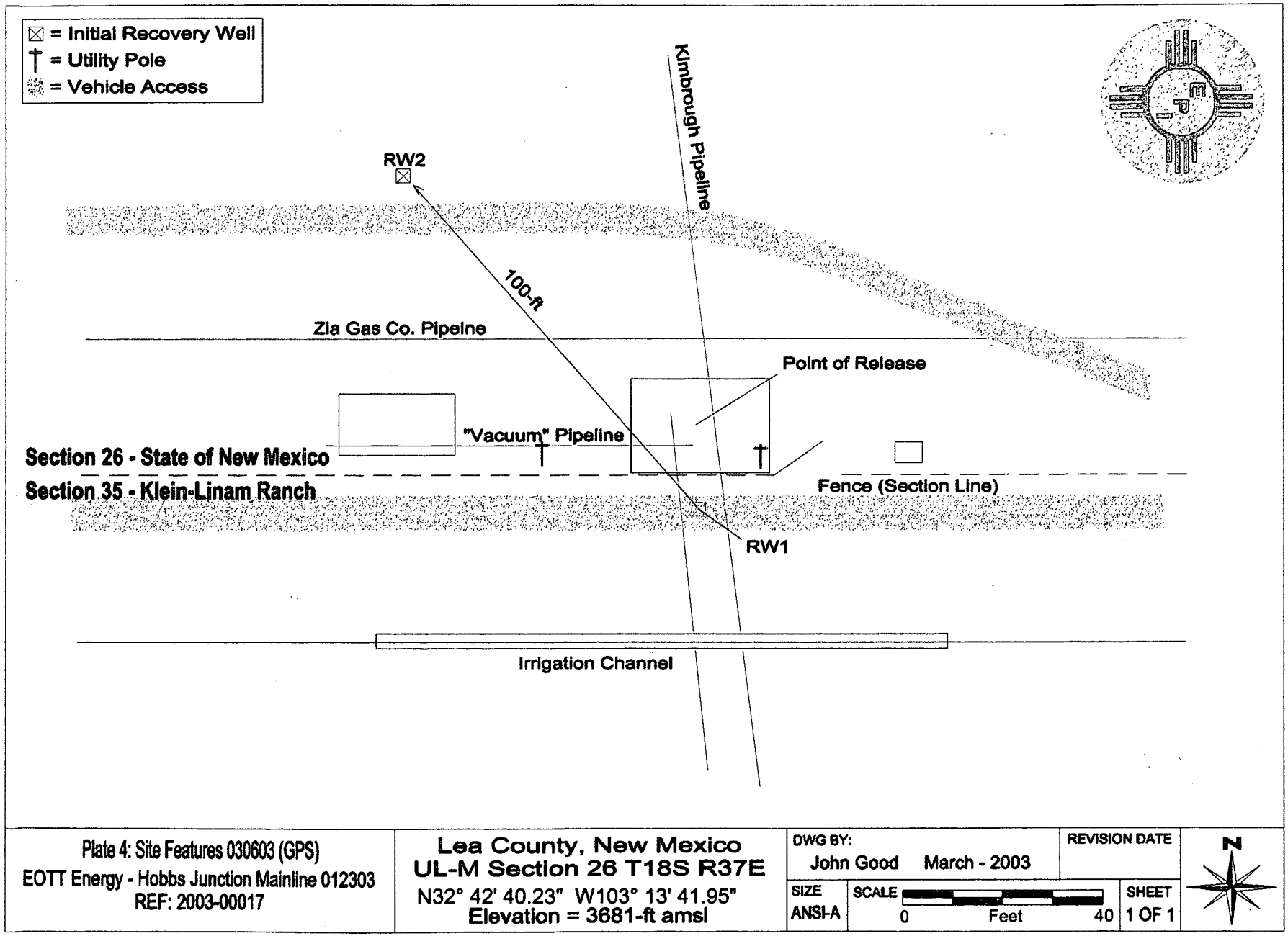



## Plate 2: Site Topography and Release Location

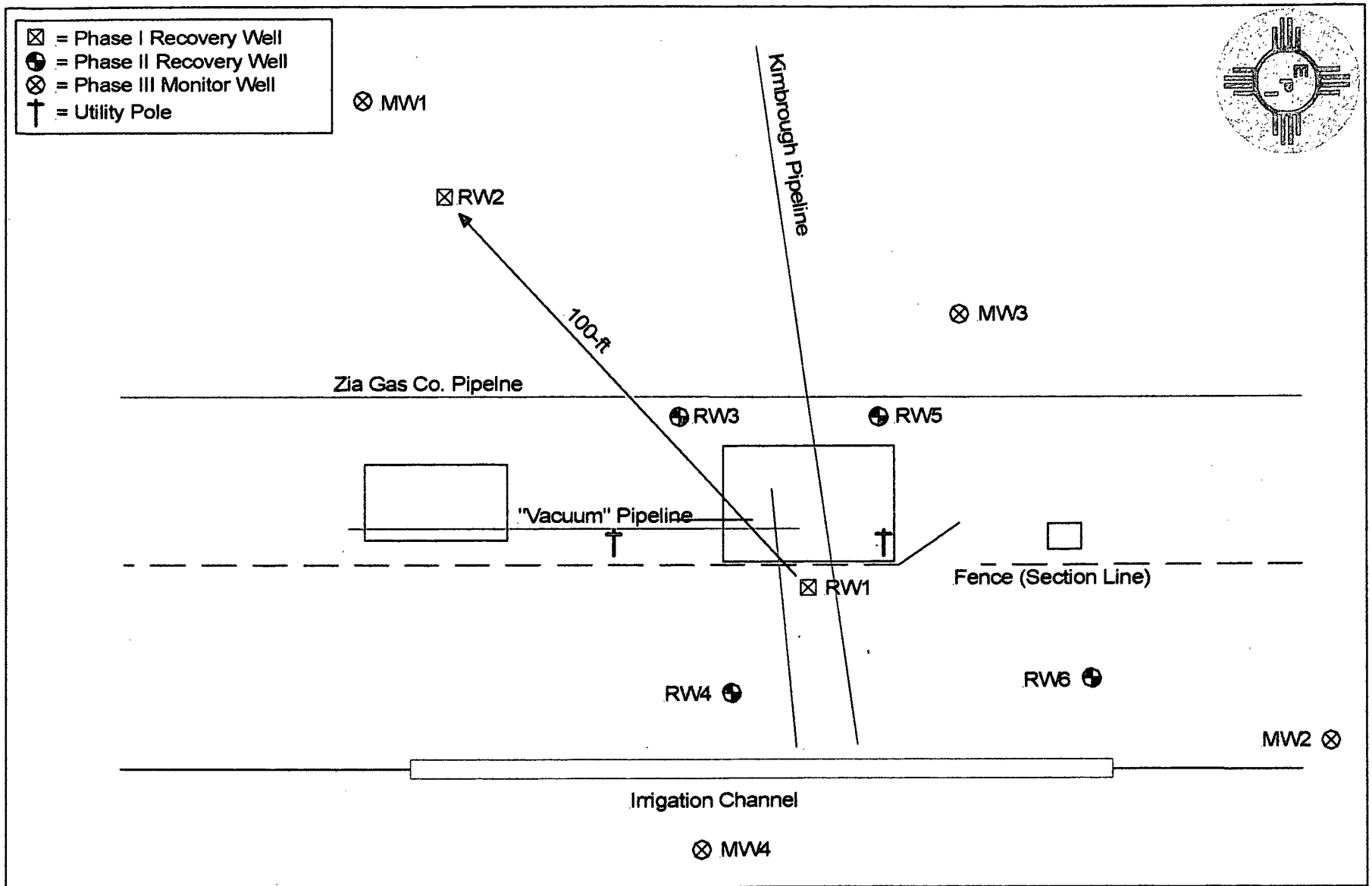
EOTT Energy Pipeline, LP - Hobbs Junction Mainline (2003-00017)
Lea County, NM; UL-M Section 26 T18S R37E
Lea County, NM; UL-D Section 35 T18S R37E




| | | | | |
|---|---|---|---|---|
| **Plate 3:**<br>**Initial Site GPS Demarcation (23-Jan)**<br>**EOTT Hobbs Junction Mainline 012303**<br>**REF: 2003-00017** | Lea County, New Mexico<br>UL-M Section 26 T18S R37E<br>N32° 42' 40.85" W103° 13' 42.01"<br>Elevation: 3681-ft amsl | **DWG BY:** John Good<br>January - 2003 | **REVISED:**<br>March - 2003 | N |
| | | **SIZE:** ANSI A | **SCALE:** 0 Feet 100 | **SHEET** 1 of 1 |




| | | | |
|---|---|---|---|
| Plate 4: Site Features 030603 (GPS)<br>EOTT Energy - Hobbs Junction Mainline 012303<br>REF: 2003-00017 | Lea County, New Mexico<br>UL-M Section 26 T18S R37E<br>N32° 42' 40.23" W103° 13' 41.95"<br>Elevation = 3681-ft amsl | DWG BY: John Good March - 2003<br>SIZE ANSI-A<br>SCALE 0 Feet 40 | REVISION DATE<br>SHEET 1 OF 1 |




| | | | |
|---|---|---|---|
| **Plate 5:**<br>**Phase I - III Proposed Monitor/Recovery Wells**<br>**EOTT Hobbs Junction Mainline 012303**<br>**REF: 2003-00017** | Lea County, New Mexico<br>UL-M Section 26 T18S R37E<br>N32° 42' 40.85" W103° 13' 42.01"<br>Elevation: 3681-ft amsl | **DWG BY:** John Good<br>March - 2003<br>**REVISED:**<br>**SIZE:** ANSI A<br>**SCALE:** 0 Feet 40<br>**SHEET** 1 of 1 | N |



Hobbs Junction Mainline 012303 (2003-00017)

E.O.T.T. Energy Pipeline

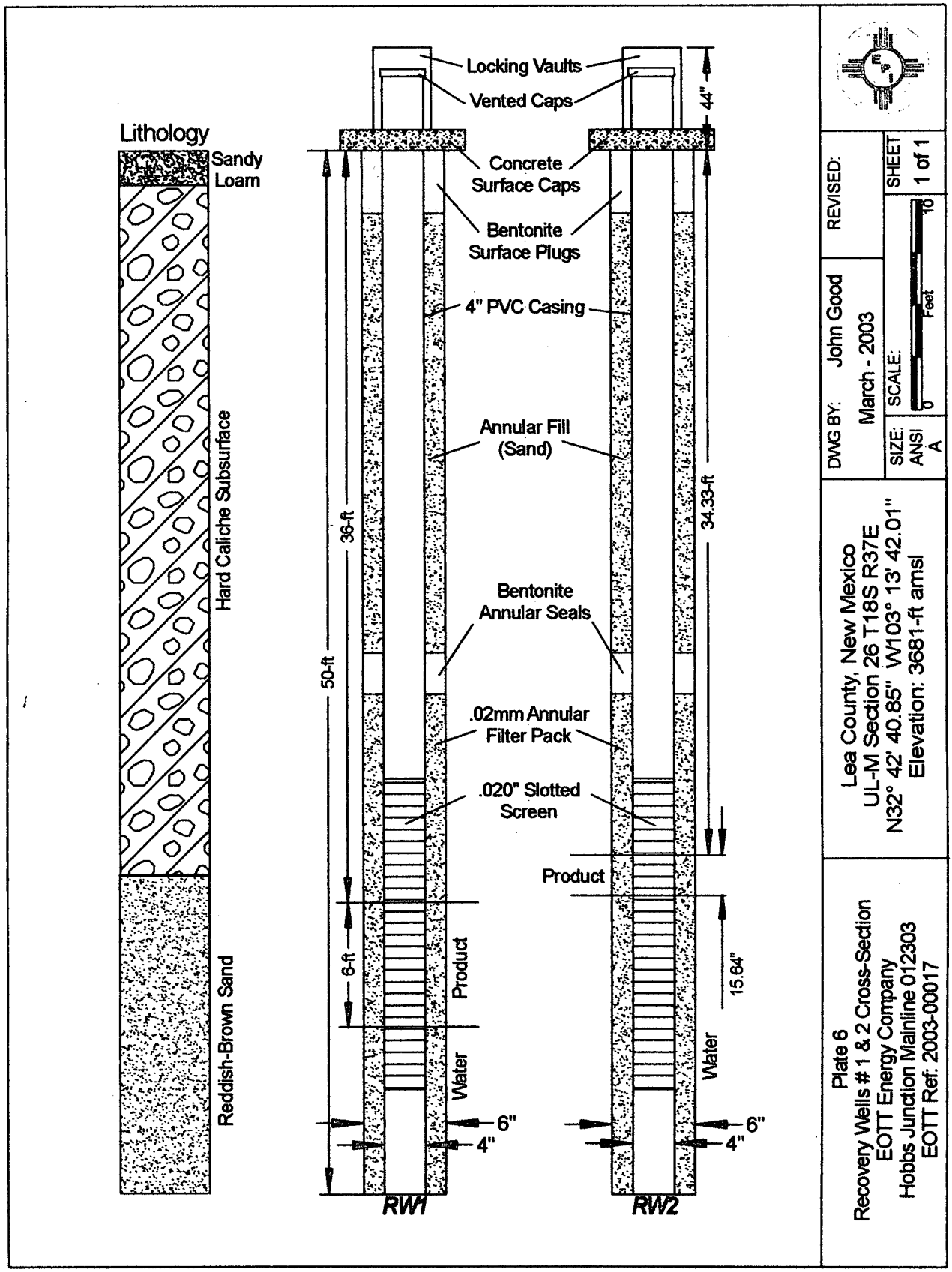

Lithology
Sandy Loam
Hard Caliche Subsurface
Reddish-Brown Sand
Locking Vaults
Vented Caps
Concrete Surface Caps
Bentonite Surface Plugs
4" PVC Casing
Annular Fill (Sand)
Bentonite Annular Seals
.02mm Annular Filter Pack
.020" Slotted Screen
Product
Water
6"
4"
RW1
RW2
50-ft
36-ft
6-ft
44"
34.33-ft
15.64"
DWG BY: John Good
March - 2003
REVISED:
SHEET 1 of 1
SIZE: ANSI A
SCALE: 0 10 Feet
Lea County, New Mexico
UL-M Section 26 T18S R37E
N32° 42' 40.85" W103° 13' 42.01"
Elevation: 3681-ft amsl
Plate 6
Recovery Wells # 1 & 2 Cross-Section
EOTT Energy Company
Hobbs Junction Mainline 012303
EOTT Ref: 2003-00017

Plate 7- Soil Analysis Results (TPH & BTEX)

## EOTT Energy Co. - Hobbs Junction Mainline 012303 - Borehole Sampling Results

**Bold** highlighted cells indicate values in excess of the NMOCD remedial action guideline thresholds: TPH = 100 mg/Kg; Benzene = 10 mg/Kg; BTEX = 50 mg/Kg; Cl = 250 mg/Kg; SO4 = 600 mg/Kg

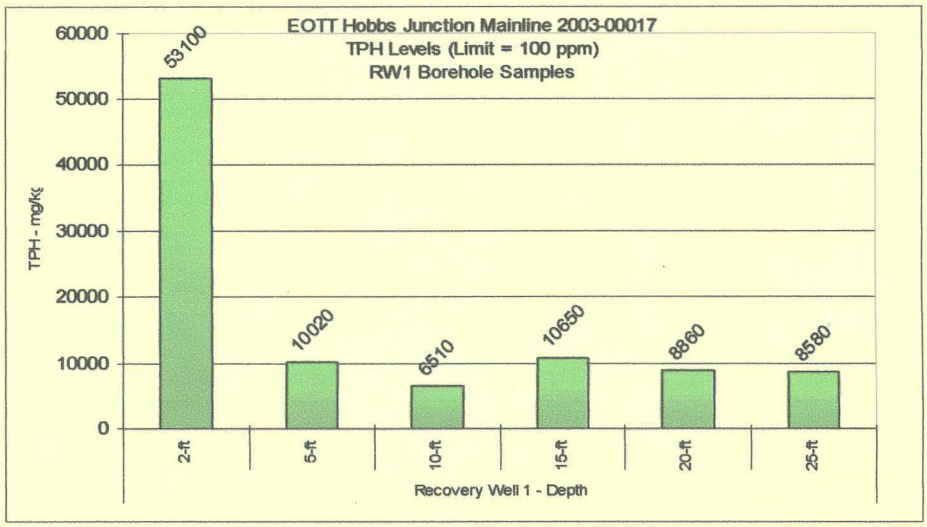
| Sample Date | Excavation Sampling Area | Depth (ft. - bgs[1]) | SAMPLE ID# | VOC[2] ppm | GRO[3] mg/Kg | DRO[4] mg/Kg | TPH[5] mg/Kg | BTEX[6] mg/Kg | Benzene mg/Kg | Toluene mg/Kg | Ethyl Benzene mg/Kg | Total Xylenes mg/Kg | Cl⁻ mg/Kg | $SO_4^=$ mg/Kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13-Feb | RW1 | 2-ft | SEHM21303BH1-2 | 1325 | 21400 | 31700 | 53100 | 2664.0 | 169.0 | 981.0 | 562.0 | 942.0 | 52.3 | 21.8 |
| 13-Feb | RW1 | 5-ft | SEHM21303BH1-5 | 1670 | 3950 | 6070 | 10020 | 487.1 | 38.8 | 177.0 | 107.0 | 164.3 | | |
| 13-Feb | RW1 | 10-ft | SEHM21303BH1-10 | 1420 | 2650 | 3860 | 6510 | 629.2 | 44.6 | 196.0 | 113.0 | 175.6 | | |
| 13-Feb | RW1 | 15-ft | SEHM21303BH1-15 | 1300 | 3940 | 6710 | 10650 | 669.6 | 273.0 | 142.0 | 98.4 | 156.1 | | |
| 13-Feb | RW1 | 20-ft | SEHM21303BH1-20 | 1101 | 2990 | 5870 | 8860 | 271.9 | 10.6 | 84.5 | 66.3 | 110.5 | | |
| 13-Feb | RW1 | 25-ft | SEHM21303BH1-25 | 895 | 2820 | 5760 | 8580 | 349.1 | 9.8 | 95.5 | 94.2 | 149.6 | | |

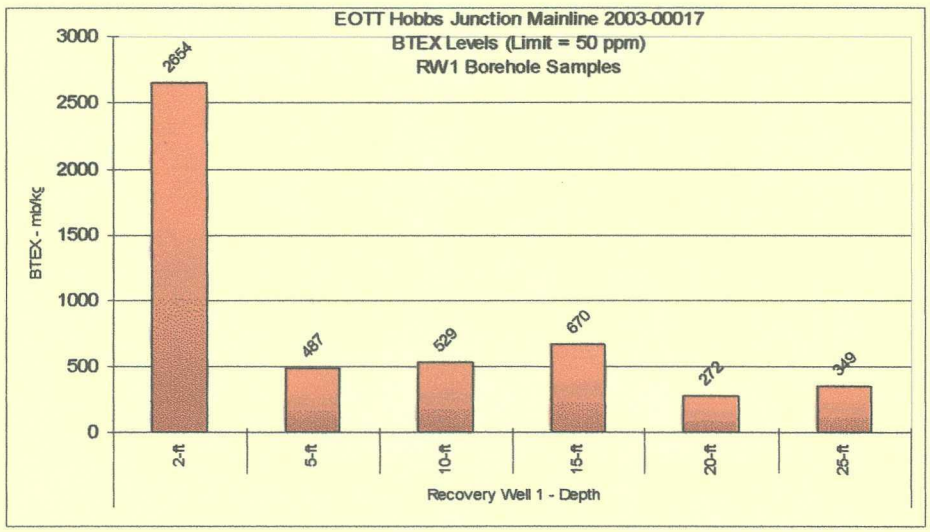
[1] bgs = below ground surface [2] VOC = Volatile Organic Constituents; (note: 100 ppm isobutylene calibration gas = 101 ppm)

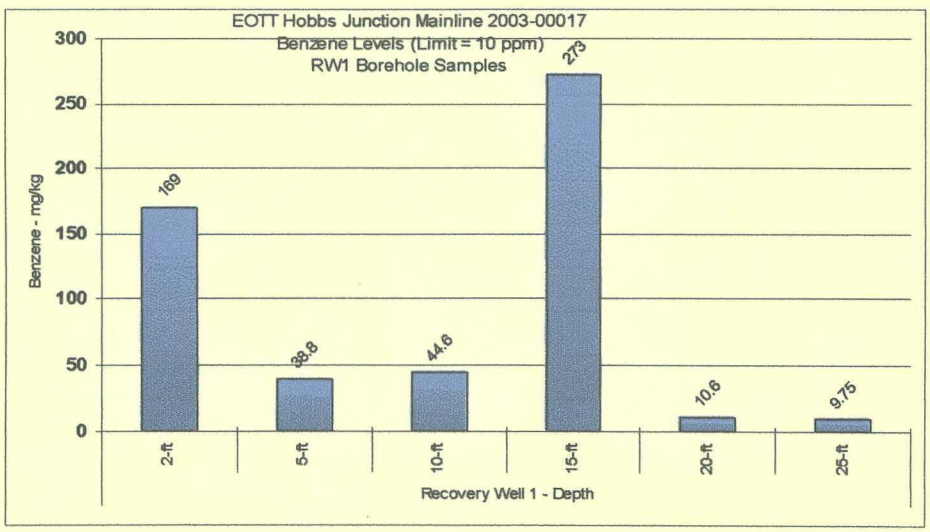
[3] GRO - Gasoline Range Organics (Detection Limit = 10 mg/Kg) [4] DRO - Diesel Range Organics (Detection Limit = 10 mg/Kg) [5] TPH - Total Petroleum Hydrocarbon (GRO+DRO)

[6] BTEX = Sum of CoC's (Detection Limits = 0.005 mg/Kg; 0.015 mg/Kg) Note: Reported detection limits are considered "de minimus" values and are included in the TPH and BTEX summations.

# *Plate 8- Soil Analysis Charts*



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 March 17, 1999

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 | Contact |
|---|---|
| **EOTT Energy Pipeline, LP** | **Frank Hernandez** |
| Address | Telephone No. |
| **5805 East Hwy 80** | **915-638-3799** |
| Facility Name | Facility Type |
| **Hobbs Junction Mainline** | **10" Crude Oil Pipeline** |

| Surface Owner | Mineral Owner | Lease No. |
|---|---|---|
| **State of NM** | **NA** | **NA** |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from South Line | Feet from West Line | Longitude | Latitude | County: |
|---|---|---|---|---|---|---|---|---|
| **M** | **26** | **18S** | **37E** | **15** | **700** | **W103:13:42.01** | **N32:42:40.85** | **Lea** |

## NATURE OF RELEASE

| Type of Release | Volume of Release | Volume Recovered |
|---|---|---|
| **Crude Oil** | **50 bbl** | **24 bbl** |
| Source of Release | Date and Hour of Occurrence | Date and Hour of Discovery |
| **Steel Pipeline** | **1/23/03-8:00 AM** | **1/23/03-10:45 AM** |
| Was Immediate Notice Given? ☑ Yes ☐ No ☐ Not Required | If YES, To Whom? **Sylvia Dickie - Hobbs NMOCD** | |
| By Whom? **Pat McCasland - EPI** | Date and Hour **1/23/03-11:35 AM** | |
| Was a Watercourse Reached? ☐ Yes ☑ No | If YES, Volume Impacting the Watercourse. **NA** | |

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
**Corroded pipeline (internal), repaired with clamp**

Describe Area Affected and Cleanup Action Taken.*
**~12500-ft² surface area affected; 50-bbl released; 24-bbl of crude recovered. Removal and disposal of contaminated soil above remedial goals was commenced by EPI.**

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: Frank Hernandez | OIL CONSERVATION DIVISION | |
|---|---|---|
| Printed Name: **Frank Hernandez** | Approved by District Supervisor: | |
| Title: **District Environmental Supervisor** | Approval Date: | Expiration Date: |
| Date: **1/24/03** Phone: **915-638-3799** | Conditions of Approval: | ☐ Attached |

# *Site Photographs*