1R - 387

REPORTS

DATE:

2001

E.O.T.T. Energy Pipeline

Work Plan Supplement, Investigation, and Closure Proposal

for the

Dickie Wheeler Site

1R-387

Reference: 2000-10403

SE¼NW¼ Section 35, T14S, R37E
~13 miles northeast of Lovington, Lea County, New Mexico

July 2001

Prepared by

Environmental Plus, Inc.
1324 North Main Street
P.O. Box 1558
Eunice, New Mexico 88231
Tele 505•394•3481 FAX 505•394•2601

TABLE OF CONTENTS

1 Dickie Wheeler Work Plan Supplement

This Work Plan Supplement is developed to be consistent with the site characterization and remediation/abatement goals and objectives set forth in the **"General Work Plan for Remediation of E.O.T.T. Pipeline Spills, Leaks and Releases in New Mexico, July 2000."**

1.1 Introduction

Indications are, that the Dickie Wheeler leak was due to internal corrosion. This plan collected information necessary to determine vertical and horizontal extent of crude oil contamination at this site and provides a reasonable and conservative assessment of risk/exposure using the VADSAT computer model developed by the American Petroleum Institute to simulate transport of hydrocarbon through the vadose zone.

1.2 Project Organization and Responsibility

Environmental Plus, Inc., Eunice, New Mexico (EPI) conducted the subsurface investigation with operational support and coordination by EOTT personnel. The Environmental Lab of Texas, Inc., of Odessa, Texas performed the laboratory analyses and provided reports.

1.3 Environmental Media Characterization

Chemical parameters of the soil were characterized consistent with the New Mexico Oil Conservation Division (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)

Ground water was not encountered during the investigation, nevertheless, research of reliable sources, i.e., New Mexico Bureau of Mines and Minerals and New Mexico State Engineer databases, indicate the saturated zone occurring in the area at ~75 feet below ground surface ('bgs). According to the NMOCD ranking criteria, the site has a ranking of 20, based on the delineation of the Constituents of Concern (CoCs), i.e., TPH and BTEX and the following site characteristics;

- 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.

1.3.1 Delineation Strategy

The site map included in Attachment II, shows the sampling borehole locations. Boreholes 7, 6, 4, and 2 were located to verify the affected area horizontal perimeter, while boreholes 1, 3, and 5 were located to delineate the vertical extent of contamination.

1.3.2 Site Description

The pipeline is associated with the Amoco Denton Station but is situated in open grazing land 1 mile southwest of the station in the SE¼ NW¼ of Section 35, T14S, R37E, Lea County, New Mexico. The site information and metrics form is included as Attachment I.

1.3.3 Historical Use

The area has been used historically for livestock grazing and access to oil and gas production facilities.

1.3.4 Photographic documentation

Photographs of the sites are included as Attachment III.

1.3.5 Ecological Description

The area is in the transition zone between the Upper Chihuahuan Desert and Great Plains/Great Basin Biomes. This area consists primarily of dark to gray sandy clay loam overlaying an indurated caliche bed that pervades the general area. Vegetation consists primarily of typical desert grasses and weeds with interspersions of Honey Mesquite (Prosopis glandulosa). Mammals represented, include Orrd's and Merriam's Kangaroo Rat, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, Pronghorn Antelope, and the Mule Deer. Reptiles, Amphibians, and Birds are numerous and typical of area. A survey of Listed, Threatened, or Endangered species was not conducted.

1.3.6 Area Ground Water Levels

According to the database information provided by the New Mexico State Engineers Office and the New Mexico Bureau of Mines and Mineral Resources(NMBMMR), the uppermost unconfined aquifer occurs in the area at ~75' bgs as the Ogallala Formation.

1.3.7 Depth to Ground Water Calculation

The NMOCD requires the site be ranked to determine which soil CoC thresholds will apply and defines depth to ground water as, "the vertical distance from the lowermost contaminants to the seasonal high water elevation of the ground water." The uppermost occurrence of ground water is conservatively estimated to be 75' bgs. The lower most contamination above the CoC thresholds occurs at 30'bgs.

1.3.8 Ground Water Gradient

Using water level and altitude information provided by the NMBMMR the calculated ground water gradient is at a bearing of 62.5°,i.e., generally to the

northeast. Water levels from the State Engineers office are include and appear to be more shallow.

1.3.9 Wellhead Protection Area

The listed water wells are greater than 1,000 feet from the site.

1.3.10 Distance to Nearest Surface Water Body

There are no naturally occurring surface water bodies located within a 1,000 foot radius of the site.

1.4 Quality Assurance Plan

This Quality Assurance Plan (QAP) ensured the quality and usability of information and data used to support a successful site investigation and subsequent environmental management decisions.

1.4.1 Project Safety

Occupational and Environmental Safety are key to the efficacy of this QAP. Hazards encountered at this site included the following;

- Moving equipment
- Buried pipelines
- Rotary Equipment
- Highway ingress/egress
- Excavation
- Potential Hydrogen Sulfide Gas

Employees and subcontractors were required to confirm current training in these hazards. Standard personal protective equipment included;

- Personal H_2S Monitor
- Hard-hat
- Steel Toed Boots/Shoes
- Safety Glasses

1.4.2 Data Quality Objectives

For analytical information derived from samples, the following quality controls were documented and verified. Data within these specifications was deemed quantitative and acceptable for use in making environmental management decisions.

- Laboratory data must have extraction recovery for TPH, BTEX and general chemistry parameters •30.0%. Or a "%Extraction Accuracy " between 70 and 130%.
- Laboratory data must have <30% Relative Percent Difference or a "%Instrument Accuracy" between 70 and 130%.

- Field headspace analyses must be supported with instrument calibration data and calibration gas certification.

1.4.3 Methodology

Collecting representative site samples and information required that the sampling and observational processes and procedures be implemented within strict bounds. These control procedures further ensured the quality of site data and information and are consistent with the EOTT standard operating procedures as referenced in the NMOCD approved "General Work Plan for Remediation of EOTT Pipeline Spills, Leaks, and Releases in New Mexico." Likewise, personnel implemented standard occupational and environmental safety protocols.

1.4.3.1 BOREHOLE DRILLING, LITHOLOGIC SAMPLING, LOGGING, AND ABANDONMENT

Boreholes were located strategically to best determine vertical and horizontal extent of contamination in the vadose zone. Borelogs were developed for each boring noting site lithology. Laboratory samples were not collected to determine more detailed lithologic characteristics, i.e., porosity, transmissivity, etc. Each borehole was plugged with Sodium Bentonite in accordance with the NMOCD guidelines.

1.4.3.1.1 GENERAL DRILLING PROCEDURES

The investigation used the Environmental Plus, Inc. drill rig with hollow stem auger and "thin-wall probe" method of discrete sampling.

1.4.3.1.2 SOIL SAMPLING AND LOGGING

Upon advancing to the desired sampling interval the probe was extended through the end of the hollow stem auger and pushed into the soil matrix to collect the sample. As the 1.5" X 48" stainless steel probe with a vinyl sampling sleeve was detached from the sampling bar, it was immediately placed on the rack and logged. A 4 oz. sample was then taken from the bottom end of the sleeve sample and decanted into the sample jar for refrigeration and preparation with the remainder (~1 Kg) placed in a 1 gallon Ziploc® bag, warmed to ambient ~ 70-80 °F and the VOC Headspace concentration measured and recorded. All pertinent information was recorded on the field borelog data sheet.

1.4.3.1.3 BOREHOLE ABANDONMENT

The boreholes were filled with a mixture of distilled water and Sodium Bentonite and a wooden marker denoting the borehole number driven into the center of each backfilled hole.

1.4.3.2 SAMPLE HANDLING

Soil samples were collected and prepared in accordance with accepted ASTM and EPA SW846 methods.

1.4.3.3 SAMPLE IDENTIFICATION

Sample identification numbers were designated as follows;

Site: EOTT Dickie Wheeler	Soil/Ground Water	Date	Borehole #	Interval feet bgs
EDW	S /GW	4-5-01	BH1	e.g. ,20'

Example: EDWS4501BH1-20

1.4.3.4 SAMPLING PROTOCOLS

1. Decontaminate sampling equipment and area with Alconox distilled water after each sample.
2. Prepare samples and refrigerate as soon as practicable.

Duplicates or blanks were not submitted to the laboratory.

1.4.3.5 SAMPLE CONTAINERS

Laboratory and field analyses of soil and water require specific containers and are listed in the matrix below.

Media	TPH	BTEX	VOC Headspace	Metals	PAH	General Chemistry
Soil	4 oz. Jars with Teflon seal	4 oz. Jars with Teflon seal	1-gallon Ziploc® bags			
Water	1 liter amber glass w/HCL	2-40 ml VOA vials w/ HCL		16 oz. Plastic w/1ml HNO_3	1 liter Amber Glass	1 liter Plastic

1.4.3.6 SAMPLE CUSTODY

All analytical request forms were completed and signatured by EPI as sampler. EPI personnel ascensioned the samples to the Environmental Lab of Texas, Inc. sample-receiving personnel under chain-of-custody signature.

1.4.3.7 QUALITY CONTROL SAMPLES

Quality control samples were not analyzed.

1.4.3.7.1 FIELD BLANK

A field blank for soil or water was not deemed necessary.

1.4.3.7.2 EQUIPMENT BLANK

None were collected.

1.4.3.7.3 FIELD DUPLICATE OR CO-LOCATED SAMPLES

None were collected.

1.4.3.7.4 TRIP BLANK

A laboratory prepared trip blank will accompany only water samples. No water samples were collected.

1.4.3.8 FIELD MEASUREMENTS

The VOC Headspace concentration for each soil sample was measured. The instrument used was the Ultra-Rae PID manufactured by Rae Systems and was calibrated with 100.0 ppm isobutylene standard gas from Scott Specialty Gases, Freemont, Colorado.

1.4.3.8.1 EQUIPMENT CALIBRATION AND QUALITY CONTROL

The PID was calibrated at least 3 times daily and checked with the calibration gas hourly. When a check with the calibration gas indicated the instrument reading is 10 ppm too high or low it was calibrated. Variation in the daytime ambient temperature will cause the variation.

1.4.3.8.2 EQUIPMENT MAINTENANCE AND DECONTAMINATION

All sampling and survey equipment was routinely decontaminated between samples. Nitrile gloves were worn and changed with each sampling iteration.

1.4.3.9 ANALYSES

Soil and ground water were analyzed in accordance with the following EPA Methods.

The analytical suite for soil samples will include;

- TPH (EPA method 8015M)
- BTEX (EPA method 8020 or equivalent)

1.5 DATA EVALUATION AND USABILITY

All data was reviewed based on the Data Quality Objectives in section 1.4.2. ELT provides Quality Assurance/Quality Control (QA/QC) information to support the quality of each batch of sample data. TPH and BTEX results are deemed adequate and usable if the "% extraction accuracy" (%EA) is ± 30% and "% instrument accuracy" (%IA) is ± 30%. QA/QC data is reported for each sample batch at the bottom of each analytical report and were all deemed acceptable.

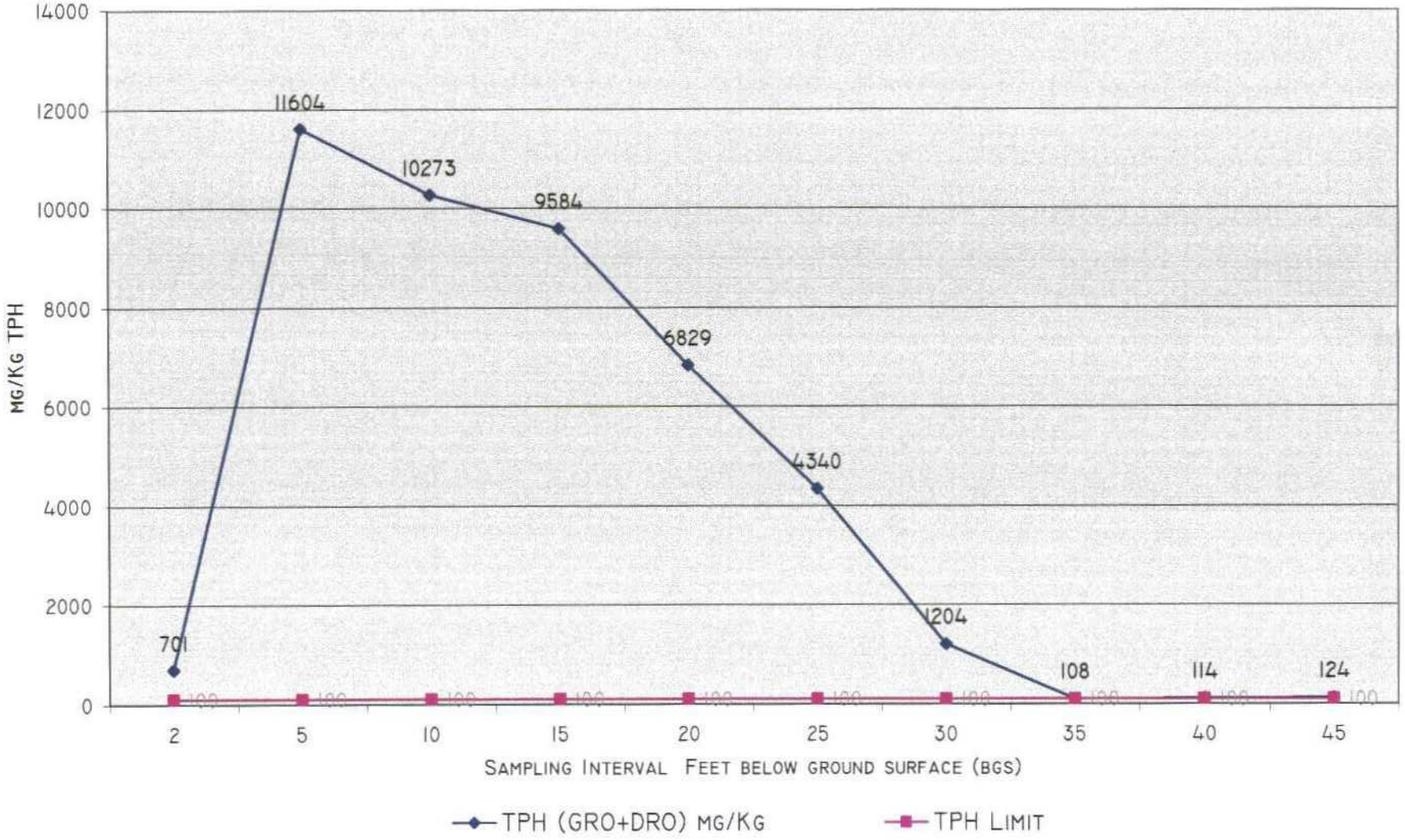
1.6 ANALYTICAL RESULTS

The original analytical results are included as Attachment IV along with a summary.

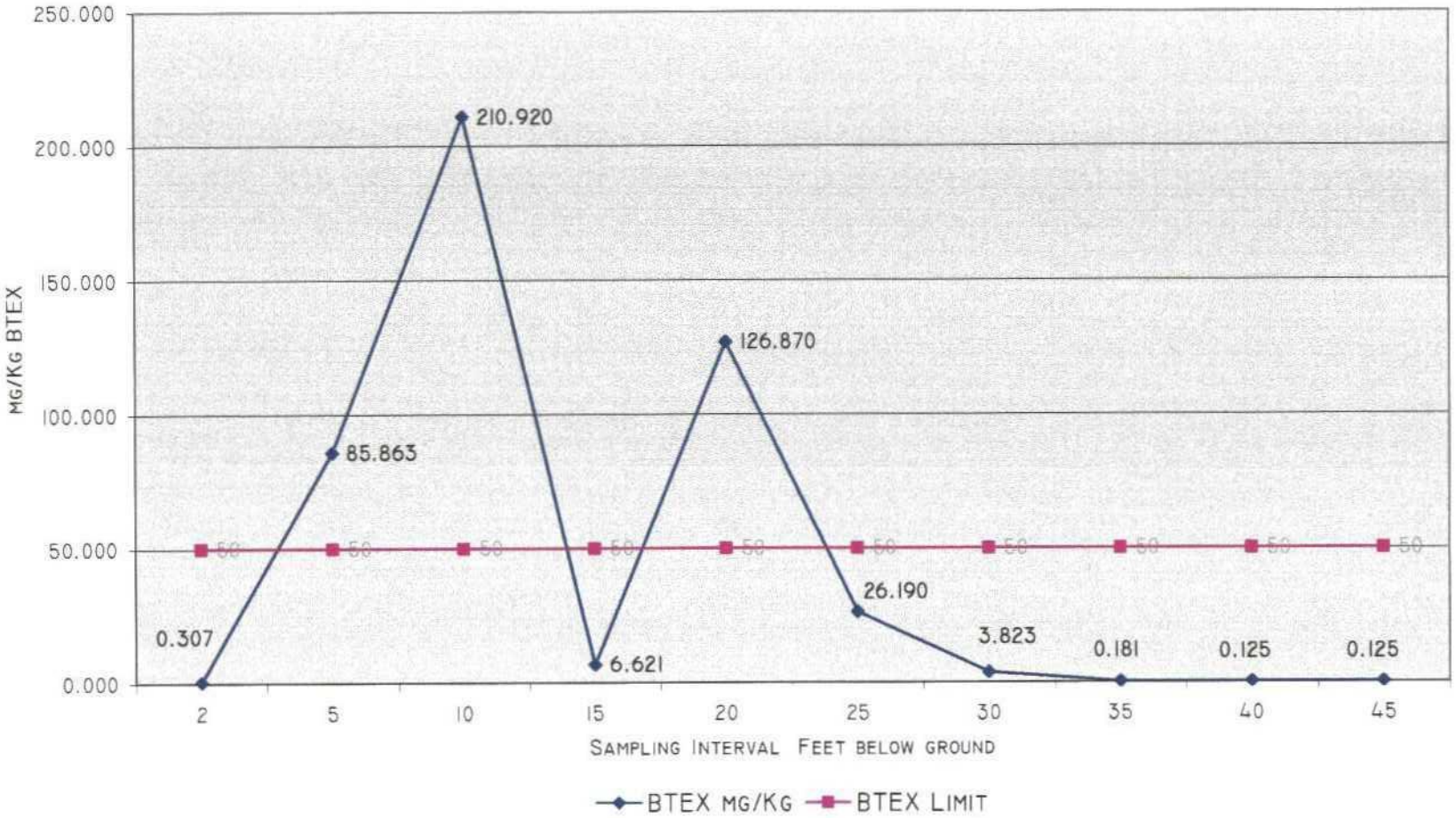
1.6.1 Borehole #1

This boring is located in the immediate area of the leak origin and is the site definition point for the vertical extent delineation. TPH^{8015m} above the NMOCD remedial goal of 100 mg/Kg was detected to 45'bgs, i.e. 124 mg/Kg. BTEX above the NMOCD remedial goal of 50 mg/Kg was detected at 20'bgs, i.e., 126.87 mg/Kg. Below are data illustrations.

E.O.T.T. Energy Pipeline
Dickie Wheeler Site
Borehole #1 Total Petroleum Hydrocarbon (8015M)



E.O.T.T. Energy Pipeline
Dickie Wheeler Site
Borehole #1 BTEX Concentrations
(BTEX=the sum of Benzene, Toluene, Ethyl Benzene, and Xylenes)



1.6.2 Borehole #2

There were no CoCs detected above the NMOCD remedial goals.

1.6.3 Borehole #3

The TPH^{8015m} value at the 2'bgs interval was 3719 mg/Kg but was non-detectable at 5'bgs. Contamination is surficial and will be removed.

1.6.4 Boreholes #4, #5, #6, and #7

There were no CoCs detected above the NMOCD remedial goals.

1.7 REMEDIATION AND CLOSURE PROPOSAL

It is proposed to excavate soil contaminated above the NMOCD remedial guidelines to 4' below grade and dispose of in the NMOCD approved Goo-Yea Landfarm, i.e., ~235 yd^3. The remaining contaminated soil down to 10' will be excavated, mechanically shredded and aerated and treated with bio-nutrients, i.e. 796 yd^3. Contamination below the 10' interval will be isolated from the surface environment by installing an oversized compacted 2' thick clay barrier. The barrier will also mechanically eliminate the vertical transport mechanism required to impact the ground water resource. The following risk/exposure assessment is included as justification and support for approval of the proposed increase in the NMOCD remedial goals for the CoCs.

1.7.1 Risk/Exposure Assessment

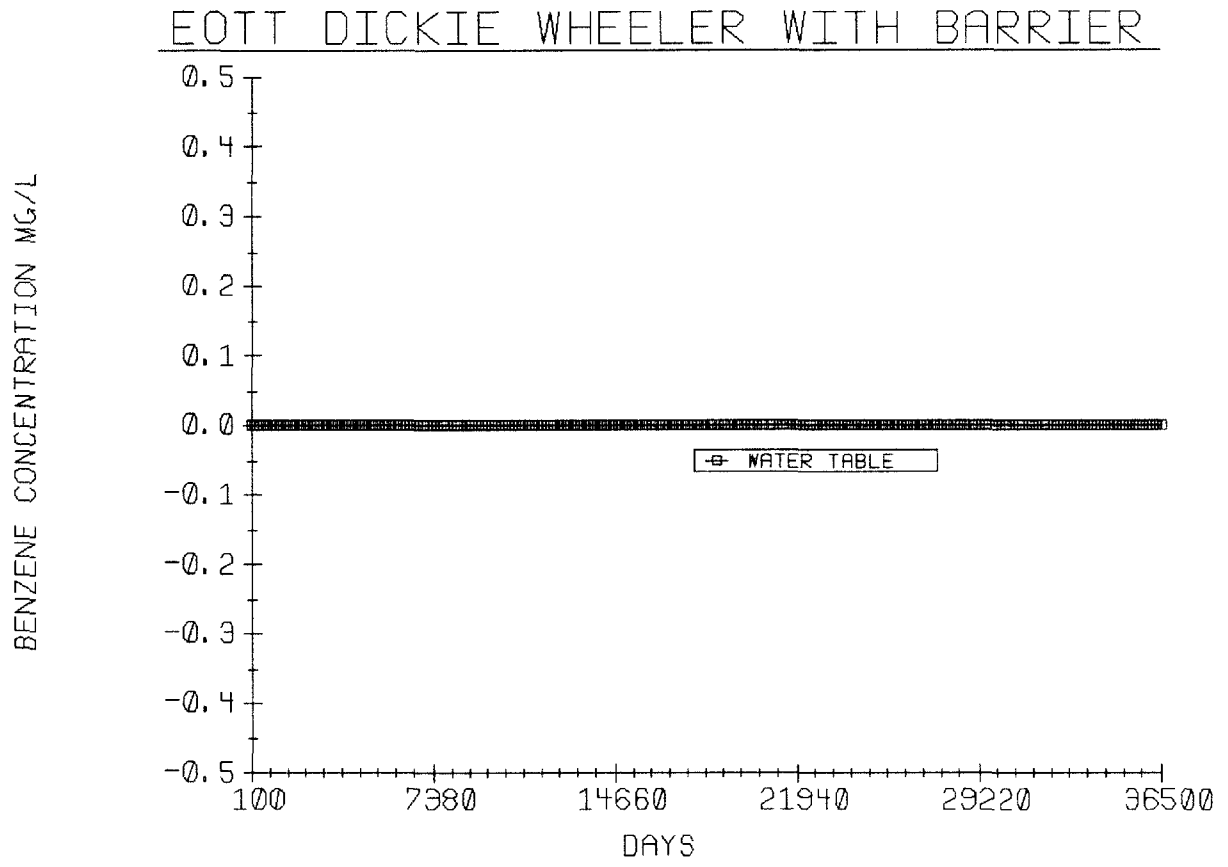
Results from a conservative VADSAT transport and fate simulation justifies leaving contaminated soil in the subsurface that is above the NMOCD guideline remedial action goals. Confidence in these results relies on the conservative nature of the input variables, i.e., artificially high concentrations of CoCs and exaggerated subsurface porosity. The actual hydraulic infiltration rate for southeast New Mexico is a negative number, however a value of 6.0^{-5} is being used. Similarly, the evaporation and bio-decay rates are not being increased even though bio-nutrients and microbes will be added. The installation of an impermeable barrier (clay) will essentially eliminate transport and supports the conservative nature of the risk/exposure assessment. The following model variables are used for the simulations and are considered conservative.

Parameter	Description or Value
Unsaturated ZoneWaste zone thickness	30' bgs
Depth to Ground water	75' bgs
Total Petroleum Hydrocarbon (Highest measured TPH^{8015m} value = 10,273 mg/Kg)	30,000 mg/Kg
Benzene	mg/Kg
Ethyl Benzene	mg/Kg
Toluene	mg/Kg
Total Xylene	mg/Kg
BTEX (used as the inputted Benzene source term)	210.92 mg/Kg
Lithology	Sand (conservative)
Hydrogeology	Sand and Gravel (conservative)

Bgs=below ground surface

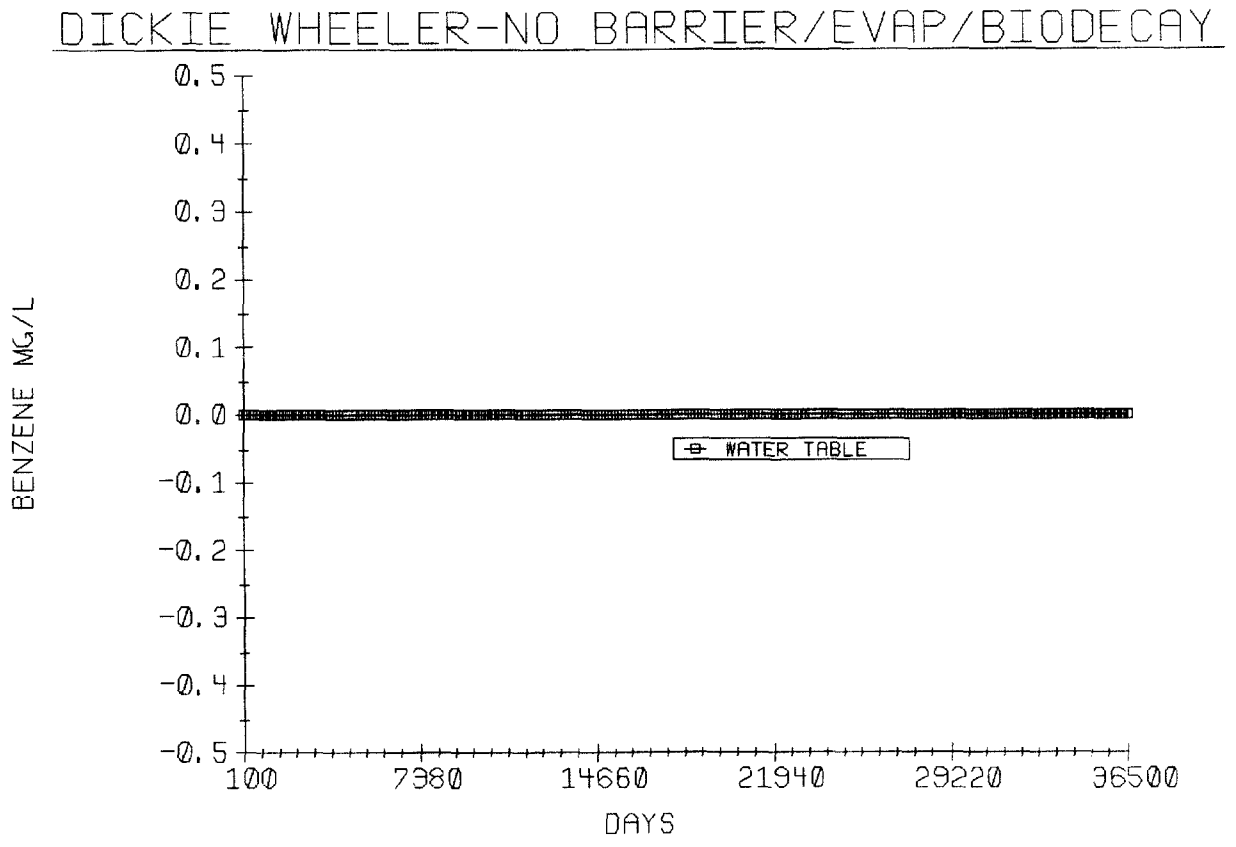
1.7.1.1 SIMULATION 1: WITH BARRIER, EVAPORATION, AND BIO-DECAY

The chart below illustrates that the unsaturated zone Benzene source term will not impact ground water using the conservative input parameters. This simulation takes credit for the installation of an impermeable clay barrier, evaporation, and bio-decay.



1.7.1.2 SIMU LATION 2: WITH NO BARRIER, EVAPORATION, OR BIO-DECAY

This simulation eliminated the clay barrier, source term evaporation, and bio-decay. The resulting illustration supports the proposed remedial goals for the CoCs as being acceptable for the site, i.e., TPH @ 30,000 mg/Kg and Benzene @ 210.92 mg/Kg.



1.8 CONCLUSIONS

The information and data collected during this investigation are of adequate quality to provide a basis for viable environmental management decisions, in particular, whether the NMOCD should allow CoC contamination to remain in the subsurface that is above the NMOCD guideline remedial goals. The proposed process will utilize disposal, aeration, treatment, isolation, and an engineered barrier to obviate risk of ground water contamination. The conservative risk/exposure assessment illustrates the adequacy and effectiveness of the coupling of these remediation strategies. It is therefore concluded that the remediation/closure proposal, when implemented, will be protective of the ground water resource and restore the near surface to agricultural productivity. Following implementation, the process will be documented and a request for "no further action required" submitted to the NMOCD.

ATTACHMENT I - SITE INFORMATION AND METRICS FORM

Site Information and Metrics

SITE: Dickie Wheeler	Assigned Site Reference #: 2000-10403
Company: E.O.T.T. Energy Pipeline	
Company Street Address:5805 E. Highway 80, Midland, Texas 79701	
Company Mailing Address: P.O. Box 1660	
Company City, State, Zip: Midland, Texas 79702	
Company Representative: Frank Hernandez	
Company Representative Telephone: 915.438.3799	
Company Telephone: 915.684.3479 Fax: 915.684.3456	
Fluid volume released (bbls) = ?	
>25 bbls : Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)	
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)	
Leak, Spill, or Pit (LSP) Name: Dickie Wheeler	
Source of contamination: Pipeline	
Land Owner, i.e., BLM, ST, Fee, Other: Dickie Wheeler	
LSP Dimensions: affected area leak origin pooling area = 75' x 250' Flow path = ~ 100 ft	
LSP Area = ~ 6318 ft^2	
Location of Reference Point (RP):	
Location distance and direction from RP:	
Latitude: 32° 03' 50"N	
Longitude: 103° 10' 21"W	
Elevation above mean sea level: ~ 3810 amsl	
Feet from South Section Line	
Feet from West Section Line	
Location- Unit or ¼¼ =SE¼ NW¼	
Location- Section = 35	
Location- Township = 14S	
Location- Range = 37E	
Surface water body within 1000 ' radius of site: None	
Domestic water wells within 1000' radius of site: None	
Agricultural water wells within 1000' radius of site: None	
Public water supply wells within 1000' radius of site: None	
Depth from land surface to ground water (DG): ~75'bgs	
Depth of contamination (DC): 30'bgs	
Depth to ground water (DG – DC = DtGW) 45 ' bgs	

1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water Body
If 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*
If Depth to GW 50 to 99 feet: *10 points*		200-100 horizontal feet: *10 points*
If 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 Area Score= 0*	*Surface Water Score= 0*
Site Rank (1+2+3) = = 20 points		

Total Site Ranking Score and Acceptable Concentrations

Parameter	*>19*	10-19	0-9
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

New Mexico Bureau of Mines and Mineral Resources. Internet Map Server For more information and map credits, click on the 'help' link in the title frame. Map last updated 3/3/00

http://geoinfo.nmt.edu/.esrimap?Cache=VADITO1131200183141123562&File=print.htm

8/3/2001

Identify Results

Shape	Point	Point	Point	Point	Point	Point
Area	0.000	0.000	0.000	0.000	0.000	0.000
Perimeter	0.000	0.000	0.000	0.000	0.000	0.000
Water_wells#	10485	10577	10668	10552	10624	10702
Water_wells-id	10485	10577	10668	10552	10624	10702
Index_no	10485	10577	10668	10552	10624	10702
Siteid	330314103101601	330355103110301	330426103104501	330343103093901	330412103093301	330443103093701
Latitude	330314	330355	330426	330343	330412	330443
Longitud	1031016	1031103	1031045	1030939	1030933	1030937
Locname	12143	13542	13539	12144	12135	12134
Altitude	3804	3819	3819	3806	3804	3813
Use	S	U	U	S	I	I
Depth	120.00	110.00	83.00	0.00	130.00	131.00
Geo-unit	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*
Waterlev	63.90	78.59	74.02	70.72	78.95	87.96
Wl-date	19910221	19910214	19810311	19910220	19910220	19910220
Wlingwsl	7	3	1	6	4	6
Sitestat	*No Data*	*No Data*	*No Data*	R	*No Data*	*No Data*
Discharg	0.00	0.00	0.00	0.00	0.00	0.00
Spc	0	0	0	0	0	0
Spc-date	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*
Qwyear	1961	*No Data*	*No Data*	1966	1961	1961
Temp	0.0	0.0	0.0	0.0	0.0	0.0
Tempdate	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*
Obs-well	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*	*No Data*

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: [redacted] Range: 37E Sections: 35

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

Well Data Report | Avg Depth to Water Report | Water Column Report | Clear Form | WATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 08/02/2001

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet) Min	Max	Avg
L	14S	37E	35				11	30	75	48

Record Count: 11

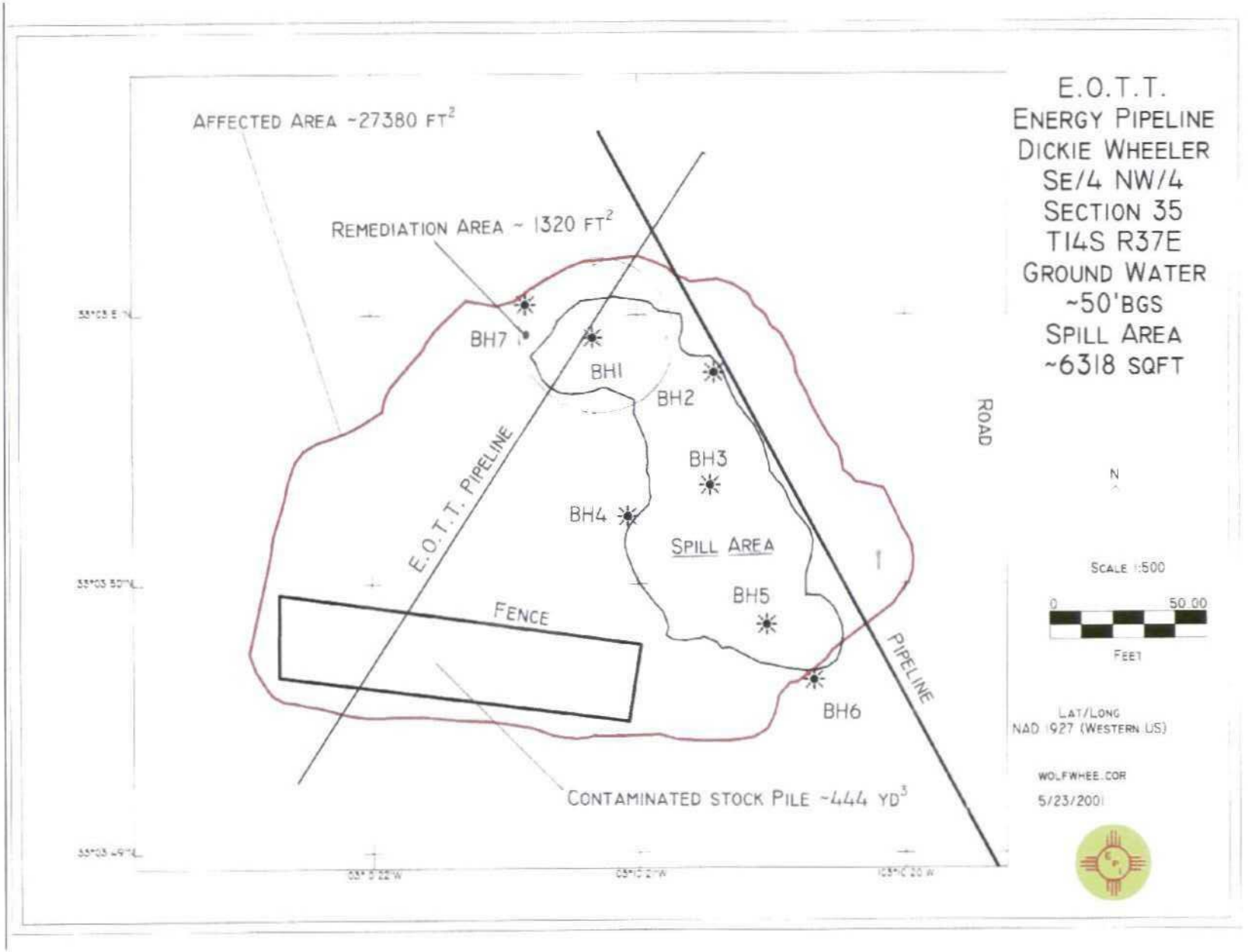
AVERAGE DEPTH OF WATER REPORT 08/02/2001

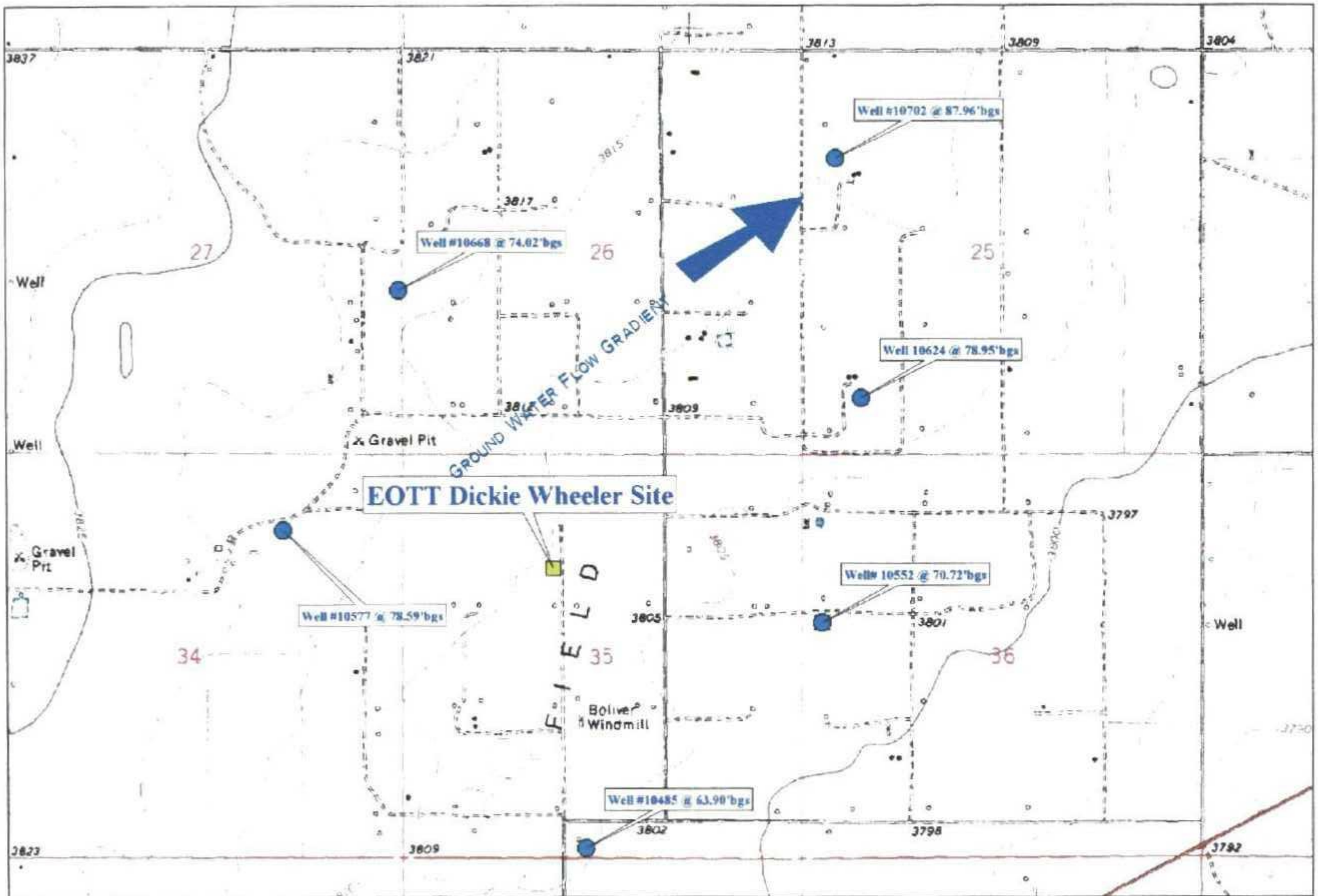
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet) Min	Max	Avg
L	15S	37E	02				8	30	52	40

Record Count: 8

http://www.seo.state.nm.us/awdProd/awd.html?email_address=enviplus1@aol.com&tws=14... 8/2/2001

ATTACHMENT II – SITE MAPS


AFFECTED AREA ~27380 FT²
REMEDIATION AREA ~ 1320 FT²
BH7
BH1
BH2
BH3
BH4
BH5
BH6
SPILL AREA
E.O.T.T. PIPELINE
FENCE
ROAD
PIPELINE
CONTAMINATED STOCK PILE ~444 YD³
E.O.T.T.
ENERGY PIPELINE
DICKIE WHEELER
SE/4 NW/4
SECTION 35
T14S R37E
GROUND WATER
~50'BGS
SPILL AREA
~6318 SQFT
N
SCALE 1:500
0
50.00
FEET
LAT/LONG
NAD 1927 (WESTERN US)
WOLFWHEE.COR
5/23/2001



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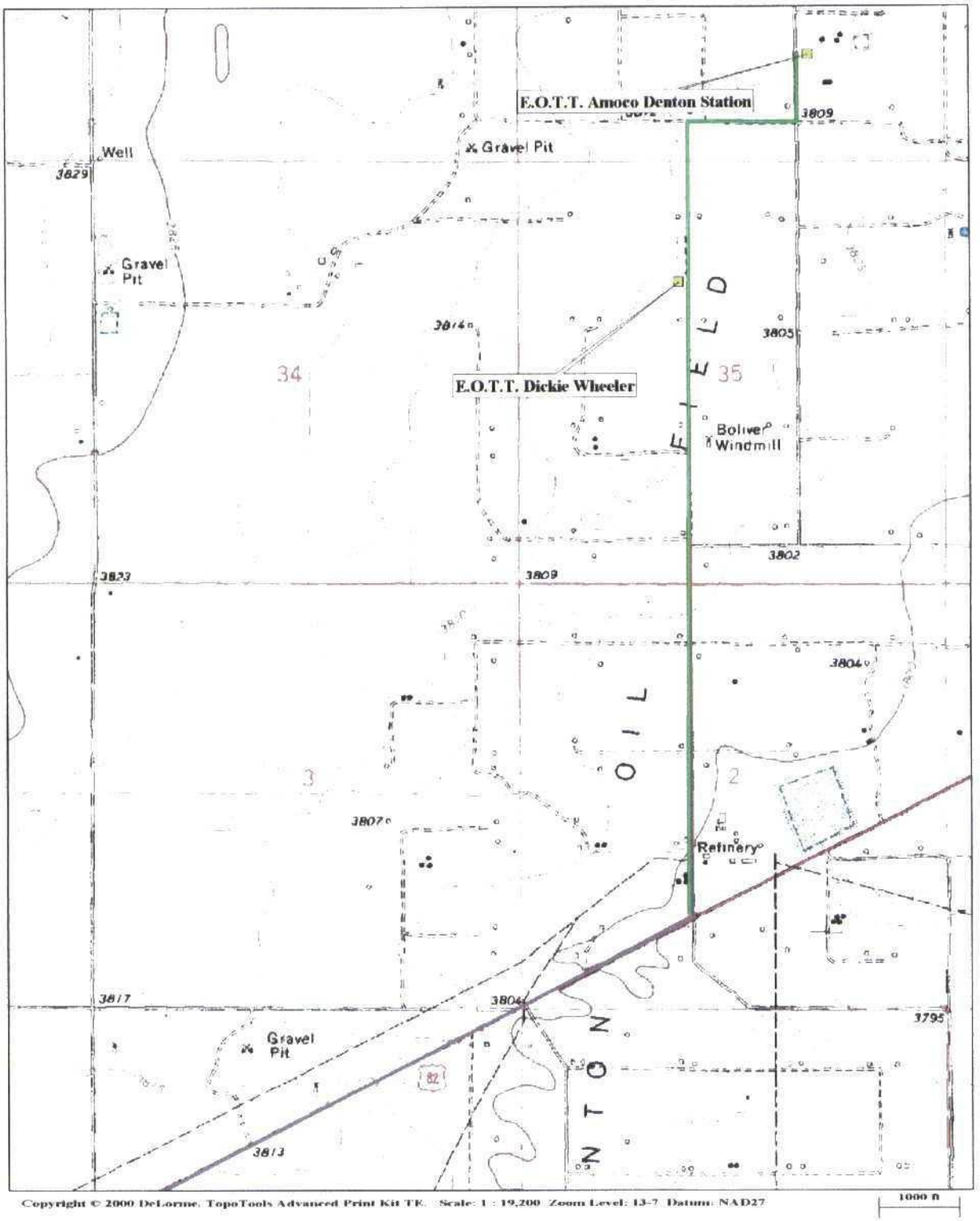
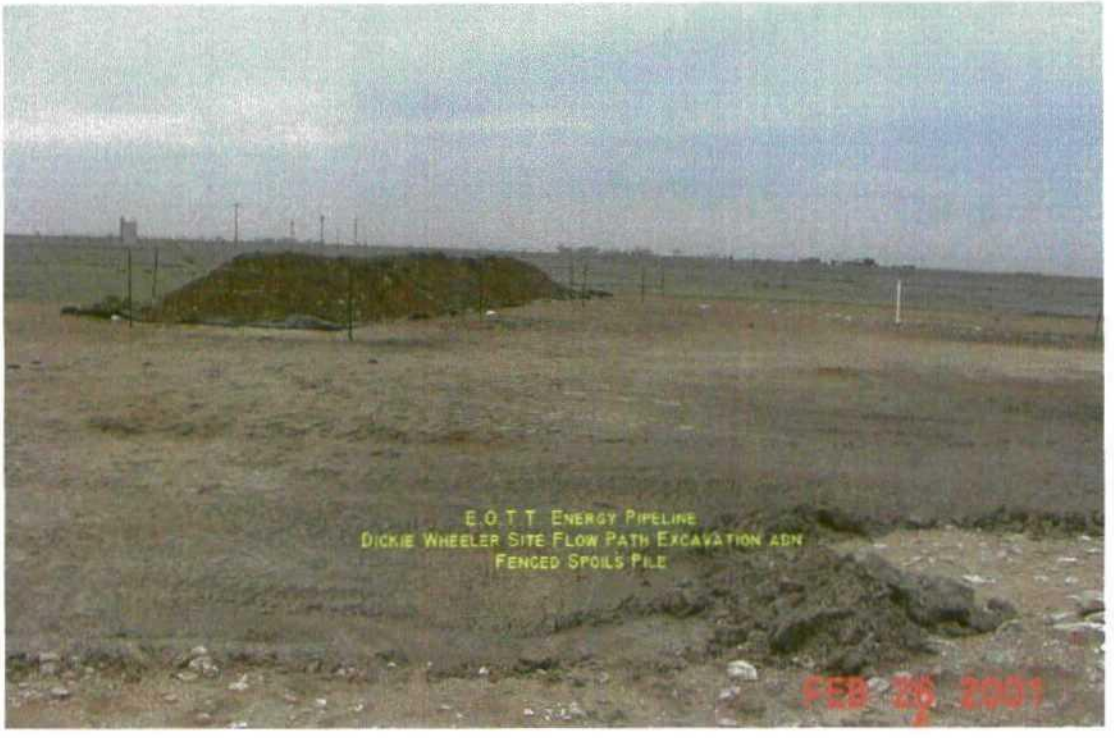

E.O.T.T. Amoco Denton Station
E.O.T.T. Dickie Wheeler
Well
Gravel Pit
Gravel Pit
Gravel Pit
Bolivar Windmill
Refinery
3829
3809
3814
3805
3802
3823
3809
3804
3807
3817
3804
3795
3813
34
35
3
2
1
82
DENTON OIL FIELD
Copyright © 2000 DeLorme. TopoTools Advanced Print Kit TK. Scale: 1 : 19,200 Zoom Level: 13-7 Datum: NAD27
1000 ft

ATTACHMENT III - PHOTOGRAPHS


E.O.T.T. Energy Pipeline
Dickie Wheeler Site Flow Path Excavation
FEB 26 2001


E.O.T.T. Energy Pipeline
Dickie Wheeler Site Flow Path Excavation ADN
Fenced Spoils Pile
FEB 26 2001

ATTACHMENT IV: ANALYTICAL REPORTS AND SUMMARY

E.O.T.T. ENERGY PIPELINE

DICKIE WHEELER ANALYTICAL RESULT SUMMARY

SAMPLE ID#	Date	BOREHOLE	SAMPLING INTERVAL (FT. BGS)	LITHOLOGY	HEADSPACE VOC (PPM)	GRO[1] MG/KG	DRO[2] MG/KG	GRO+DRO TPH[7] - MG/KG	BTEX[3] MG/KG	BENZENE MG/KG	TOLULNE MG/KG	EHTYL BENZENE MG/KG	M,P- XYLENE MG/KG	O-XYLENE MG/KG
						DETECTION LIMIT IS <10 MG/KG								
EDWS4501BH1-2	4/5/2001	BH1	2	Brown Sand	22.5	*56*	*645*	**701**	0.307	*0.025*	*0.025*	0.116	0.116	*0.025*
EDWS4501BH1-5	4/5/2001		5	Light Brown Sand	1445.0	*3159*	*8445*	**11604**	**85.863**	0.713	3.930	3.360	72.500	5.360
EDWS4501BH1-10	4/5/2001		10	Light Brown Sand	1276.0	*3457*	*6816*	**10273**	**210.920**	9.620	45.900	22.700	100.000	32.700
EDWS4501BH1-15	4/5/2001		15	Light Brown Sand	1145.0	*3042*	*6542*	**9584**	6.621	0.640	1.790	0.890	0.641	2.660
EDWS4501BH1-20	4/5/2001		20	Light Brown Sand	1055.0	*2171*	*4658*	**6829**	**126.870**	2.070	29.300	21.000	59.100	15.400
EDWS4501BH1-25	4/5/2001		25	Light Brown Sand	1405.0	*996*	*3344*	**4340**	26.190	*<.100*	5.450	4.530	11.400	4.810
EDWS4501BH1-30	4/5/2001		30	Light Brown Sand	1300.0	*182*	*1022*	**1204**	3.823	*0.511*	1.820	0.958	0.403	0.131
EDWS4501BH1-35	4/5/2001		35	Light Brown Sand	375.0	*48*	*60*	**108**	0.181	*0.025*	*0.025*	*0.025*	0.081	*0.025*
EDWS4501BH1-40	4/5/2001		40	Light Brown Sand	82.7	*<10*	114	**114**	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH1-45	4/5/2001		45	Light Brown Sand	54.3	*<10*	*124*	**124**	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH2-2	4/5/2001	BH2	2	Dark Brown Sand	2.7	*<10*	*91*	**91**	0.140	*0.025*	*0.025*	*0.025*	0.040	*0.025*
EDWS4501BH2-5	4/5/2001		5	Dark Brown Sand	0.0	*<10*	*<10*	0	0.155	*0.025*	*0.025*	*0.025*	0.055	*0.025*
EDWS4501BH2-10	4/5/2001		10	Brown Sand	0.0	*<10*	*<10*	0	0.138	*0.025*	*0.025*	*0.025*	0.038	*0.025*
EDWS4501BH2-15	4/5/2001		15	Light Brown Sand	1.9	*<10*	*<10*	0	0.172	*0.025*	*0.025*	*0.025*	0.072	*0.025*
EDWS4501BH2-20	4/5/2001		20	Light Brown Sand	0.3	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH3-2	4/9/2001	BH3	2	Light Brown Sand	30.1	*<10*	*3719*	**3719**	0.167	*0.025*	*0.025*	0.067	*0.025*	*0.025*
EDWS4501BH3-5	4/9/2001		5	Brown Sand	10.2	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH3-10	4/9/2001		10	Tan Sand and Rock	2.7	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH3-15	4/9/2001		15	Tan Sand	6.1	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH3-20	4/9/2001		20	Light Brown Sand	3	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH4-2	4/5/2001	BH4	2	Dark Brown Sand	0.0	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH4-5	4/5/2001		5	Light Brown Sand	0.0	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH4-10	4/5/2001		10	Light Brown Sand and Rock	0.0	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH4-15	4/5/2001		15	Light Brown Sand and Rock	0.3	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH5-2	4/6/2001	BH5	2	Tan Caliche	2.0	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH5-5	4/6/2001		5	Light Brown Sand	3.4	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH5-10	4/6/2001		10	Light Brown Sand	2.7	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH5-15	4/6/2001		15	Light Brown Sand	1.7	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH5-20	4/6/2001		20	Tan Sand	1.4	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH6-2	4/6/2001	BH6	2	Tan Caliche	4.3	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH6-5	4/6/2001		5	Light Brown Sand	4.0	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH6-10	4/6/2001		10	Light Brown Sand	3.6	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH6-15	4/6/2001		15	Light Brown Sand	3.4	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH6-20	4/6/2001		20	Light Brown Sand	2.7	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH7-2	4/6/2001	BH7	2	Tan Caliche	0.7	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH7-5	4/6/2001		5	Light Brown Sand	2.4	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH7-10	4/6/2001		10	Light Brown Sand	2.6	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH7-15	4/6/2001		15	Light Brown Sand	1.8	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
EDWS4501BH7-20	4/6/2001		20	Tan Sand	0.7	*<10*	*<10*	0	*0.125*	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*

[1] GRO - GASOLINE RANGE ORGANICS C_6-C_{10}

[2] DRO - DIESEL RANGE ORGANICS C_{10}-C_{28}

[3] BTEX - THE SUM OF BENZENE, TOLUENE, ETHYL BENZENE, AND M,P, &O XYLENE

[4] NA - NOT ANALYZED

[5] **BOLDED VALUES** ARE IN EXCESS OF THE NEW MEXICO OIL CONSERVATION DIVISION GUIDELINE THRESHOLD FOR THE PARAMETER

[6] *ITALICIZED VALUES ARE < THE INSTRUMENT DETECTION LIMIT.*

[7] GRO+DRO (TPH) - TOTAL PETROLEUM HYDROCARBON EPA METHOD 8015M

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: MR. WAYNE BRUNETTE
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4.0 deg. C
Project #: None Given
Project Name: Denton Wolfcamp
Project Location: SE1/4 NW1/4 Sec 35 T14S R37E

Sampling Date: 04/05/01
Receiving Date: 04/06/01
Analysis Date: 04/08/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
38949	EDWS4501BH1-2	<0.025	<0.025	0.116	0.116	<0.025
38950	EDWS4501BH1-5	0.713	3.93	3.36	72.5	5.36
38951	EDWS4501BH1-10	9.62	45.9	22.7	100	32.7
38952	EDWS4501BH1-15	0.640	1.79	0.890	0.641	2.66
38953	EDWS4501BH1-20	2.07	29.3	21.0	59.1	15.4
38954	EDWS4501BH1-25	<0.100	5.45	4.53	11.4	4.81
	%IA	85	88	88	92	88
	%EA	85	85	90	91	88
	BLANK	<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

4-11-01
Date

ENVIRONMENTAL LAB OF , INC.

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P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4.0 deg. C
Project #: None Given
Project Name: Denton Wolfcamp
Project Location: SE1/4 NW1/4 Sec 35 T14S R37E

Sampling Date: 04/05/01
Receiving Date: 04/06/01
Analysis Date: 04/09/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
38955	EDWS4501BH1-30	0.511	1.82	0.958	0.403	0.131
38956	EDWS4501BH1-35	<0.025	<0.025	<0.025	0.081	<0.025
38957	EDWS4501BH1-40	<0.025	<0.025	<0.025	<0.025	<0.025
38958	EDWS4501BH1-45	<0.025	<0.025	<0.025	<0.025	<0.025
38959	EDWS4501BH2-2	<0.025	<0.025	<0.025	0.040	<0.025
38960	EDWS4501BH2-5	<0.025	<0.025	<0.025	0.055	<0.025
38961	EDWS4501BH2-10	<0.025	<0.025	<0.025	0.038	<0.025
38962	EDWS4501BH2-15	<0.025	<0.025	<0.025	0.072	<0.025
38963	EDWS4501BH2-20	<0.025	<0.025	<0.025	<0.025	<0.025
%IA		96	98	102	110	101
%EA		86	86	89	89	89
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

4-11-01
Date

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P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4.0 deg. C
Project #: None Given
Project Name: Denton Wolfcamp
Project Location: SE1/4 NW1/4 Sec 35 T14S R37E

Sampling Date: 04/05/01
Receiving Date: 04/06/01
Analysis Date: 04/10/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
38964	EDWS4501BH4-2	<0.025	<0.025	<0.025	<0.025	<0.025
38965	EDWS4501BH4-5	<0.025	<0.025	<0.025	<0.025	<0.025
38966	EDWS4501BH4-10	<0.025	<0.025	<0.025	<0.025	<0.025
38967	EDWS4501BH4-15	<0.025	<0.025	<0.025	<0.025	<0.025
%IA		101	102	105	113	105
%EA		91	92	95	102	98
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

4-11-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: MR. WAYNE BRUNETTE
P.O. BOX 16660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat McCasland)

Sample Type: Soil
Sample Condition: Intact/Iced/ 4.0 deg C
Project #: None Given
Project Name: Denton Wolfcamp
Project Location: SE1/4, NW1/4, Sec35, T14S, R37E

Sampling Date: 04/05/01
Receiving Date: 04/06/01
Analysis Date: 04/08/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
38949	EDWS4501BH1-2	56	645
38950	EDWS4501BH1-5	3,159	8,445
38951	EDWS4501BH1-10	3,457	6,816
38952	EDWS4501BH1-15	3,042	6,542
38953	EDWS4501BH1-20	2,171	4,658
38954	EDWS4501BH1-25	996	3,344
38955	EDWS4501BH1-30	182	1,022
38956	EDWS4501BH1-35	48	600
38957	EDWS4501BH1-40	<10	114
38958	EDWS4501BH1-45	<10	124
38959	EDWS4501BH2-2	<10	91
38960	EDWS4501BH2-5	<10	<10
38961	EDWS4501BH2-10	<10	<10
38962	EDWS4501BH2-15	<10	<10
38963	EDWS4501BH2-20	<10	<10
38964	EDWS4501BH4-2	<10	<10
38965	EDWS4501BH4-5	<10	<10
38966	EDWS4501BH4-10	<10	<10
38967	EDWS4501BH4-15	<10	<10
	% IA	87	114
	%EA	93	116
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

4-11-01
Date

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EOTT ENERGY
ATTN: MR. WAYNE BRUNETTE
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: None Given

Sampling Date: 04/06/01
Receiving Date: 04/12/01
Analysis Date: 04/12/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
39134	EDWS4601BH5-2	<0.025	<0.025	<0.025	<0.025	<0.025
%IA		100	108	114	114	109
%EA		85	87	87	93	89
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

4-18-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: MR. WAYNE BRUNETTE
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: None Given

Sampling Date: 04/06/01
Receiving Date: 04/12/01
Analysis Date: 04/12/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
39135	EDWS4601BH5-5	<0.025	<0.025	<0.025	<0.025	<0.025
39136	EDWS4601BH5-10	<0.025	<0.025	<0.025	<0.025	<0.025
39137	EDWS4601BH5-15	<0.025	<0.025	<0.025	<0.025	<0.025
39138	EDWS4601BH5-20	<0.025	<0.025	<0.025	<0.025	<0.025
39139	EDWS4601BH6-2	<0.025	<0.025	<0.025	<0.025	<0.025
39140	EDWS4601BH6-5	<0.025	<0.025	<0.025	<0.025	<0.025
39141	EDWS4601BH6-10	<0.025	<0.025	<0.025	<0.025	<0.025
39142	EDWS4601BH6-15	<0.025	<0.025	<0.025	<0.025	<0.025
39143	EDWS4601BH6-20	<0.025	<0.025	<0.025	<0.025	<0.025
39144	EDWS4601BH7-2	<0.025	<0.025	<0.025	<0.025	<0.025
39145	EDWS4601BH7-5	<0.025	<0.025	<0.025	<0.025	<0.025
39146	EDWS4601BH7-10	<0.025	<0.025	<0.025	<0.025	<0.025
39147	EDWS4601BH7-15	<0.025	<0.025	<0.025	<0.025	<0.025
39148	EDWS4601BH7-20	<0.025	<0.025	<0.025	<0.025	<0.025
	%IA	90	95	96	95	96
	%EA	90	94	99	97	100
	BLANK	<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

4-18-01
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MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: None Given

Sampling Date: 04/06/01
Receiving Date: 04/12/01
Analysis Date: 04/16/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
39134	EDWS4601BH5-2	<10	<10
39135	EDWS4601BH5-5	<10	<10
39136	EDWS4601BH5-10	<10	<10
39137	EDWS4601BH5-15	<10	<10
39138	EDWS4601BH5-20	<10	<10
39139	EDWS4601BH6-2	<10	<10
39140	EDWS4601BH6-5	<10	<10
39141	EDWS4601BH6-10	<10	<10
39142	EDWS4601BH6-15	<10	<10
39143	EDWS4601BH6-20	<10	<10
39144	EDWS4601BH7-2	<10	<10
39145	EDWS4601BH7-5	<10	<10
39146	EDWS4601BH7-10	<10	<10
	%IA	84	96
	%EA	109	113
	BLANK	<10	<10

METHODS: EPA SW 846-8015M

Raland K. Tuttle

4-18-01
Date

ENVIRONMENTAL LAB OF , INC.

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P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: None Given

Sampling Date: 04/06/01
Receiving Date: 04/12/01
Analysis Date: 04/17/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
39147	EDWS4601BH7-15	<10	<10
39148	EDWS4601BH7-20	<10	<10
	%IA	115	107
	%EA	117	98
	BLANK	<10	<10

METHODS: EPA SW 846-8015M

Raland K. Tuttle

4-18-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: MR. WAYNE BRUNETTE
P.O. BOX 1660
MIDLAND, TEXAS 79701
FAX: 684-3456
FAX: 505-394-2601 (Pat McCasland)

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: SE/4 NW/4 Sec35 T14S R37

Sampling Date: 04/09/01
Receiving Date: 04/12/01
Analysis Date: 04/12/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
39129	EDWS4901BH3-2	<0.025	<0.025	0.067	<0.025	<0.025
39130	EDWS4901BH3-5	<0.025	<0.025	<0.025	<0.025	<0.025
39131	EDWS4901BH3-10	<0.025	<0.025	<0.025	<0.025	<0.025
39132	EDWS4901BH3-15	<0.025	<0.025	<0.025	<0.025	<0.025
39133	EDWS4901BH3-20	<0.025	<0.025	<0.025	<0.025	<0.025
%IA		100	108	114	114	109
%EA		85	87	87	93	89
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

4-17-01
Date

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ATTN: MR. WAYNE BRUNETTE
P.O. BOX 1660
MIDLAND, TEXAS 79701
FAX: 684-3456
FAX: 505-394-2601 (Pat McCasland)

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: SE/4 NW/4 Sec35 T14S R37

Sampling Date: 04/09/01
Receiving Date: 04/12/01
Analysis Date: 04/13/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
39129	EDWS4901BH3-2	<10	3719
39130	EDWS4901BH3-5	<10	<10
39131	EDWS4901BH3-10	<10	<10
	% IA	85	86
	%EA	91	103
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

4-17-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: MR. WAYNE BRUNETTE
P.O. BOX 1660
MIDLAND, TEXAS 79701
FAX: 684-3456
FAX: 505-394-2601 (Pat McCasland)

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: 2000-10843
Project Name: Denton Wolfcamp
Project Location: SE/4 NW/4 Sec35 T14S R37

Sampling Date: 04/09/01
Receiving Date: 04/12/01
Analysis Date: 04/16/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
39132	EDWS4901BH3-15	<10	<10
39133	EDWS4901BH3-20	<10	<10
	% IA	84	96
	%EA	109	113
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

4-17-01
Date

Environmental Lab of Texas, Inc. 12600 West I-20 East [redacted]63-1[redacted] FA[redacted]15) 5[redacted]713

[redacted]IN-O[redacted]STO[redacted]COR[redacted]D AN[redacted]S RE[redacted]

Project Manager: Wayne Brunette EOTT

Phone #: 915 556-0190

FAX #: 915 . 684 . 3456

Company Name & Address: E.O.T.T.

Project #:

Project Name: Denton Wolfcamp

Project Location: SE ¼ NW ¼ Sec 35 T14S R37E

Sampler Signature: Bradley Blevins

ANALYSIS REQUEST Pg 1 of 2

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B(5030)	TPH 8015M	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
38949	EDWS4501BH1-2	1			X						X			4-5-01	8:00	X	X						
38950	EDWS4501BH1-5	1			X						X			4-5-01	8:30	X	X						
38951	EDWS4501BH1-10	1			X						X			4-5-01	8:50	X	X						
38952	EDWS4501BH1-15	1			X						X			4-5-01	9:15	X	X						
38953	EDWS4501BH1-20	1			X						X			4-5-01	9:30	X	X						
38954	EDWS4501BH1-25	1			X						X			4-5-01	9:45	X	X						
38955	EDWS4501BH1-30	1			X						X			4-5-01	10:05	X	X						
38956	EDWS4501BH1-35	1			X						X			4-5-01	10:20	X	X						
38957	EDWS4501BH1-40	1			X						X			4-5-01	10:40	X	X						
38958	EDWS4501BH1-45	1			X						X			4-5-01	10:55	X	X						
38959	EDWS4501BH2-2	1			X						X			4-5-01	12:30	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins	4-6-01		Cody W.
Cody Wil...	4/6/01	1455	Jeanne McMurry
			Received by Laboratory:

REMARKS: Rec. 4.0°C

Originals to W. Brunette & P. McCasland EPI.

FAX & or E-mail to W. Brunette + P. McCasland 394-2601

Environmental Lab of Texas, Inc. 12600 West I-20 East ... (915) 563-1800 FAX (915) 5...13

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Pg 2 of 2

Project Manager: Wayne Brunette EOTT

Phone #: 915 556 0190

FAX #: 915 · 684 · 3456

Company Name & Address: E.O.T.T.

Project #:

Project Name: Denton Wolfcamp

Project Location: SE 1/4 NW 1/4 Sec 35 T14S R37E

Sampler Signature: Bradley Blevins

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH ~~418.1~~ 8015M	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
38960	EDWS4501BH2-5	1			X						X			4-5-01	1:00	X	X						
38961	EDWS4501BH2-10	1			X						X			4-5-01	1:15	X	X						
38962	EDWS4501BH2-15	1			X						X			4-5-01	1:30	X	X						
38963	EDWS4501BH2-20	1			X						X			4-5-01	1:40	X	X						
38964	EDWS4501BH~~4~~-2	1			X						X			4-5-01	2:00	X	X						
38965	EDWS4501BH4-5	1			X						X			4-5-01	2:15	X	X						
38966	EDWS4501BH4-10	1			X						X			4-5-01	2:35	X	X						
38967	EDWS4501BH4-15	1			X						X			4-5-01	3:00	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins	4-6-01		[signature]
Relinquished by: Cody Mills	Date: 4-6-01	Time: 1455	Received by: Jeanne McMurry
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS: Rec 4.0°C
Originals to W. Brunette & P. McCasland EPI.
FAX + ~~or~~ or E-mail to W. Brunette + P. McCasland 394-2601

ENVIRONMENTAL [redacted] 9[redacted]3-1[redacted] FA[redacted]5) 5[redacted]13

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

1 of 2

Project Manager: Wayne Brunette EOTT

Phone #: 915 556-0190

FAX #: 915-694-3456

Company Name & Address: EOTT

Project #: 2000-10843

Project Name: Denton WolfCamp

Project Location:

Sampler Signature: Bradley Blevins

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	HOLD	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH 418.1 / 8015M	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
39134	EDWS4601BH5-2	1			X						X			4-6-01	7:40	X	X						
39135	EDWS4601BH5-5	1			X						X			4-6-01	8:00	X	X						
39136	EDWS4601BH5-10	1			X						X			4-6-01	8:20	X	X						
39137	EDWS4601BH5-15	1			X						X			4-6-01	8:40	X	X						
39138	EDWS4601BH5-20	1			X						X			4-6-01	9:00	X	X						
39139	EDWS4601BH6-2	1			X						X			4-6-01	9:15	X	X						
39140	EDWS4601BH6-5	1			X						X			4-6-01	9:30	X	X						
39141	EDWS4601BH6-10	1			X						X			4-6-01	9:45	X	X						
39142	EDWS4601BH6-15	1			X						X			4-6-01	10:10	X	X						
39143	EDWS4601BH6-20	1			X						X			4-6-01	10:35	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins			
Relinquished by:	Date: 4-12-01	Time: 0815	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

Original: to W. Brunette & P. McCasland EPI.

FAX + or E-mail to W. Brunette + P. McCasland 394-2601

Environmental Lab of Texas, Inc. 600 I-20 Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Wayne Brunette EOTT

Phone #: 915 - 556-0140
FAX #: 915 - 684-3456

Company Name & Address: E.O.T.T.

Project #: 2000-10843

Project Name: Denton Wolfcamp

Project Location: SE¼ NW¼ S35 T14S R37E

Sampler Signature: Bradley Blevins

ANALYSIS REQUEST

242

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX MTBE (8021B)	TPH 418.1 8015m	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	HCl
39144	EDWS4601BH7-2	1			X						X			4-6-01	12:00	X	X						
39145	EDWS4601BH7-5	1			X						X			4-6-01	12:45	X	X						
39146	EDWS4601BH7-10	1			X						X			4-6-01	1:30	X	X						
39147	EDWS4601BH7-15	1			X						X			4-6-01	2:00	X	X						
39148	EDWS4601BH7-20	1			X						X			4-6-01	2:30	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins			
Relinquished by:	Date: 4-12-01	Time: 0815	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS
Originals to W. Brunette & P. McCasland EPI.
FAX + or E-mail to W. Brunette + P. McCasland 394-2601

[redacted] Environmental Lab of Texas, Inc [redacted] 600 [redacted] I-20 [redacted] Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

1 of 1

Project Manager: WAYNE BRUNETTE EOTT

Phone #: 915 · 556 · 0140

FAX #: 915 · 674.3456

Company Name & Address: E.O.T.T.

Project #: 2000-10843

Project Name: DENTON WOLFCAMP

Project Location: SE/4 NW/4 Sec 35 T14S R37

Sampler Signature: Bradley Blevins

ANALYSIS REQUEST

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	TEX 8021/5030	TPH 418.1 / 8015m	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
39129	EDWS4901BH3-2	1			X						X			4-9-01	8:00	X	X						
39130	EDWS4901BH3-5	1			X						X			4-9-01	8:20	X	X						
39131	EDWS4901BH3-10	1			X						X			4-9-01	8:42	X	X						
39132	EDWS4901BH3-15	1			X						X			4-9-01	9:00	X	X						
39133	EDWS4901BH3-20	1			X						X			4-9-01	9:20	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins			
Relinquished by:	Date: 4-12-01	Time: 0815	Received by:
Relinquished by:	Date:	Time:	Received by Laboratory:

REMARKS

Original: to W. Brunette & P. McCasland EPI.

FAX + or E-mail to W. Brunette + P. McCasland 394-2601

Link Energy Dickie Wheeler #2000-10403 Bio-Cell Monitoring

Date	Sample Name	Borehole	Interval 'bgs	Benzene µg/Kg	Toluene µg/Kg	Ethylbenzene µg/Kg	m,p-Xylenes µg/Kg	o-Xylene µg/Kg	GRO mg/Kg	DRO mg/Kg	GRO+DRO mg/Kg
3/31/2003	SEDW33103BH5-15'	BH5	15	<20	42.3	<20	32.9	<20	<5	<5	<5
3/31/2003	SEDW33103BH5-10'	BH5	10	<20	28.7	<20	22.6	<20	<5	<5	<5
3/31/2003	SEDW33103BH5-5'	BH5	5	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH5-2'	BH5	2	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH3-15'	BH3	15	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH3-10'	BH3	10	<20	44.7	<20	34.8	<20	<5	<5	<5
3/31/2003	SEDW33103BH3-5'	BH3	5	<20	29.2	<20	23.8	<20	<5	<5	<5
3/31/2003	SEDW33103BH3-2'	BH3	2	<20	23.3	<20	21.7	<20	<5	<5	<5
3/31/2003	SEDW33103BH4-15'	BH4	15	<20	24.1	<20	32.2	<20	<5	<5	<5
3/31/2003	SEDW33103BH4-10'	BH4	10	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH4-5'	BH4	5	<20	49.1	<20	37.9	<20	<5	<5	<5
3/31/2003	SEDW33103BH4-2'	BH4	2	<20	38.4	<20	33.2	<20	<5	<5	<5
3/31/2003	SEDW33103BH1-15'	BH1	15	<20	22.2	<20	21.7	<20	<5	<5	<5
3/31/2003	SEDW33103BH1-10'	BH1	10	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH1-5'	BH1	5	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH1-2'	BH1	2	<20	44	<20	36.5	<20	<5	7.52	7.52
3/31/2003	SEDW33103BH2-15'	BH2	15	<20	31	<20	28.8	<20	<5	<5	<5
3/31/2003	SEDW33103BH2-10'	BH2	10	<20	22.7	<20	25.2	<20	<5	5.1	5.1
3/31/2003	SEDW33103BH2-5'	BH2	5	<20	<20	<20	<20	<20	<5	<5	<5
3/31/2003	SEDW33103BH2-2'	BH2	2	<20	24.2	<20	24.7	<20	<5	<5	<5

TPH - 1000ppm