E.O.T.T. Energy Pipeline

Work Plan Supplement, Investigation, and Revised Closure Proposal

for the

Texaco Buckeye Site

Reference: #LF-2000-34 and #2001-11040
UNIT LETTER N
SE¼ of the SW¼ of Section 34, T17S, R34E
Lea County, New Mexico

September 2001

Prepared by

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inspect - ePAC0602451182
Incident - nPAC0602451217
application - pPAC0602451373

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1.0 TEXACO BUCKEYE 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

The most recent leak, i.e. July 2001, at the Texaco Buckeye site was due to the pipe pulling out of a slip type transition coupler and was repaired upon discovery. The pooled oil was reintroduced to the system and the saturated soil placed on a plastic barrier. 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 (API) 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 and AnalySys, Inc. of Austin, 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 ~93 feet below ground surface ('bgs). According to the NMOCD ranking criteria, the site has a ranking of 10, 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 maps included in Attachment II, shows the sampling borehole locations. Boreholes 2, 3, 4, and 6 were located to verify the affected area horizontal perimeter, while boreholes 5 and MBH were located to delineate the vertical extent of contamination.

1.3.2 Site Description

The remediation site is adjacent and south of the Texaco E & P, Inc. West Vacuum Unit Battery. The area is congested with production flow lines and is situated in open grazing land Unit Letter – N in the SE¼ SW¼ of Section 34, T17S, R34E, approximately 3 miles west of Buckeye in 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 ~93' 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 93' bgs. The lower most contamination above the CoC thresholds occurs at 20'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 96.0°,i.e., generally to the northeast. Water level documentation is included in Attachment I.

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 ANALYTICAL RESULTS

The original analytical results are included as Attachment IV along with a summary and illustrations. Boreholes 2, 3, 4, 5, and 6 were advanced and sampled in February 2001. The area was inundated by another leak in July 2001. A central borehole , MBH, was advanced in August 2001 following mitigation to determine if the July leak had migrated beyond the previously delineated vertical interval.

1.4.1 Borehole #1 (BH1) was not advanced

1.4.2 Borehole #2 (BH2)

This boring is located west of the leak origin and is a perimeter boring. TPH^{8015m}, Benzene, and BTEX are nominal and well below the NMOCD remedial goals.

1.4.3 Borehole #3 (BH3)

This boring is located east of the leak origin and is a perimeter boring. TPH^{8015m}, Benzene, and BTEX are nominal and well below the NMOCD remedial goals.

1.4.4 Borehole #4 (BH4)

This perimeter boring identified CoC contamination approaching the NMOCD remedial goals in the near surface, i.e. <5'bgs. Contamination is surficial and will be removed.

1.4.5 Borehole #5 (BH5)

This interior soil boring was advanced in the center of pooling area with the longest residence time and deepest contamination. The NMOCD remedial goals were exceeded down to the 20'bgs interval.

1.4.6 Borehole #6 (BH6)

This perimeter boring identified CoC contamination approaching the NMOCD remedial goals in the near surface, i.e. <5'bgs. Contamination is surficial and will be removed.

1.4.7 Median Borehole (MBH)

Following immediate mitigation of the July 2001 spill, this borehole was advanced to determine if the release had impacted soil below the previously identified vertical interval of 20'bgs. The data indicate that the second leak had not penetrated to a depth >20'bgs.

1.5 DISCUSSION OF DATA

The analytical results meet the quality standards set forth in the Quality Assurance Plan included as Attachment V. Analytical results from the perimeter boreholes indicate that the soil in the non pooling flow path areas is contaminated generally to the top of the caliche rock interbed underlying the site, i.e. 2-3'bgs. The interior BH5 delineates contamination of the CoCs to ~20'bgs and the MBH determined that the vertical impact from the July 2001 occurrence did not extend >20'bgs.

1.6 REMEDIATION, CONSTRUCTION, AND CLOSURE PROPOSAL

It is proposed to excavate soil contaminated above the NMOCD remedial guidelines down to 15'bgs mechanically shred and aerate and treated with bio-nutrients. The total expanded volume of soil to be excavated and remediated is ~3372yd^3. The remaining contaminated soil >15'bgs will be isolated from the surface environment with the installation of an impermeable clay barrier. The treated and shredded soil will be placed on top of the barrier and sampled quarterly until the NMOCD remedial goals for the CoCs are achieved. The bio-cell will be divided into east and west sections and sampled at 6'bgs and 11'bgs at least quarterly to monitor attenuation. A quarterly report will be submitted to the NMOCD Hobbs office. 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.

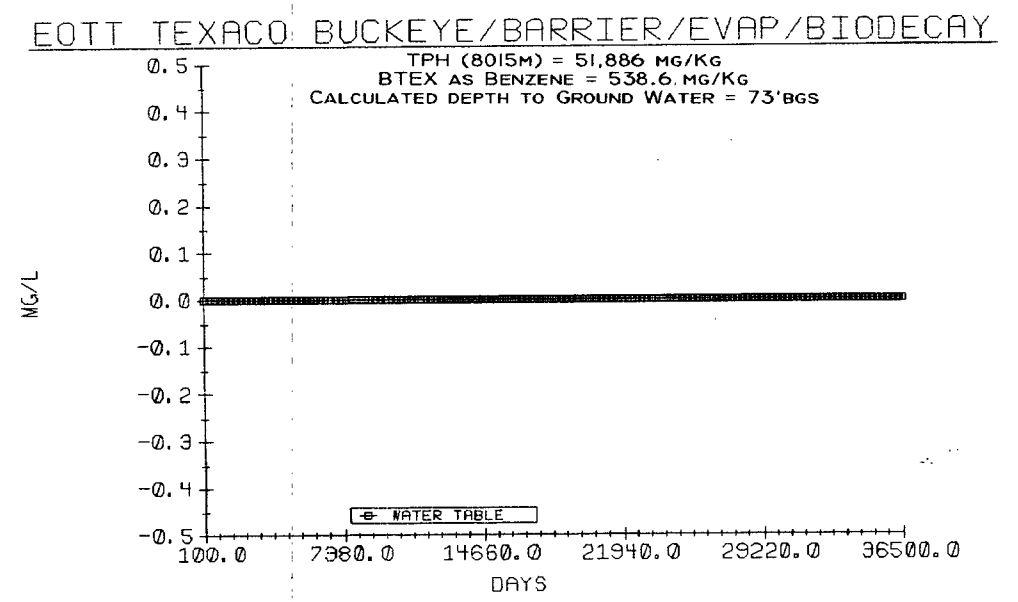
1.6.1 Risk/Exposure Assessment

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 Zone Waste zone thickness	10' bgs
Depth to Ground water	93' bgs
Total Petroleum Hydrocarbon (Highest measured TPH^{8015m}value = 10,273 mg/Kg)	51,886 mg/Kg
Benzene	
Ethyl Benzene	
Toluene	
Total Xylene	
BTEX (used as the inputted Benzene source term)	538.9 mg/Kg
Lithology	Sand (conservative)
Hydrogeology	Sand and Gravel (conservative)
Bgs=below ground surface	

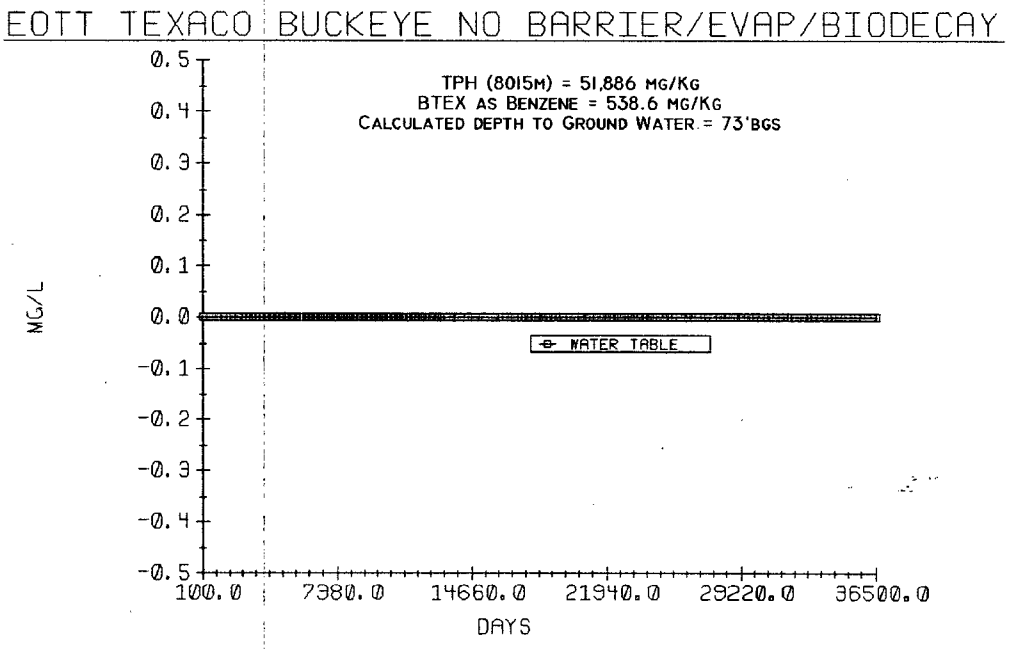
1.6.1.1 SIMULATION 1: WITH BARRIER, EVAPORATION, AND BIO-DECAY

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.



1.6.1.2 SIMULATION 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 @ 51,886 mg/Kg and Benzene @ 538.9 mg/Kg.



1.7 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 and allow the development of a monitored bio-attenuation cell at the site. The proposed process will utilize 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: Texaco Buckeye	Assigned Site Reference #: LF-2000-34 and 2001-11040
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: Texaco Buckeye	
Source of contamination: Pipeline	
Land Owner, i.e., BLM, ST, Fee, Other: State of New Mexico	
LSP Dimensions: affected area leak origin pooling area = 75' x 100' Flow path = ~ 325 ft	
LSP Area = ~ 7224 ft^2	
Location of Reference Point (RP):	
Location distance and direction from RP:	
Latitude: 32° 47' 14"N	
Longitude: 103° 33' 10"W	
Elevation above mean sea level: ~ 4,039 amsl	
Feet from South Section Line	
Feet from West Section Line	
Location- Unit or ¼¼ =SE¼ of WW¼	
Location- Section = 34	
Location- Township = 17S	
Location- Range = 34E	
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): ~93'bgs	
Depth of contamination (DC): 20'bgs	
Depth to ground water (DG – DC = DtGW) 73 ' bgs	

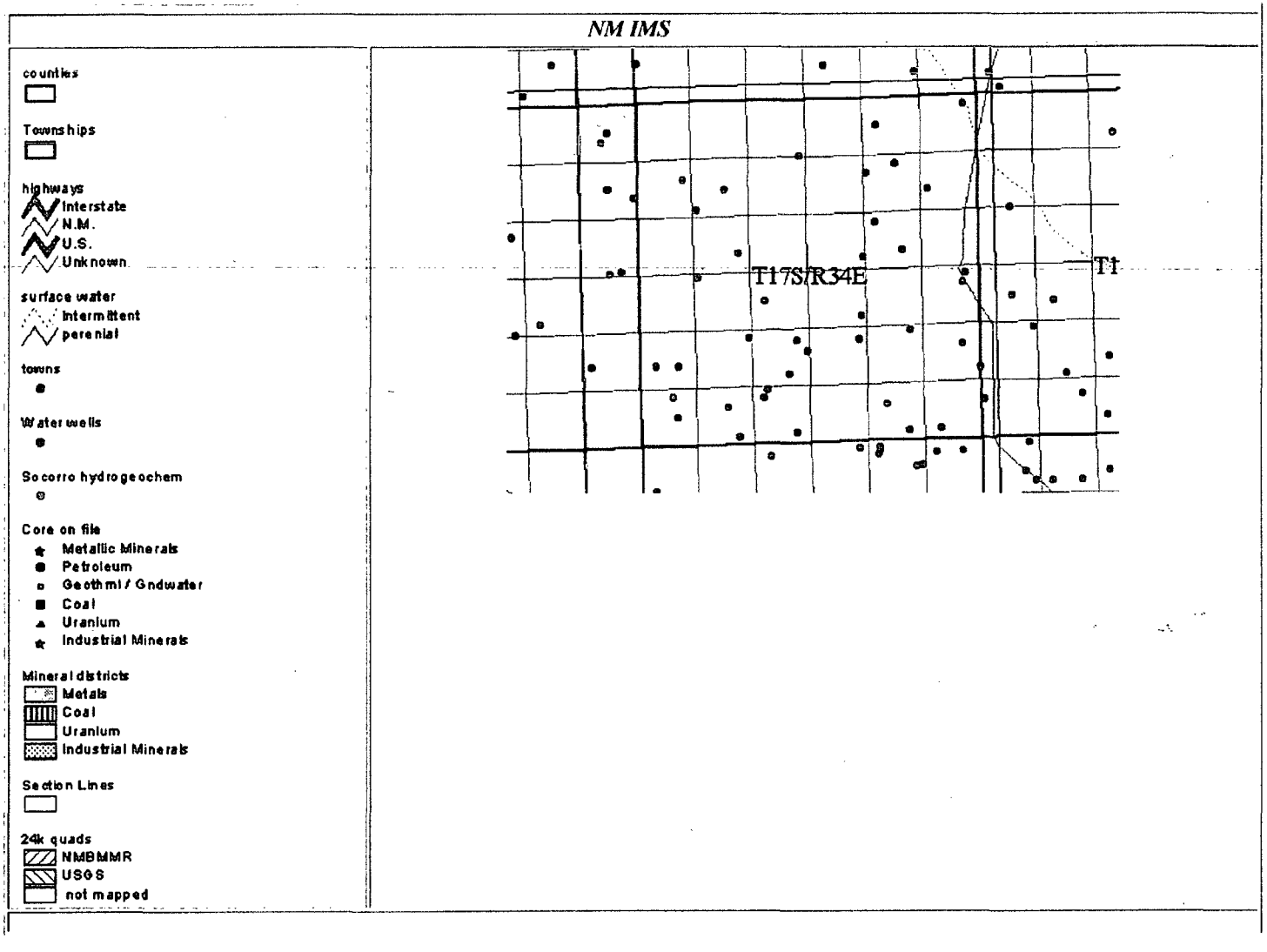
1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water Body
If Depth to GW <50 feet: *20 points*	If <1000' from water source, or; <200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
If Depth to GW 50 to 99 feet: *10 points*		200-100 horizontal feet: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

NM IMS



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8/4/2001

Identify Results

Shape	Point	Shape	Point	Shape	Point	Shape	Point
Area	0.000	Area	0.000	Area	0.000	Area	0.000
Perimeter	0.000	Perimeter	0.000	Perimeter	0.000	Perimeter	0.000
Water_wells#	7693	Water_wells#	7755	Water_wells#	7862	Water_wells#	7946
Water_wells-id	7693	Water_wells-id	7755	Water_wells-id	7862	Water_wells-id	7946
Index_no	7693	Index_no	7755	Index_no	7862	Index_no	7946
Siteid	324711103333801	Siteid	324735103320001	Siteid	324805103334501	Siteid	324825103332601
Latitude	324711	Latitude	324735	Latitude	324805	Latitude	324825
Longitud	1033338	Longitud	1033200	Longitud	1033345	Longitud	1033326
Locname	11324	Locname	10213	Locname	10211	Locname	*No Data*
Altitude	4060	Altitude	4021	Altitude	4073	Altitude	4058
Use	U	Use	U	Use	U	Use	*No Data*
Depth	0.00	Depth	132.00	Depth	240.00	Depth	0.00
Geo-unit	*No Data*	Geo-unit	*No Data*	Geo-unit	*No Data*	Geo-unit	*No Data*
Waterlev	127.25	Waterlev	125.02	Waterlev	125.80	Waterlev	148.91
Wl-date	19710216	Wl-date	19800103	Wl-date	19610117	Wl-date	19760303
Wlingwsi	3	Wlingwsi	*No Data*	Wlingwsi	31	Wlingwsi	4
Sitestat	*No Data*	Sitestat	*No Data*	Sitestat	*No Data*	Sitestat	*No Data*
Discharg	0.00	Discharg	0.00	Discharg	0.00	Discharg	0.00
Spc	0	Spc	0	Spc	0	Spc	0
Spc-date	*No Data*	Spc-date	*No Data*	Spc-date	*No Data*	Spc-date	*No Data*
Qwyear	1961	Qwyear	1940	Qwyear	1951	Qwyear	1961
Temp	0.0	Temp	0.0	Temp	0.0	Temp	0.0
Tempdate	*No Data*	Tempdate	*No Data*	Tempdate	*No Data*	Tempdate	*No Data*
Obs-well	*No Data*	Obs-well	*No Data*	Obs-well	*No Data*	Obs-well	*No Data*

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Identify Results

Page 1 of 1

Shape	Point	Shape	Point	Shape	Point
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Longitud	1033210	Longitud	1033232	Longitud	1033210
Locname	*No Data*	Locname	05065	Locname	11325
Altitude	4021	Altitude	4031	Altitude	4013
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Waterlev	88.30	Waterlev	150.39	Waterlev	88.42
Wl-date	19610306	Wl-date	19860408	Wl-date	19610306
Wlingwsi	1	Wlingwsi	1	Wlingwsi	1
Sitestat	*No Data*	Sitestat	*No Data*	Sitestat	P
Discharg	0.00	Discharg	0.00	Discharg	0.00
Spc	0	Spc	0	Spc	0
Spc-date	*No Data*	Spc-date	*No Data*	Spc-date	*No Data*
Qwyear	1961	Qwyear	*No Data*	Qwyear	1961
Temp	0.0	Temp	0.0	Temp	0.0
Tempdate	*No Data*	Tempdate	*No Data*	Tempdate	*No Data*
Obs-well	*No Data*	Obs-well	*No Data*	Obs-well	*No Data*

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New Mexico Office of the State Engineer Page 1 of 1

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 17S Range: 34E Sections: 34,26,27,28,33,35

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

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

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

AVERAGE DEPTH OF WATER REPORT 10/01/2001

Bas	Twn	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet) Min	Max	Avg
L	17S	34E	26				4	70	107	93
L	17S	34E	27				3	125	139	135
L	17S	34E	34				2	93	93	93
L	17S	34E	35				4	95	102	99

Township: 18S Range: 34E Sections: 2,3,4

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

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

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

AVERAGE DEPTH OF WATER REPORT 10/01/2001

Bas	Twn	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet) Min	Max	Avg
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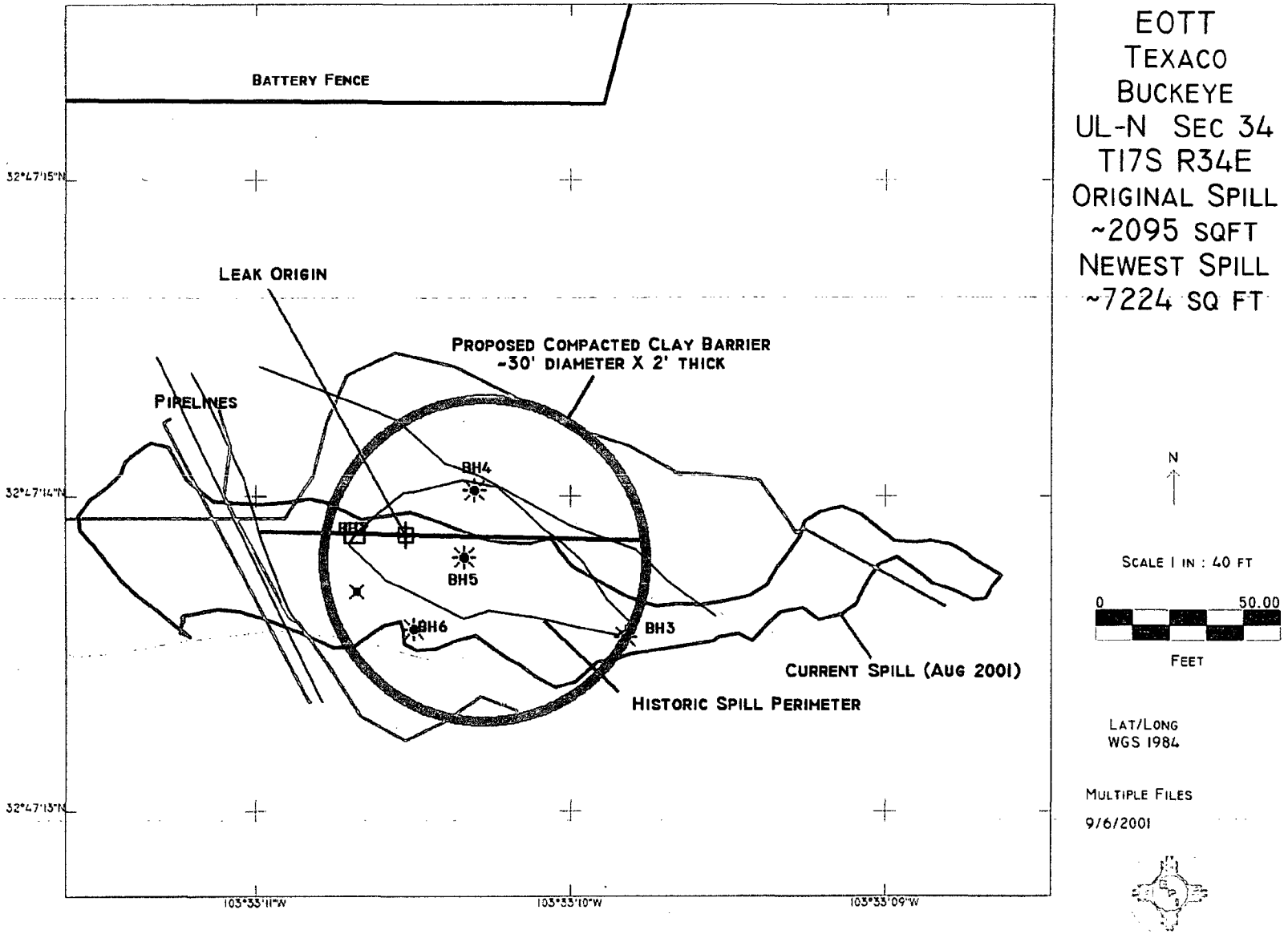
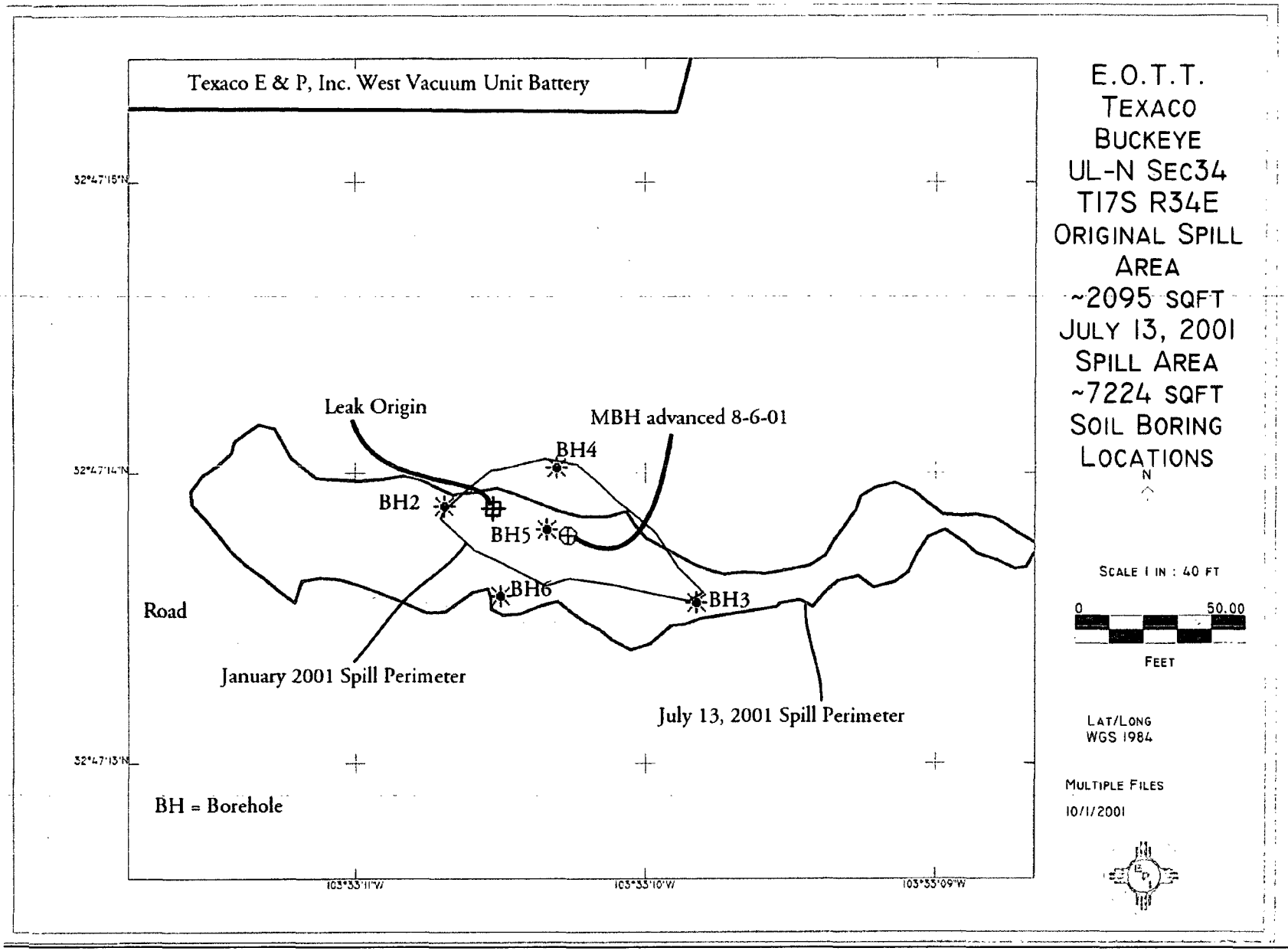
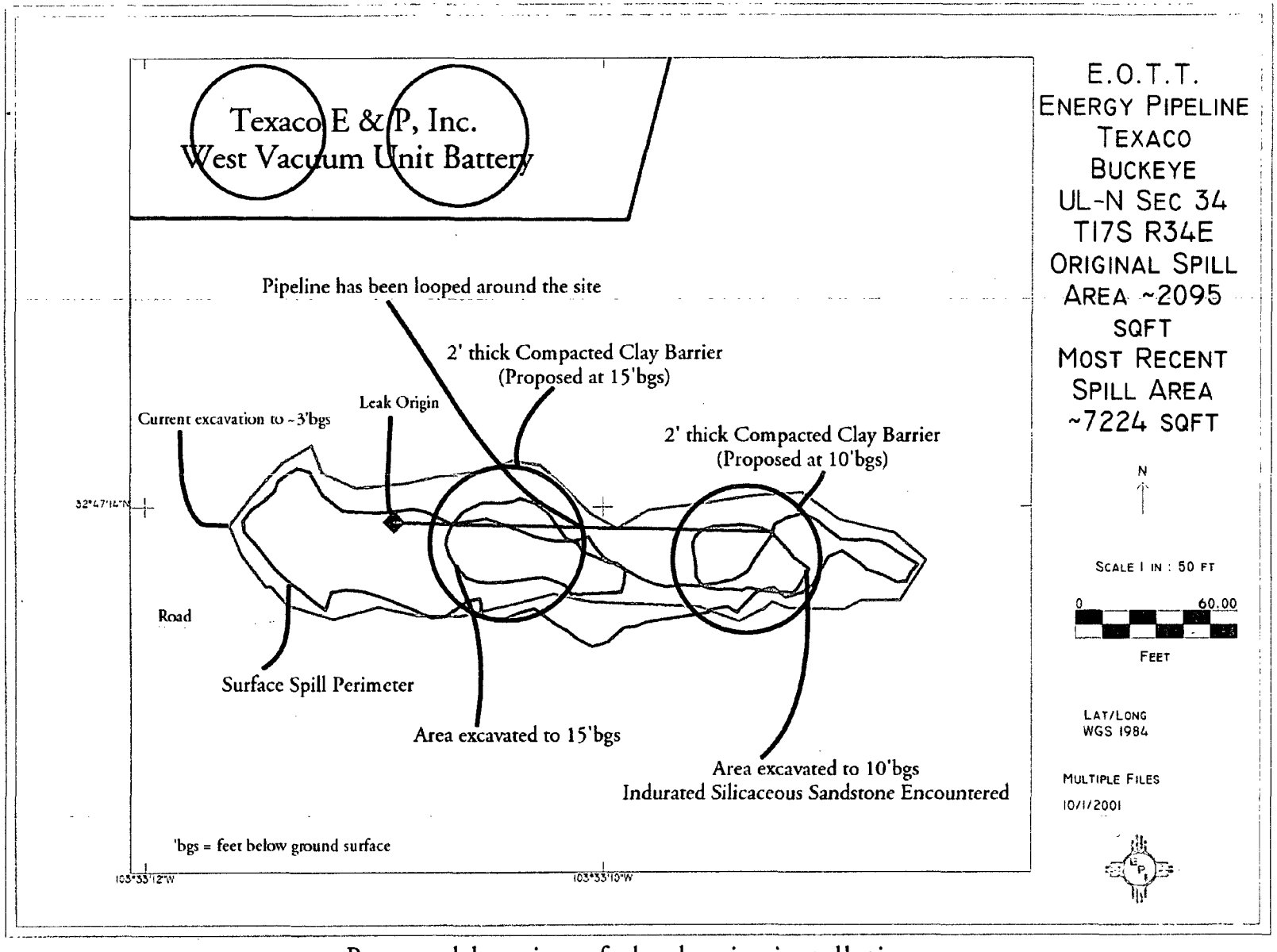
Record Count: 5

ATTACHMENT II – SITE MAPS

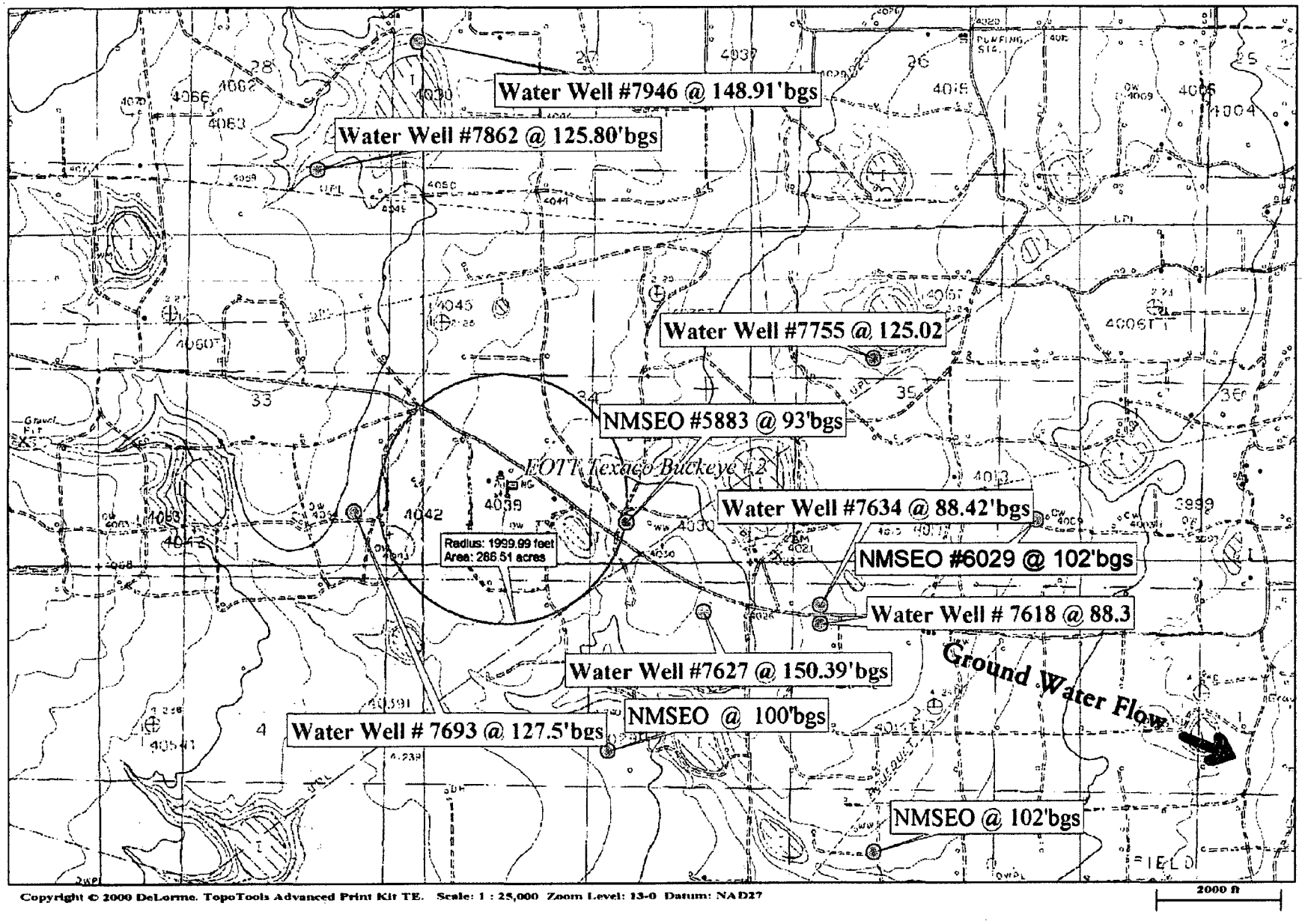


Original Site Map prior to discovery of east portion contamination.

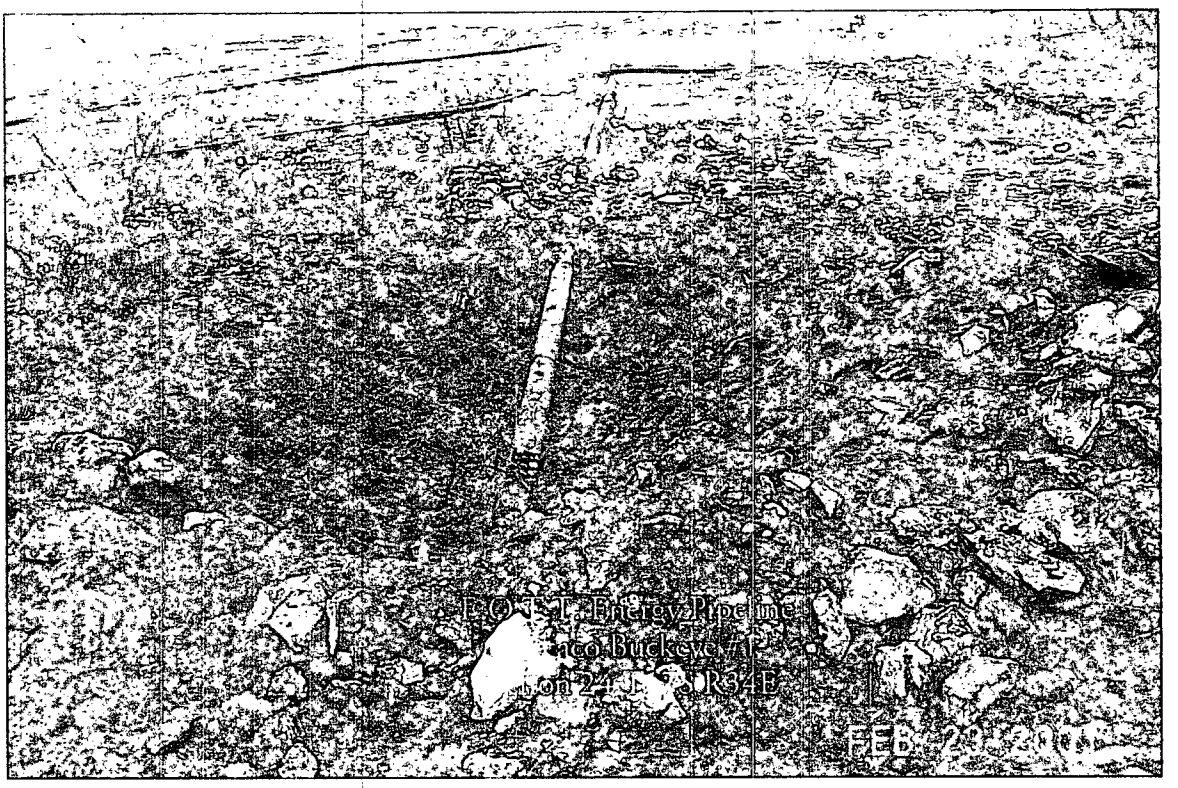

Texaco E & P, Inc. West Vacuum Unit Battery
32°47'15"N
32°47'14"N
32°47'13"N
103°33'11"W
103°33'10"W
103°33'09"W
Leak Origin
MBH advanced 8-6-01
BH4
BH2
BH5
BH6
BH3
Road
January 2001 Spill Perimeter
July 13, 2001 Spill Perimeter
BH = Borehole
E.O.T.T.
TEXACO
BUCKEYE
UL-N SEC34
T17S R34E
ORIGINAL SPILL
AREA
~2095 SQFT
JULY 13, 2001
SPILL AREA
~7224 SQFT
SOIL BORING
LOCATIONS
N
SCALE 1 IN : 40 FT
0
50.00
FEET
LAT/LONG
WGS 1984
MULTIPLE FILES
10/1/2001

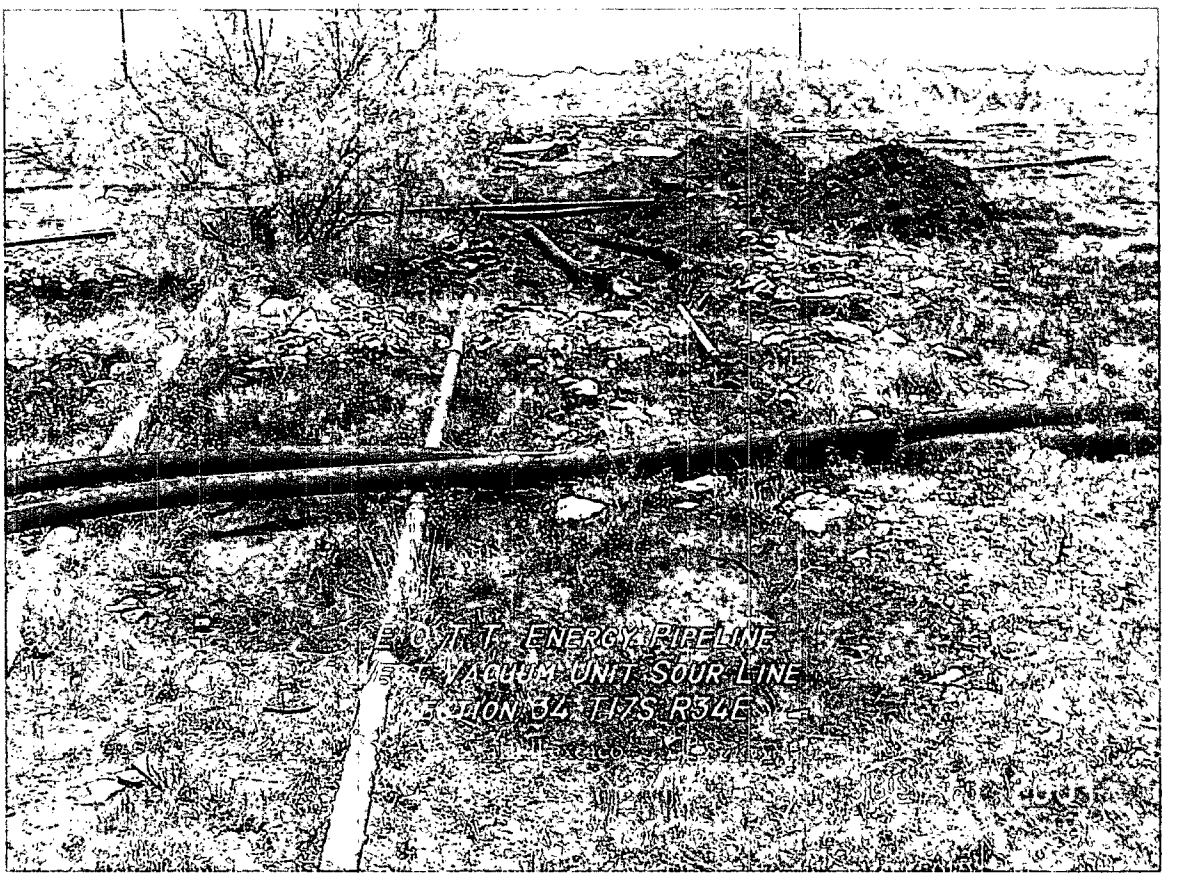


Proposed location of clay barrier installations.


Water Well #7946 @ 148.91'bgs
Water Well #7862 @ 125.80'bgs
Water Well #7755 @ 125.02
NMSEO #5883 @ 93'bgs
EOTT Texaco Buckeye #2
Water Well #7634 @ 88.42'bgs
Radius: 1999.99 feet
Area: 286.51 acres
NMSEO #6029 @ 102'bgs
Water Well # 7618 @ 88.3
Water Well #7627 @ 150.39'bgs
Ground Water Flow
NMSEO @ 100'bgs
Water Well # 7693 @ 127.5'bgs
NMSEO @ 102'bgs
Copyright © 2000 DeLorme. TopoTools Advanced Print Kit TE. Scale: 1 : 25,000 Zoom Level: 13-0 Datum: NAD27
2000 ft

ATTACHMENT III - PHOTOGRAPHS


E.O.T.T. Energy Pipeline
Texaco Buckeye #1
Section 24 T.17S. R34E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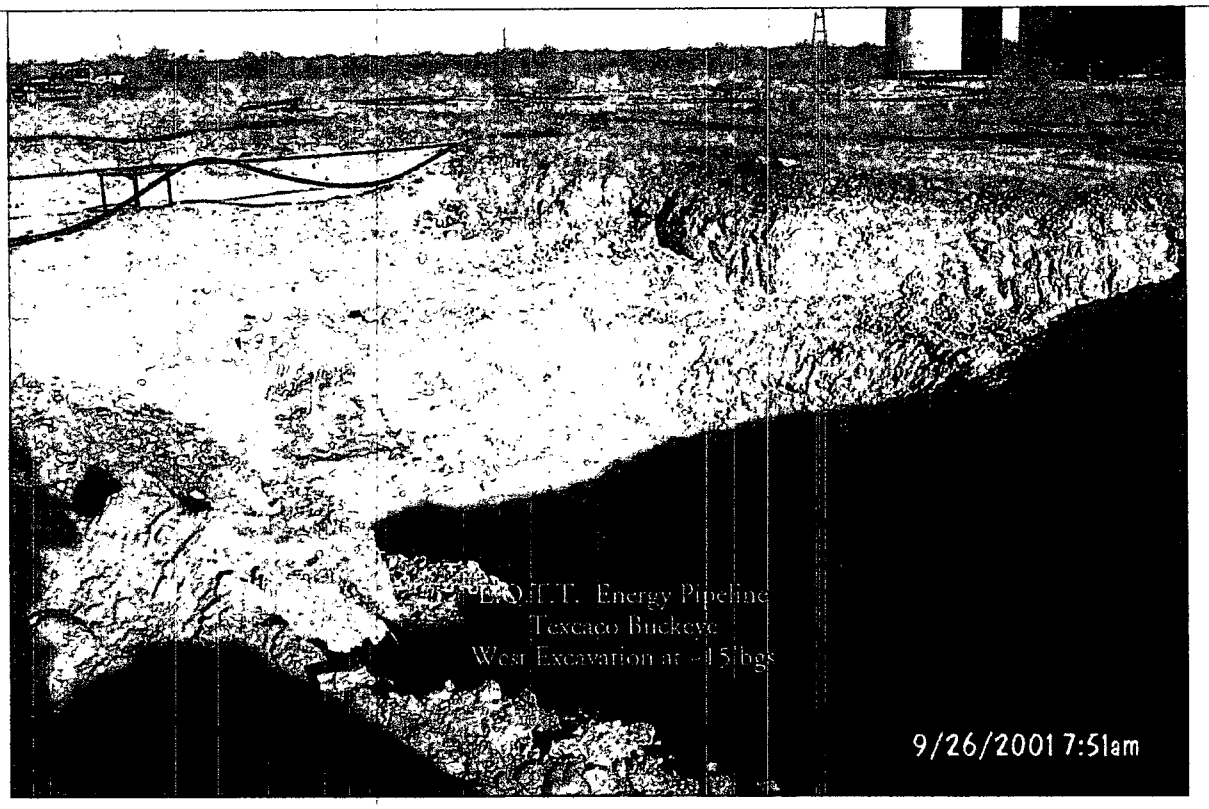
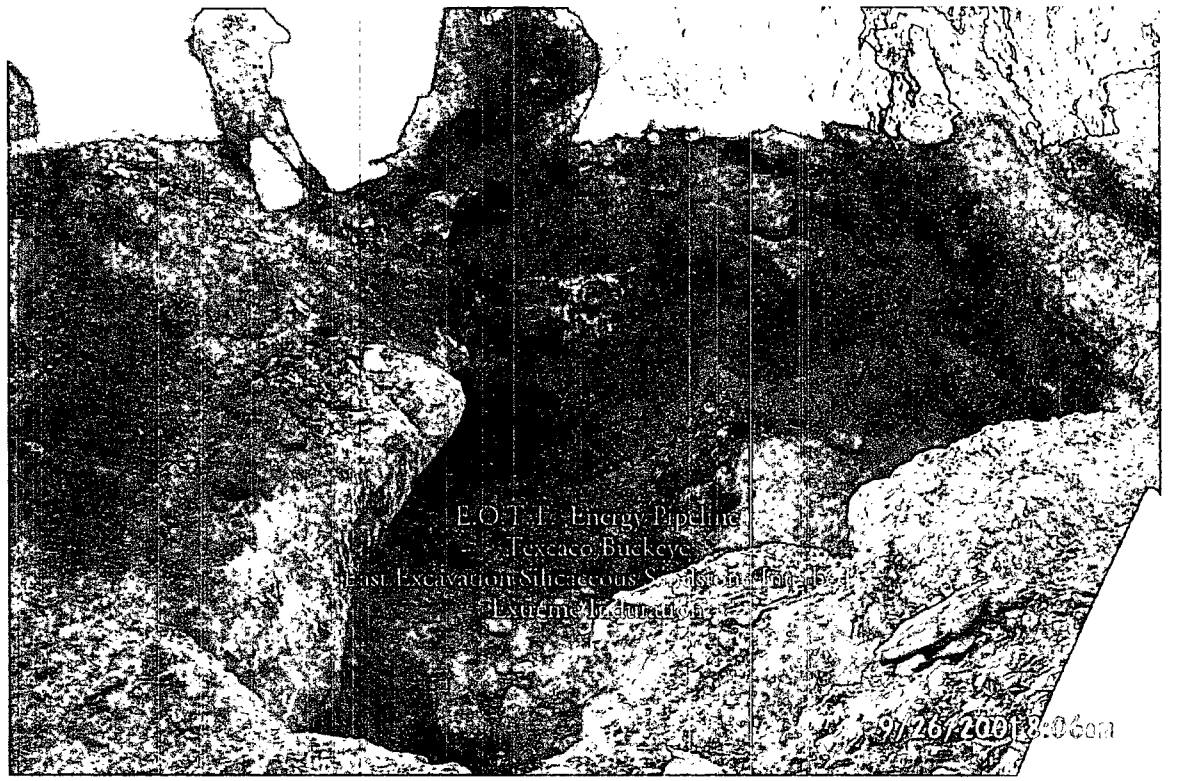
VACUUM UNIT SOUR LINE
SECTION 34 T.17S R34E


E.O.T.T. Energy Pipeline
Texaco Buckeye
West Excavation at ~15'bgs
9/26/2001 7:51am


E.O.T.T. Energy Pipeline
Texaco Buckeye
East Excavation Siliceous
Extreme Induration
9/26/2001 8:06am

ATTACHMENT IV: ANALYTICAL REPORTS AND SUMMARY

E.O.T.T. ENERGY PIPELINE

TEXACO BUCKEYE 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	TOLUENE MG/KG	EHTYL BENZENE MG/KG	M,P-XYLENE MG/KG	O-XYLENE MG/KG
ETBS22301BH2-2	2/23/2001	BH2	2	Oily Brown Soil & Rock	1025.0	1203	2408	**3611**	27.115	*0.025*	1.940	4.220	12.600	8.330
ETBS22301BH2-5	2/23/2001		5	Light Brown, Oily Soil	291.0	216	904	**1120**	3.580	*0.025*	1.070	0.488	1.190	0.807
ETBS22301BH2-10	2/23/2001		10	Beige Sand & Rock	67.4	60	527	587	0.911	*0.025*	0.118	0.226	0.372	0.170
ETBS22301BH2-15	2/23/2001		15	Beige Sand	25.4	15	326	341	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH3-2	2/23/2001	BH3	2	Brown, Oily Soil	1.2	*10*	*10*	*20*	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH3-5	2/23/2001		5	Light Brown Sand & Rock	0.6	*10*	*10*	*20*	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH3-10	2/23/2001		10	Beige Sand	0.4	*10*	*10*	*20*	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH3-15	2/23/2001		15	Beige Sand	0.1	*10*	*10*	*20*	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH4-2	2/23/2001	BH4	2	Brown, Oily Soil	650.0	550	432	982	31.416	0.386	5.330	3.660	15.200	6.840
ETBS22301BH4-5	2/23/2001		5	Light Brown Sand	58.8	*10*	68	78	0.136	*0.025*	*0.025*	*0.025*	0.036	*0.025*
ETBS22301BH4-10	2/23/2001		10	Light Brown Sand	28.1	*10*	*10*	*20*	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH4-15	2/23/2001		15	Beige Sand	15.9	*10*	*10*	*20*	0.125	*0.025*	*0.025*	*0.025*	*0.025*	*0.025*
ETBS22301BH5-2	2/23/2001	BH5	2	Black Oily Dirt	627.0	9305	42581	**51886**	**356.700**	**22.600**	111.000	87.800	96.800	38.500
ETBS22301BH5-5	2/23/2001		5	Gray Sand	1391.0	4382	4573	**8955**	**374.200**	**11.200**	108.000	109.000	109.000	37.000
ETBS22301BH5-10	2/23/2001		10	Grayish Brown Sand	1360.0	2591	2075	**4666**	**220.650**	8.650	64.000	63.700	63.800	20.500
ETBS22301BH5-15	2/23/2001		15	Light Brown Sand & Rock	950	4428	4713	**9141**	**538.900**	**16.400**	179.000	150.000	139.000	54.500
ETBS22301BH5-20	2/23/2001		20	Light Brown Sand	260	92	327	419	2.292	*0.025*	0.236	0.655	0.858	0.518
ETBS22301BH5-25	2/23/2001		25	Light Brown Sand	80.4	63	385	448	0.440	*0.025*	*0.025*	0.074	0.227	0.089
ETBS22301BH5-30	2/23/2001		30	Beige Sand	23.7	111	242	353	0.446	*0.025*	*0.025*	0.078	0.238	0.080
ETBS22301BH6-2	2/23/2001	BH6	2	Light Brown Sand	1362	1391	1938	**3329**	**82.625**	*0.025*	15.600	25.900	29.600	11.500
ETBS22301BH6-5	2/23/2001		5	Light Brown Sand & Rock	250.0	22	92	114	0.234	*0.025*	0.025	0.040	0.088	0.056
ETBS22301BH6-10	2/23/2001		10	Beige Sand	82.2	33	155	188	0.549	*0.025*	0.037	0.133	0.223	0.131
ETBS22301BH6-15	2/23/2001		15	Beige Sand	40.1	42	206	248	0.332	*0.025*	0.025	0.061	0.147	0.074
TWVU8601MBH-2	8/6/2001	MBH	2	Light Brown Sand & Rock	200.0	1500	302.1	**1802.1**	2.1968	*0.0200*	0.0848	0.6970	0.8540	0.5410
TWVU8601MBH-5	8/6/2001		5	Light Brown Sand & Rock	187.4	76.2	243	319.2	1.0000	*0.0200*	0.1640	0.3270	0.3350	0.1540
TWVU8601MBH-10	8/6/2001		10	Light Brown Sand & Rock	47.9	164	28.7	192.7	*0.1000*	*0.0200*	*0.0200*	*0.0200*	*0.0200*	*0.0200*
TWVU8601MBH-15	8/6/2001		15	Light Brown Sand & Rock	15.4	6.8	88.4	95.2	*0.1000*	*0.0200*	*0.0200*	*0.0200*	*0.0200*	*0.0200*
TWVU8601MBH-20	8/6/2001		20	Light Brown Sand & Rock	9.7	*5*	23.7	28.7	*0.1000*	*0.0200*	*0.0200*	*0.0200*	*0.0200*	*0.0200*
TWVU8601MBH-25	8/6/2001		25	Light Brown Sand & Rock	7.9	*5*	64	69	*0.1000*	*0.0200*	*0.0200*	*0.0200*	*0.0200*	*0.0200*

[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

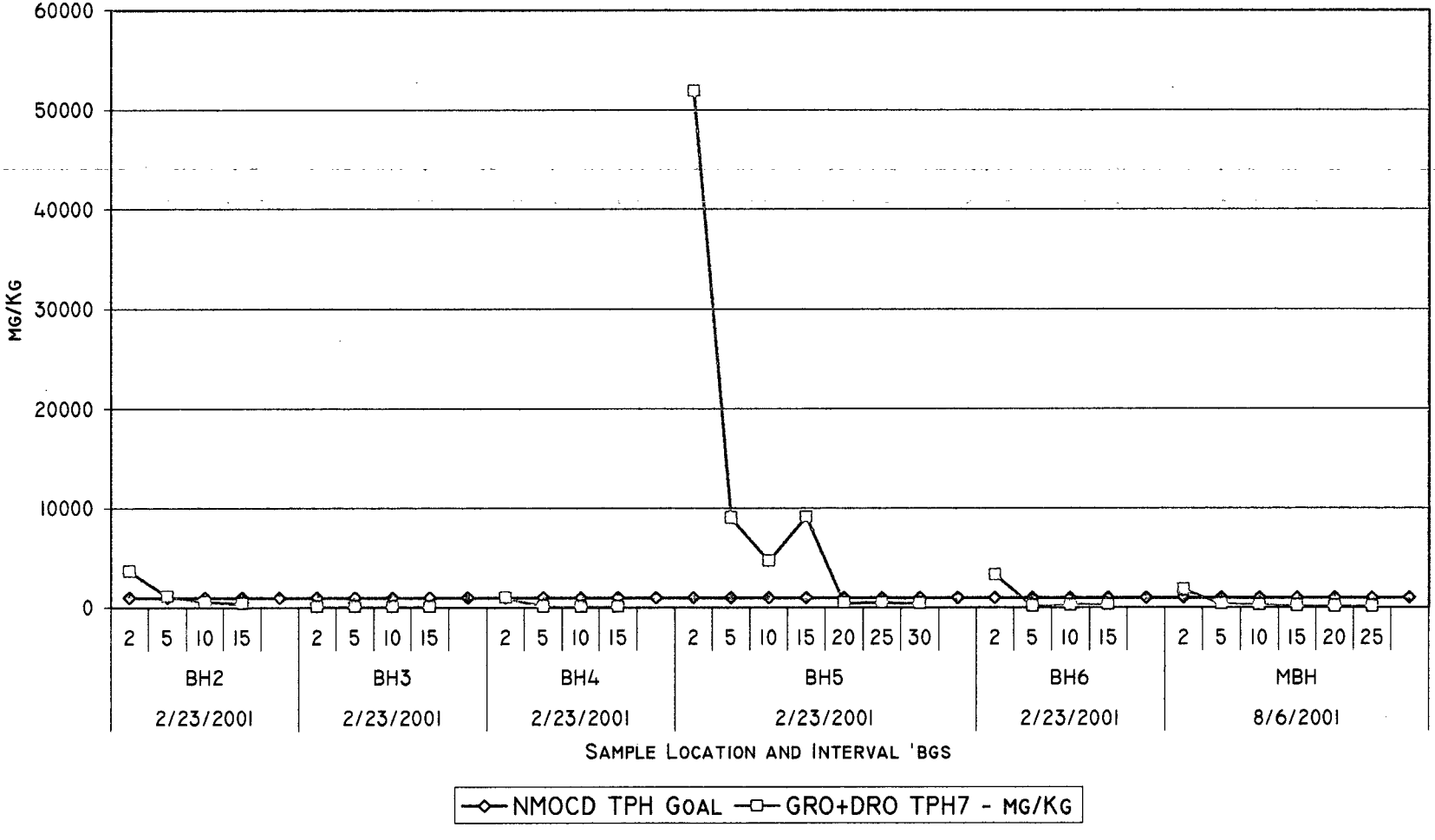
[5]**BOLDED VALUES** ARE IN EXCESS OF THE NEW MEXICO OIL CONSERVATION DIVISION GUIDELINE THRESHOLD FOR THE PARAMETER

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

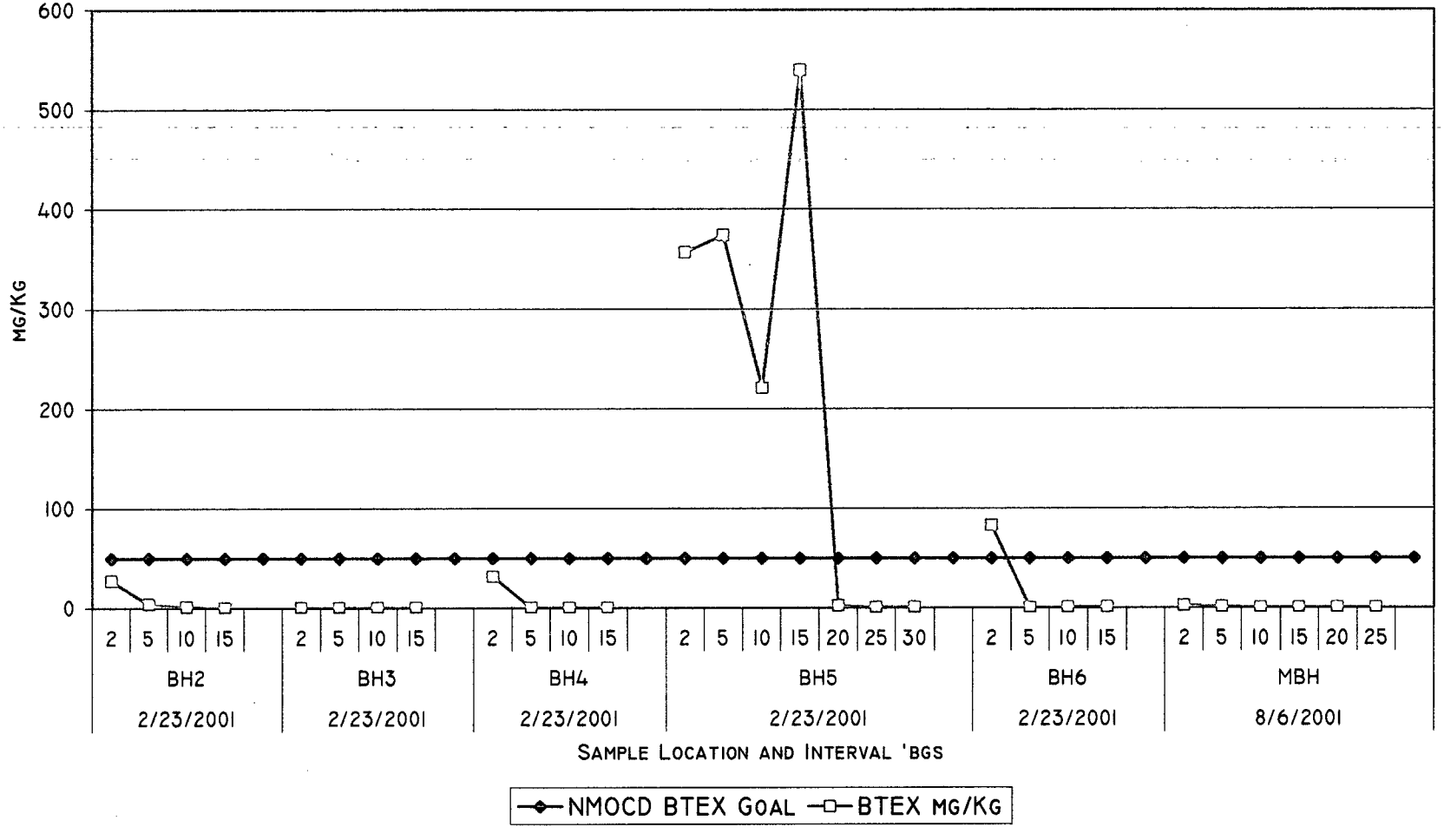
[7]GRO+DRO (TPH) - TOTAL PETROLEUM HYDROCARBON EPA METHOD 8015M

E.O.T.T. Texaco Buckeye

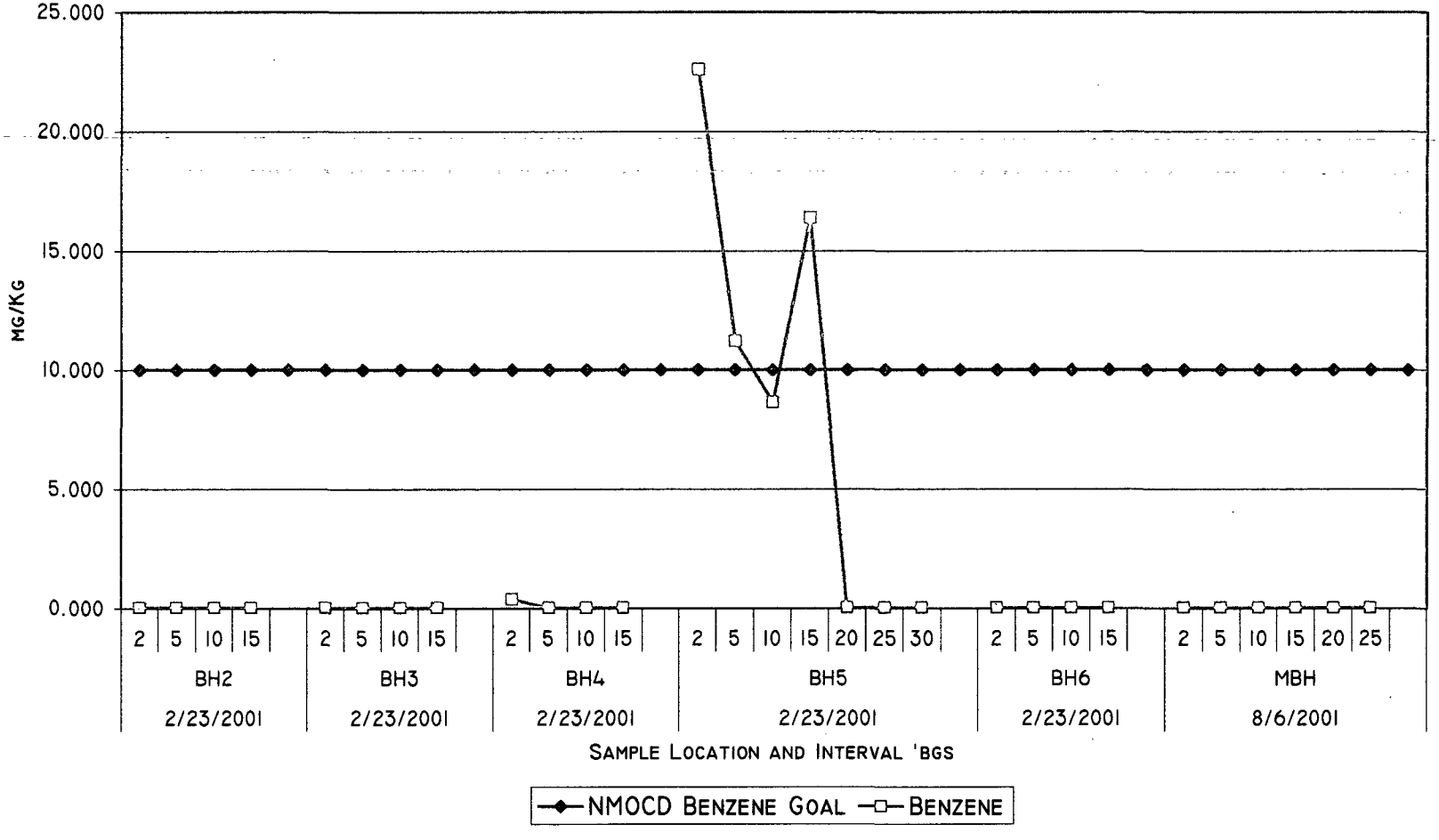
Total Petroleum Hydrocarbon (TPH) Delineation



E.O.T.T. Texaco Buckeye
BTEX Delineation



E.O.T.T. Texaco Buckeye
Benzene Delineation



AnalySys Inc.
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2209 N. Padre Island Dr., Corpus Christi, TX 78408
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Client: EOTT Energy Corp.
Attn: Frank Hernandez
Address: 5805 East Hwy 80
Midland Tx 79701
Phone: 915 638-3799 **FAX:** 915 684-3456

Report#/Lab ID#: 117853 **Report Date:** 09/04/01
Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-10
Sample Matrix: soil
Date Received: 08/10/2001 **Time:** 17:24
Date Sampled: 08/06/2001 **Time:** 14:45

REPORT OF ANALYSIS

QUALITY ASSURANCE DATA[1]

Parameter	Result	Units	RQL[5]	Blank	Date	Method[6]	Data Qual[7]	Prec.[2]	Recov.[3]	CCV[4]	LCS[4]
TPH by GC (as diesel)	164	mg/Kg	10	<10	08/30/01	8015 mod	S,M,P	Mt. Int	Mt. Intf.	95	79.4
TPH by GC (as diesel-ext)	---	---	---	---	08/20/01	3540	---	-NA-	-NA-	-NA-	-NA-
TPH by GC (as gasoline)	28.7	mg/Kg	5	<5	08/17/01	8015 mod.	---	5.36	98.4	101.5	100.13
Volatile organics-8260b/BTEX	---		---		08/17/01	8260b	---	---	---	---	---
Benzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.3	81.5	86.4	85.7
Ethylbenzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.4	93.3	96.7	96.6
m,p-Xylenes	<20	µg/Kg	20	<20	08/17/01	8260b	J	4.3	95.5	99.8	99.3
o-Xylene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.2	95.8	98.2	100.6
Toluene	<20	µg/Kg	20	<20	08/17/01	8260b	J	4.3	87.1	93.2	93.6

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program.

Respectfully Submitted,

Richard Laster

Richard Laster

1. Quality assurance data is for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent (%) difference between duplicate measurements. 3. Recovery (Recov.) is the percent (%) of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent (%) recovery of analyte from a known standard or matrix. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte potentially present between the PQL and the MDL. B =Analyte detected in associated method blank(s). S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference.

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Client: EOTT Energy Corp.
Attn: Frank Hernandez

Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-10

Report#/Lab ID#: 117853
Sample Matrix: soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limit	Data Qualifiers
p-Terphenyl	8015 mod	none/diluted	diluted @ 1X	D
Chlorobenzene-d5(Sur)	8015 mod.	87.5	50 - 150	---
1,2-Dichloroethane-d4	8260b	99.1	65-115	---
Toluene-d8	8260b	94.1	50-120	---

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

Exceptions Report:

Report #/Lab ID#: 117853 **Matrix:** soil
Client: EOTT Energy Corp. **Attn:** Frank Hernandez
Project ID: 2001-11640-4"West Vacuum
Sample Name: TWU8601MBH-10

Sample Temperature/Condition <=6°C

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

Sample Bottles & Preservation

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

J flag Discussion

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

Comments pertaining to Data Qualifiers and QC data:

Parameter	Qualif	Comment
TPH by GC (as diesel) TPH by GC (as diesel)	P P	The precision of the MS & MSD (or sample and sample duplicate for those analyseswhere MS/MSD are not run) is outside advisory/acceptance limits.
TPH by GC (as diesel)	S,M	MS and/or MSD recoveries outside advisory/acceptance limits. LCS recovery in-limits; indicative of matrix interference as evidenced by M-flag.
Volatile organics-8260b/BTEX	H	Hold time for this parameter exceeded by 3* days.
m,p-Xylenes	J	See J-flag discussion above.
Toluene	J	See J-flag discussion above.
p-Terphenyl p-Terphenyl	D D	Sample diluted to assure quantitation within calibration range or due to Matrix interferences or other matrix effects (eg. high non-target organic levels). Surrogate recoveries not accurately quantifiable.

Notes:

AnalySys Inc.
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Client: EOTT Energy Corp.
Attn: Frank Hernandez
Address: 5805 East Hwy 80
Midland Tx 79701

Phone: 915 638-3799 **FAX:** 915 684-3456

Report#/Lab ID#: 117854 **Report Date:** 09/04/01
Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-2
Sample Matrix: soil
Date Received: 08/10/2001 **Time:** 17:24
Date Sampled: 08/06/2001 **Time:** 14:00

REPORT OF ANALYSIS

QUALITY ASSURANCE DATA[1]

Parameter	Result	Units	RQL[5]	Blank	Date	Method[6]	Data Qual[7]	Prec.[2]	Recov.[3]	CCV[4]	LCS[4]
TPH by GC (as diesel)	1500	mg/Kg	100	<100	08/30/01	8015 mod	S,M,P	Mt. Int	Mt. Intf.	95	79.4
TPH by GC (as diesel-ext)	---	---	---	---	08/20/01	3540	---	-NA-	-NA-	-NA-	-NA-
TPH by GC (as gasoline)	302.1	mg/Kg	5	<5	08/17/01	8015 mod.	---	5.36	98.4	101.5	100.13
Volatile organics-8260b/BTEX	---		---		08/17/01	8260b	---	---	---	---	---
Benzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.3	81.5	86.4	85.7
Ethylbenzene	697	µg/Kg	20	<20	08/17/01	8260b	---	4.4	93.3	96.7	96.6
m,p-Xylenes	854	µg/Kg	20	<20	08/17/01	8260b	---	4.3	95.5	99.8	99.3
o-Xylene	541	µg/Kg	20	<20	08/17/01	8260b	---	4.2	95.8	98.2	100.6
Toluene	84.8	µg/Kg	20	<20	08/17/01	8260b	---	4.3	87.1	93.2	93.6

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program.

Respectfully Submitted,

Richard Laster

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Client: EOTT Energy Corp.	**Project ID:** 2001-11040-4"West Vacuum	**Report#/Lab ID#:** 117854
Attn: Frank Hernandez	**Sample Name:** TWVU8601MBH-2	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limit	Data Qualifiers
p-Terphenyl	8015 mod	none/diluted	diluted @ 2X	D
Chlorobenzene-d5(Sur)	8015 mod.	84.4	50 - 150	---
1,2-Dichloroethane-d4	8260b	74.7	65-115	---
Toluene-d8	8260b	92.2	50-120	---

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

Exceptions Report:

Report #/Lab ID#: 117854 **Matrix:** soil
Client: EOTT Energy Corp. **Attn:** Frank Hernandez
Project ID: 2001-11040-4"West Vacuum
Sample Name: TW-U8601MBH-2

Sample Temperature/Condition <=6°C

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

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J flag Discussion

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

Comments pertaining to Data Qualifiers and QC data:

Parameter	Qualif	Comment
TPH by GC (as diesel) TPH by GC (as diesel)	P P	The precision of the MS & MSD (or sample and sample duplicate for those analyseswhere MS/MSD are not run) is outside advisory/acceptance limits.
TPH by GC (as diesel)	S,M	MS and/or MSD recoveries outside advisory/acceptance limits. LCS recovery in-limits; indicative of matrix interference as evidenced by M-flag.
Volatile organics-8260b/BTEX	H	Hold time for this parameter exceeded by 3* days.
p-Terphenyl p-Terphenyl	D D	Sample diluted to assure quantitation within calibration range or due to Matrix interferences or other matrix effects (eg. high non-target organic levels). Surrogate recoveries not accurately quantifiable.

Notes:

ANALYSYS INC.
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(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp.
Attn: Frank Hernandez
Address: 5805 East Hwy 80
Midland Tx 79701
Phone: 915 638-3799 **FAX:** 915 684-3456

Report#/Lab ID#: 117855 **Report Date:** 09/04/01
Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-5
Sample Matrix: soil
Date Received: 08/10/2001 **Time:** 17:24
Date Sampled: 08/06/2001 **Time:** 14:20

REPORT OF ANALYSIS

QUALITY ASSURANCE DATA[1]

Parameter	Result	Units	RQL[5]	Blank	Date	Method[6]	Data Qual[7]	Prec.[2]	Recov.[3]	CCV[4]	LCS[4]
TPH by GC (as diesel)	243	mg/Kg	10	<10	08/30/01	8015 mod	S,M,P	Mt. Int	Mt. Intf.	95	79.4
TPH by GC (as diesel-ext)	---	---	---	---	08/20/01	3540	---	-NA-	-NA-	-NA-	-NA-
TPH by GC (as gasoline)	76.2	mg/Kg	5	<5	08/17/01	8015 mod.	---	5.36	98.4	101.5	100.13
Volatile organics-8260b/BTEX	---		---		08/17/01	8260b	---	---	---	---	---
Benzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.3	81.5	86.4	85.7
Ethylbenzene	327	µg/Kg	20	<20	08/17/01	8260b	---	4.4	93.3	96.7	96.6
m,p-Xylenes	335	µg/Kg	20	<20	08/17/01	8260b	---	4.3	95.5	99.8	99.3
o-Xylene	154	µg/Kg	20	<20	08/17/01	8260b	---	4.2	95.8	98.2	100.6
Toluene	164	µg/Kg	20	<20	08/17/01	8260b	---	4.3	87.1	93.2	93.6

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program.

Respectfully Submitted,

Richard Laster

Richard Laster

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Client: EOTT Energy Corp.
Attn: Frank Hernandez

Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-5

Report#/Lab ID#: 117855
Sample Matrix: soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limit	Data Qualifiers
p-Terphenyl	8015 mod	none/diluted	diluted @ 1X	D
Chlorobenzene-d5(Sur)	8015 mod.	86.9	50 - 150	---
1,2-Dichloroethane-d4	8260b	90.8	65-115	---
Toluene-d8	8260b	97.9	50-120	---

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

Exceptions Report:

Report #/Lab ID#: 117855 **Matrix:** soil
Client: EOTT Energy Corp. **Attn:** Frank Hernandez
Project ID: 2001-11040-4"West Vacuum
Sample Name: TW-U8601MBH-5

Sample Temperature/Condition <=6°C

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Sample Bottles & Preservation

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

J flag Discussion

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

Comments pertaining to Data Qualifiers and QC data:

Parameter	Qualif	Comment
TPH by GC (as diesel) TPH by GC (as diesel)	P P	The precision of the MS & MSD (or sample and sample duplicate for those analyseswhere MS/MSD are not run) is outside advisory/acceptance limits.
TPH by GC (as diesel)	S,M	MS and/or MSD recoveries outside advisory/acceptance limits. LCS recovery in-limits; indicative of matrix interference as evidenced by M-flag.
Volatile organics-8260b/BTEX	H	Hold time for this parameter exceeded by 3* days.
p-Terphenyl p-Terphenyl	D D	Sample diluted to assure quantitation within calibration range or due to Matrix interferences or other matrix effects (eg. high non-target organic levels). Surrogate recoveries not accurately quantifiable.

Notes:

AnalySys Inc.
4221 Freidrich Lane, Suite 190, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp.
Attn: Frank Hernandez
Address: 5805 East Hwy 80
Midland Tx 79701

Phone: 915 638-3799 **FAX:** 915 684-3456

Report#/Lab ID#: 117856 **Report Date:** 09/04/01
Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-15
Sample Matrix: soil
Date Received: 08/10/2001 **Time:** 17:24
Date Sampled: 08/06/2001 **Time:** 15:15

REPORT OF ANALYSIS

QUALITY ASSURANCE DATA[1]

Parameter	Result	Units	RQL[5]	Blank	Date	Method[6]	Data Qual[7]	Prec.[2]	Recov.[3]	CCV[4]	LCS[4]
TPH by GC (as diesel)	88.4	mg/Kg	10	<10	08/30/01	8015 mod	S,M,P	Mt. Int	Mt. Intf.	95	79.4
TPH by GC (as diesel-ext)	---	---	---	---	08/20/01	3540	---	-NA-	-NA-	-NA-	-NA-
TPH by GC (as gasoline)	6.8	mg/Kg	5	<5	08/17/01	8015 mod.	---	5.36	98.4	101.5	100.13
Volatile organics-8260b/BTEX	---	---	---	---	08/17/01	8260b	---	---	---	---	---
Benzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	5	87	94.8	101.8
Ethylbenzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	6.4	104.8	105.6	106.3
m,p-Xylenes	<20	µg/Kg	20	<20	08/17/01	8260b	---	7.6	106.4	109.1	109.5
o-Xylene	<20	µg/Kg	20	<20	08/17/01	8260b	---	7	107.5	108	108.3
Toluene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.6	91.3	94.3	106.5

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program.

Respectfully Submitted,

Richard Laster

Richard Laster

1. Quality assurance data is for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent (%) difference between duplicate measurements. 3. Recovery (Recov.) is the percent (%) of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent (%) recovery of analyte from a known standard or matrix. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte potentially present between the PQL and the MDL. B =Analyte detected in associated method blank(s). S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference.

CHEMSTAR INC.
4221 Freidrich Lane Suite 190 Austin TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 7840408
(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp.	**Project ID:** 2001-11040-4"West Vacuum	**Report#/Lab ID#:** 117856
Attn: Frank Hernandez	**Sample Name:** TWVU8601MBH-15	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limit	Data Qualifiers
p-Terphenyl	8015 mod	none/diluted	diluted @ 1X	D
Chlorobenzene-d5(Sur)	8015 mod.	84.4	50 - 150	---
1,2-Dichloroethane-d4	8260b	98.2	65-115	---
Toluene-d8	8260b	90.8	50-120	---

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

Exceptions Report:

Report #/Lab ID#: 117856 **Matrix:** soil
Client: EOTT Energy Corp. **Attn:** Frank Hernandez
Project ID: 2001-11040-4"West Vacuum
Sample Name: TW-U8601MBH-15

Sample Temperature/Condition <=6°C

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

Sample Bottles & Preservation

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

J flag Discussion

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

Comments pertaining to Data Qualifiers and QC data:

Parameter	Qualif	Comment
TPH by GC (as diesel) TPH by GC (as diesel)	P P	The precision of the MS & MSD (or sample and sample duplicate for those analyseswhere MS/MSD are not run) is outside advisory/acceptance limits.
TPH by GC (as diesel)	S,M	MS and/or MSD recoveries outside advisory/acceptance limits. LCS recovery in-limits; indicative of matrix interference as evidenced by M-flag.
p-Terphenyl p-Terphenyl	D D	Sample diluted to assure quantitation within calibration range or due to Matrix interferences or other matrix effects (eg. high non-target organic levels). Surrogate recoveries not accurately quantifiable.

Notes:

AnalySys Inc.
4221 Freidrich Lane, Suite 190, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp.
Attn: Frank Hernandez
Address: 5805 East Hwy 80
Midland Tx 79701
Phone: 915 638-3799 **FAX:** 915 684-3456

Report#/Lab ID#: 117857 **Report Date:** 09/04/01
Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-20
Sample Matrix: soil
Date Received: 08/10/2001 **Time:** 17:24
Date Sampled: 08/06/2001 **Time:** 15:40

REPORT OF ANALYSIS

QUALITY ASSURANCE DATA[1]

Parameter	Result	Units	RQL[5]	Blank	Date	Method[6]	Data Qual[7]	Prec.[2]	Recov.[3]	CCV[4]	LCS[4]
TPH by GC (as diesel)	23.7	mg/Kg	1	<1	08/24/01	8015 mod	S,M,P	Mt. Int	Mt. Intf.	95	79.4
TPH by GC (as diesel-ext)	---	---	---	---	08/20/01	3540	---	-NA-	-NA-	-NA-	-NA-
TPH by GC (as gasoline)	<5	mg/Kg	5	<5	08/17/01	8015 mod.	---	5.36	98.4	101.5	100.13
Volatile organics-8260b/BTEX	---	---	---	---	08/17/01	8260b	---	---	---	---	---
Benzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	5	87	94.8	101.8
Ethylbenzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	6.4	104.8	105.6	106.3
m,p-Xylenes	<20	µg/Kg	20	<20	08/17/01	8260b	---	7.6	106.4	109.1	109.5
o-Xylene	<20	µg/Kg	20	<20	08/17/01	8260b	---	7	107.5	108	108.3
Toluene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.6	91.3	94.3	106.5

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program.

Respectfully Submitted,

Richard Laster

Richard Laster

1. Quality assurance data is for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent (%) difference between duplicate measurements. 3. Recovery (Recov.) is the percent (%) of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent (%) recovery of analyte from a known standard or matrix. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte potentially present between the PQL and the MDL. B =Analyte detected in associated method blank(s). S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference.

CHEMSTAR INC.
4221 Freidrich Lane Suite 100 Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 7840408
(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp.	**Project ID:** 2001-11040-4"West Vacuum	**Report#/Lab ID#:** 117857
Attn: Frank Hernandez	**Sample Name:** TWVU8601MBH-20	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limit	Data Qualifiers
p-Terphenyl	8015 mod	75.4	50-150	---
Chlorobenzene-d5(Sur)	8015 mod.	79.9	50 - 150	---
1,2-Dichloroethane-d4	8260b	98.5	65-115	---
Toluene-d8	8260b	94.4	50-120	---

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

Exceptions Report:

Report #/Lab ID#: 117857 **Matrix:** soil
Client: EOTT Energy Corp. **Attn:** Frank Hernandez
Project ID: 2001-11040-4"West Vacuum
Sample Name: TW-U8601MBH-20

Sample Temperature/Condition <=6°C

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

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Comments pertaining to Data Qualifiers and QC data:

Parameter	Qualif	Comment
TPH by GC (as diesel) TPH by GC (as diesel)	P P	The precision of the MS & MSD (or sample and sample duplicate for those analyseswhere MS/MSD are not run) is outside advisory/acceptance limits.
TPH by GC (as diesel)	S,M	MS and/or MSD recoveries outside advisory/acceptance limits. LCS recovery in-limits; indicative of matrix interference as evidenced by M-flag.

Notes: _____

_____

_____

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp.
Attn: Frank Hernandez
Address: 5805 East Hwy 80
Midland Tx 79701

Phone: 915 638-3799 **FAX:** 915 684-3456

Report#/Lab ID#: 117858 **Report Date:** 09/04/01
Project ID: 2001-11040-4"West Vacuum
Sample Name: TWVU8601MBH-25
Sample Matrix: soil
Date Received: 08/10/2001 **Time:** 17:24
Date Sampled: 08/06/2001 **Time:** 16:00

REPORT OF ANALYSIS

QUALITY ASSURANCE DATA[1]

Parameter	Result	Units	RQL[5]	Blank	Date	Method[6]	Data Qual[7]	Prec.[2]	Recov.[3]	CCV[4]	LCS[4]
TPH by GC (as diesel)	64	mg/Kg	10	<10	08/27/01	8015 mod	S,M,P	Mt. Int	Mt. Intf.	95	79.4
TPH by GC (as diesel-ext)	---	---	---	---	08/20/01	3540	---	-NA-	-NA-	-NA-	-NA-
TPH by GC (as gasoline)	<5	mg/Kg	5	<5	08/17/01	8015 mod.	---	5.36	98.4	101.5	100.13
Volatile organics-8260b/BTEX	---	---	---	---	08/17/01	8260b	---	---	---	---	---
Benzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	5	87	94.8	101.8
Ethylbenzene	<20	µg/Kg	20	<20	08/17/01	8260b	---	6.4	104.8	105.6	106.3
m,p-Xylenes	<20	µg/Kg	20	<20	08/17/01	8260b	---	7.6	106.4	109.1	109.5
o-Xylene	<20	µg/Kg	20	<20	08/17/01	8260b	---	7	107.5	108	108.3
Toluene	<20	µg/Kg	20	<20	08/17/01	8260b	---	4.6	91.3	94.3	106.5

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results have been carefully reviewed and, to the best of my knowledge, the analytical results are consistent with AnalySys, Inc.'s Quality Assurance/Quality Control Program.

Respectfully Submitted,

Richard Laster

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[redacted] Fre[redacted]h La[redacted]ite [redacted] Aust[redacted]X [redacted] & [redacted]
2209 N. Padre Island Dr., Corpus Christi, TX 7840408
(512) 444-5896 • FAX (512) 447-4766

Client: EOTT Energy Corp. **Attn:** Frank Hernandez	**Project ID:** 2001-11040-4"West Vacuum **Sample Name:** TWVU8601MBH-25	**Report#/Lab ID#:** 117858 **Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limit	Data Qualifiers
p-Terphenyl	8015 mod	none/diluted	diluted @ 1X	D
Chlorobenzene-d5(Sur)	8015 mod.	87.3	50 - 150	---
1,2-Dichloroethane-d4	8260b	87	65-115	---
Toluene-d8	8260b	85.3	50-120	---

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

Exceptions Report:

Report #/Lab ID#: 117858 **Matrix:** soil
Client: EOTT Energy Corp. **Attn:** Frank Hernandez
Project ID: 2001-11640-4"West Vacuum
Sample Name: TWU8601MBH-25

Sample Temperature/Condition <=6°C

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

Sample Bottles & Preservation

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Comments pertaining to Data Qualifiers and QC data:

Parameter	Qualif	Comment
TPH by GC (as diesel) TPH by GC (as diesel)	P P	The precision of the MS & MSD (or sample and sample duplicate for those analyseswhere MS/MSD are not run) is outside advisory/acceptance limits.
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p-Terphenyl p-Terphenyl	D D	Sample diluted to assure quantitation within calibration range or due to Matrix interferences or other matrix effects (eg. high non-target organic levels). Surrogate recoveries not accurately quantifiable.

Notes:

CHAIN-OF-CUSTODY

AnalySys Inc.
4221 Freidrich Lane, Suite 190, Austin, TX 78744
(512) 444-5896

Send Reports To:
Company Name EOT
Address 5805 East Highway 80
City Midland State TX Zip 79701
ATTN: Frank Hernadez
Phone 915.638.3749 Fax 915.684.3456

Bill to (if different):
Company Name Sam
Address
City State Zip
ATTN:
Phone Fax

Rush Status (must be confirmed with lab mgr.):
Project Name/PO#: 2001-11040 Sampler:
4" West Vacuum

Analyses Requested (1)
Please attach explanatory information as required

Client Sample No. Description/Identification	Date Sampled	Time Sampled	No. of Containers	Soil	Water	Waste	Lab I.D. # (Lab only)	TPH 8015m	BTEX 8021B	Comments
TWVU8601MBH-10	8.6.01	1445	1	✓			117853	✓	✓	
TWVU8601MBH-2	8.6.01	1400	1	✓			117854	✓	✓	
TWVU8601MBH-5	8.6.01	1420	1	✓			117855	✓	✓	
TWVU8601MBH-15	8.6.01	1515	1	✓			117856	✓	✓	
TWVU8601MBH-20	8.6.01	1540	1	✓			117857	✓	✓	
TWVU8601MBH-25	8.6.01	1600	1	✓			117858	✓	✓	

(1)Unless specifically requested otherwise on this Chain-of-custody and/or attached documentation, all analyses will be conducted using ASI's method of choice and all data will be reported to ASI's normal reporting limits (MDL/PQL). For GC/MS volatiles and extractables, unless specific analytical parameter lists are specified on this chain-of-custody or attached to this chain-of-custody, ASI will default to Priority Pollutants or ASI's HSL list at ASI's option. Specific compound lists must be supplied for all GC procedures.

Temp. 1.7c Results FAX to Original Reports to Pat McCasland EPE, PO Box 1558 Eunice NM 88231

Sample Relinquished By

Name	Affiliation	Date	Time
[illegible]	ERT	8/9/01	1300

Sample Received By FAX 505-394-2601

Name	Affiliation	Date	Time
	Fedex		
E. Lietz	ASI	8-10-01	17:24

[Tendering of above described samples to AnalySys, Inc. for analytical testing constitutes agreement by buyer/sampler to AnalySys, Inc.'s standard terms.]

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: 915-684-3456
FAX: 505-394-2601 (Pat McCasland)

Sample Type: Soil
Sample Condition: Intact/Iced/ -1 deg C
Project #: LF 2000-34
Project Name: EOTT Texaco / Buckeye
Project Location: EOTT Texaco Buckeye

Sampling Date: 02/23/01
Receiving Date: 02/27/01
Analysis Date: 02/27/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
37702	ETBS22301BH2-2	1203	2408
37703	ETBS22301BH2-5	216	904
37704	ETBS22301BH2-10	60	527
37705	ETBS22301BH2-15	15	326
37706	ETBS22301BH3-2	<10	<10
37707	ETBS22301BH3-5	<10	<10
37708	ETBS22301BH3-10	<10	<10
37709	ETBS22301BH3-15	<10	<10
37710	ETBS22301BH4-2	550	432
37711	ETBS22301BH4-5	<10	68
37712	ETBS22301BH4-10	<10	<10
37713	ETBS22301BH4-15	<10	<10
37714	ETBS22301BH5-2	9305	42581
37715	ETBS22301BH5-5	4382	4573
37716	ETBS22301BH5-10	2591	2075
37717	ETBS22301BH5-15	4428	4713
37718	ETBS22301BH5-20	92	327
37719	ETBS22301BH5-25	63	385
37720	ETBS22301BH5-30	111	242
37721	ETBS22301BH6-2	1391	1938
	% IA	113	103
	%EA	93	86
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

3-1-01
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: 915-684-3456
FAX: 505-394-2601 (Pat McCasland)

Sample Type: Soil
Sample Condition: Intact/Iced/ -1 deg C
Project #: LF 2000-34
Project Name: EOTT Texaco / Buckeye
Project Location: EOTT Texaco Buckeye

Sampling Date: 02/23/01
Receiving Date: 02/27/01
Analysis Date: 02/28/01

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C28 mg/kg
37722	ETBS22301BH6-5	22	92
37723	ETBS22301BH6-10	33	155
37724	ETBS22301BH6-15	42	206
	% IA	118	109
	%EA	115	105
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

3-1-01
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: 915-684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced/ -1 deg. C
Project #: LF 2000-34
Project Name: EOTT Texaco / Buckeye
Project Location: EOTT Texaco Buckeye

Sampling Date: 02/23/01
Receiving Date: 02/27/01
Analysis Date: 02/27/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
37702	ETBS22301BH2-2	<0.025	1.94	4.22	12.6	8.33
37703	ETBS22301BH2-5	<0.025	1.07	0.488	1.19	0.807
37704	ETBS22301BH2-10	<0.025	0.118	0.226	0.372	0.170
37705	ETBS22301BH2-15	<0.025	<0.025	<0.025	<0.025	<0.025
37706	ETBS22301BH3-2	<0.025	<0.025	<0.025	<0.025	<0.025
37707	ETBS22301BH3-5	<0.025	<0.025	<0.025	<0.025	<0.025
37708	ETBS22301BH3-10	<0.025	<0.025	<0.025	<0.025	<0.025
37709	ETBS22301BH3-15	<0.025	<0.025	<0.025	<0.025	<0.025
37710	ETBS22301BH4-2	0.386	5.33	3.66	15.2	6.84
37711	ETBS22301BH4-5	<0.025	<0.025	<0.025	0.036	<0.025
37712	ETBS22301BH4-10	<0.025	<0.025	<0.025	<0.025	<0.025
37713	ETBS22301BH4-15	<0.025	<0.025	<0.025	<0.025	<0.025
37714	ETBS22301BH5-2	22.6	111	87.8	96.8	38.5
	%IA	88	88	90	87	89
	%EA	94	95	98	98	103
	BLANK	<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

3-1-01
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: 915-684-3456
FAX: 505-394-2601 (Pat Mc Casland)

Sample Type: Soil
Sample Condition: Intact/ Iced/ -1 deg. C
Project #: LF 2000-34
Project Name: EOTT Texaco / Buckeye
Project Location: EOTT Texaco Buckeye

Sampling Date: 02/23/01
Receiving Date: 02/27/01
Analysis Date: 02/28/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
37715	ETBS22301BH5-5	11.2	108	109	109	37.0
37716	ETBS22301BH5-10	8.65	64.0	63.7	63.8	20.5
%IA		88	94	98	97	101
%EA		91	89	94	91	95
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

3-01-01
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

ENVIRONMENTAL LAB OF , INC.

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Sample Condition: Intact/ Iced/ -1 deg. C
Project #: LF 2000-34
Project Name: EOTT Texaco / Buckeye
Project Location: EOTT Texaco Buckeye

Sampling Date: 02/23/01
Receiving Date: 02/27/01
Analysis Date: 02/28/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
37717	ETBS22301BH5-15	16.4	179	150	139	54.5
	%IA	100	106	111	106	111
	%EA	90	95	100	107	104
	BLANK	<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

3-01-01
Date

ENVIRONMENTAL LAB OF , INC.

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Project Name: EOTT Texaco / Buckeye
Project Location: EOTT Texaco Buckeye

Sampling Date: 02/23/01
Receiving Date: 02/27/01
Analysis Date: 02/27/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
37718	ETBS22301BH5-20	<0.025	0.236	0.655	0.858	0.518
37719	ETBS22301BH5-25	<0.025	<0.025	0.074	0.227	0.089
37720	ETBS22301BH5-30	<0.025	<0.025	0.078	0.238	0.080
37721	ETBS22301BH6-2	<0.050	15.6	25.9	29.6	11.5
37722	ETBS22301BH6-5	<0.025	<0.025	0.040	0.088	0.056
37723	ETBS22301BH6-10	<0.025	0.037	0.133	0.223	0.131
37724	ETBS22301BH6-15	<0.025	<0.025	0.061	0.147	0.074
%IA		99	103	106	114	106
%EA		97	98	109	108	105
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025

METHODS: EPA SW 846-8021B ,5030

R. C. Tuttle
Raland K. Tuttle

3-01-01
Date

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[redacted]Environmental[redacted] (915) 563-1800 FAX (915) 563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Wayne Brunette EOTT

Phone #: 915 556-0190

FAX #: 915-694-3456

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

Project #: LF2000-34

Project Name: EOTT Texaco Buckeye

Project Location: EOTT Texaco Buckeye

Sampler Signature: Bradley Blevins

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	H2SO4	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8020/5030	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	HCl
37702	ETBS22301BH2-2	1			X						X			2-23-01	9:[redacted]	X	X						
37703	ETBS22301BH2-5	1			X						X			2-23-01	10:00	X	X						
37704	ETBS22301BH2-10	1			X						X			2-23-01	11:15	X	X						
37705	ETBS22301BH2-15	1			X						X			2-23-01	12:15	X	X						
37706	ETBS22301BH3-2	1			X						X			2-23-01	12:50	X	X						
37707	ETBS22301BH3-5	1			X						X			2-23-01	1:15	X	X						
37708	ETBS22301BH3-10	1			X						X			2-23-01	1:40	X	X						
37709	ETBS22301BH3-15	1			X						X			2-23-01	9:05	X	X						
37710	ETBS22301BH4-2	1			X						X			2-23	2:15	X	X						
37711	ETBS22301BH4-5	1			X						X			2-23-01	2:22	X	X						
37712	ETBS22301BH4-10	1			X						X			2-23-01	2:35	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins	2-26-01	3:30	Ben Miller
Ben Miller	2-27-01	1305	[signature]
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

Ice -0°C.

[redacted] En[redacted]on[redacted]ent[redacted] Lab of Texas Inc [redacted] 12600 W... I-20 E... Odessa... [redacted]

(915) 563-1800 FAX (915) 563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Wayne Brunette EOTT

Phone #: 915 556-0190

FAX #: 915 684-3456

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

Project #: LF2000-34

Project Name: EOTT/Texaco Buckeye

Project Location: EOTT/Texaco Buckeye

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 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
37713	ETBS22301 BH4-15	1			X						X			2-23-01	2:46	X	X						
37714	ETBS22301 BH5-2	1			X						X			2-23-01	2:58	X	X						
37715	ETBS22301 BH5-5	1			X						X			2-23-01	3:15	X	X						
37716	ETBS22301 BH5-10	1			X						X			2-23-01	3:24	X	X						
37717	ETBS22301 BH5-15	1			X						X			2-23-01	3:36	X	X						
37718	ETBS22301 BH5-20	1			X						X			2-23-01	3:48	X	X						
37719	ETBS22301 BH5-25	1			X						X			2-23-01	4:00	X	X						
37720	ETBS22301 BH5-30	1			X						X			2-23-01	4:10	X	X						
37721	ETBS22301 BH6-2	1			X						X			2-23-01	4:16	X	X						
37722	ETBS22301 BH6-5	1			X						X			2-23-01	4:20	X	X						
37723	ETBS22301 BH6-10	1			X						X			2-23-01	4:28	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins	2-26-01	3:30	Ben Miller
Relinquished by:	Date: 2-27-01	Time: 1305	Received by: [signature]
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] 12600 West I-20 East, Odessa, Texas 79765
(915) 563-1800 FAX (915) 563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Wayne Brunette EOTT
Phone #: 915 · 556 · 0190
FAX #: 915 · 614 · 3456
Company Name & Address: E.O.T.T.
Project #: LF2000-34
Project Name: EOTT/Texaco Buckeye
Project Location: EOTT/Texaco Buckeye
Sampler Signature: Bradley Blevins

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	HOKE	OTHER	SAMPLING: DATE	TIME	BTEX 8021B/5030	TPH ~~418.1~~ 8015	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
31724	ETB522301BH6-15	1			X						X			2-23-01	4:35	X	X						

Relinquished by:	Date:	Time:	Received by:
Bradley Blevins		3:30	Ben Miller
Ben Miller	2-27-01	1305	[signature]
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
rec -°C

ATTACHMENT V: ENVIRONMENTAL PLUS, INC. QUALITY ASSURANCE PLAN (EPIQAP)

1 ENVIRONMENTAL PLUS, INC. QUALITY ASSURANCE PLAN

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

1.8 PROJECT SAFETY

Occupational and Environmental Safety are key to the efficacy of this QAP. Hazards encountered at remediation sites include the following;

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

Employees and subcontractors are 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

1.9 DATA QUALITY OBJECTIVES

For analytical information derived from samples, the following quality controls are documented and verified. Data within these specifications are 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.

1.10 METHODOLOGY

Collecting representative site samples and information require that the sampling and observational processes and procedures be implemented within strict bounds. These control procedures further ensure the quality of site data and information. Likewise, line personnel implement standard occupational and environmental safety protocols.

1.10.1 Borehole Drilling, Lithologic Sampling, Logging, and Abandonment

Boreholes are located strategically to best determine vertical and horizontal extent of contamination in the vadose zone. Borelogs are developed for each boring noting site lithology. Laboratory samples may be collected to determine more detailed lithologic characteristics, i.e., porosity, transmissivity, etc. Each borehole is plugged with Sodium Bentonite in accordance with the NMOCD guidelines.

1.10.1.1 GENERAL DRILLING OR HAND AUGERING PROCEDURES

The investigation employs either the Environmental Plus, Inc. drill rig with hollow stem auger and "thin-wall probe" method of discrete sampling or the 2.5" stainless steel hand auger.

1.10.1.1.1 SOIL SAMPLING WITH HOLLOW STEM AUGER AND PROBE

Upon advancing to the desired sampling interval the probe is 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 is immediately placed on the rack and logged. A 4 oz. sample is 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 is recorded on the field borelog data sheet.

1.10.1.1.2 SOIL SAMPLING WITH THE HAND AUGER

The auger is rotated into the ground to the desired sampling interval, removed from the subsurface, and the sample decanted into the appropriate container.

1.10.1.2 BOREHOLE ABANDONMENT

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

1.10.2 Sample Handling

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

1.10.3 Sample Identification

Sample identification numbers are designated as follows;

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

Example: EDWS4501BH1-20

1.10.4 Sampling protocols

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

Duplicates or blanks may be submitted to the laboratory, if deemed appropriate.

1.10.5 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

1.10.6 Sample Custody

All analytical request forms are completed and signatured by EPI as sampler. EPI personnel ascension the samples to the contracting laboratory sample-receiving personnel under chain-of-custody signature.

1.10.7 Quality Control Samples

Quality control samples are collected, prepared, and analyzed as deemed appropriate.

1.10.7.1 FIELD BLANK

A field blank for soil or water will identify contamination of the sample.

1.10.7.2 EQUIPMENT BLANK

An equipment blank will document that the sampling equipment used during the sampling event was clean.

1.10.7.3 FIELD DUPLICATE OR CO-LOCATED SAMPLES

Duplicates or Co-located samples will support data quality by establishing laboratory reproducibility.

1.10.7.4 TRIP BLANK

A laboratory prepared trip blank accompanies only water samples and will identify sample perturbations during transit.

1.10.8 Field Measurements

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

1.10.8.1 EQUIPMENT CALIBRATION AND QUALITY CONTROL

The PID is calibrated at least 3 times daily and checked with the calibration gas hourly. When a check with the calibration gas indicates the instrument reading is 10 ppm too high or low it is calibrated. Variation in the daytime ambient temperature causes the variation. Care is taken to ensure the calibration gas and the instrument are at the same temperature.

1.10.8.2 EQUIPMENT MAINTENANCE AND DECONTAMINATION

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

1.10.9 Analyses

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

The analytical suite for soil samples includes;

- TPH (EPA method 8015M)
- BTEX (EPA method 8020 or equivalent)
- Chloride (EPA method 4500 Cl^-B)
- SPLP for selected samples

The analytical suite for water samples include:

- TPH (EPA method 8015B)
- Metals (EPA method 600/4-79-020) New Mexico WQCC and EPA RCRA as listed
- BTEX (EPA method 8021B)
- Total Dissolved Solids (EPA method 150.1)
- PAH (EPA method 8270)

1.11 DATA EVALUATION AND USABILITY

All data is reviewed based on the Data Quality Objectives in the section 1.2. The contracting laboratory 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.