RELEASE REPORT

Shell Oil Products US
HSE Science & Engineering
7750 N. MacArthur Blvd.
Suite 120, PMB 319
Irving, Texas 75063
Tel (972) 247-1700
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Mr. Link Lacewell
Bureau of Land Management
620 East Greene Street
Carlsbad, New Mexico 88220

August 7, 2003

Re: Site Status - Historic BLM 16" Pipeline Site
Lea County, New Mexico

Dear Mr. Lacewell:

Attached with this letter is a summary of current site activities conducted at the Historic BLM 16" Pipeline Release Site in Lea County, New Mexico. If you have any questions or comments, please do not hesitate to call me at (972) 247-1700.

Respectfully,
Shell Oil Products US

Scott E. Burkey
Environmental Specialist

cc: Mr. Paul Sheeley, NMOCD, Hobbs, NM
Mr. Wayne Price, NMOCS, Santa Fe, NM

ENERCON SERVICES, INC.
An Employee Owned Company

306 West Wall
Suite 1312
Midland, TX 79701
(915) 570-8726
Fax (915) 684-7587

July 23, 2003

Mr. Scott Burkey
Environmental Specialist
Shell Oil Products US
HSE, S & E, Mid-Continent Region
7750 North MacArthur, Suite 120, PMB 319
Irving, Texas 75063

RE: HISTORIC BLM 16" PIPELINE SITE-CRUDE OIL RELEASE STATUS LEA COUNTY, NEW MEXICO

Mr. Burkey:

This letter details the recent past history of the above mentioned site

Project Background

The site is a historical crude oil release from a former Texas-New Mexico Pipeline Company crude pipeline located in section 30 township 18 south and range 32 east in Lea County, New Mexico. The release occurred in the 1950's.

In 1997 and 1998, 10 soil borings and 10 surface soil augerings were advanced at the site by KEI Consultants, Inc. of San Antonio, Texas. Laboratory analytical results from the soil samples obtained during the investigation indicated TPH and BTEX concentrations in excess of the NMOCD cleanup levels of 5,000 ppm TPH, 10 ppm Benzene, and 50 ppm Total BTEX. Groundwater was not encountered during the installation of the borings, and is expected to be present at depths of approximately 170 feet below ground surface (bgs).

In December 2001, nine additional soil borings were advanced to determine if hydrocarbon concentrations had been reduced by intrinsic bioremediation to levels below NMOCD action levels. The results of this investigation demonstrated that intrinsic bioremediation has reduced the TPH and BTEX concentrations previously observed in the onsite soils to levels below the NMOCD ranking criteria. The site meets the criteria for closure through the NMOCD.

On February 20, 2003, Enercon Services, Inc. contacted Mr. Link Lacewell of the BLM Carlsbad, New Mexico office in regards to reseeding the site. Mr. Lacewell conferred

with the BLM biologist and suggested the following mixture of seed for prairie chicken habitate such as is the site:

Species	Lb/Acre (pls)
Plains Bluestem	5
Sand Bluestem	5
Little Bluestem	3
Big Bluestem	6
Sand Dropseed	0.5
Mesa Dropseed	0.5
Plains Cereopsis	2

From May 28 through May 29, 2003, Stewart Welding, Inc. of Andrew, Texas tilled the site and placed approximately 300 pounds of the above mentioned mixture of seed onsite (See attached photographs). The only surface disturbance to the site was confined to areas previously impacted by the release. A subsequent site visit on July 15, 2003, determined that the planted seed has not taken hold at the site.

If you have any questions or are in need of additional information please do not hesitate to call me at (432) 570-8726 or (432) 631-6592.

Respectfully,
Enercon Services, Inc.
Jeffrey W. Kindley, P.G.
Project Manager

Photo 1: Tilling of soils.

Photo 2: Soils after tilling and planting seed.

Photo 3: Tilling/reseeding soils along southern half of site.

Photo 4: Tilling of soils along southern edge of site.

Photo 5: Tilling/seeding of soils in central section of site.

Photo 6: Tilling/seeding of soils along central section of property.

5309 Wurzbach, Suite 100
San Antonio, Texas 78238
(210) 680-3767
(210) 680-3763 FAX

July 23, 1997

Mr. Edwin H. Gripp
TEXAS - NEW MEXICO PIPE LINE COMPANY
3330 Executive Drive
P.O. Box 60028
San Angelo, Texas 76906

Re: Subsurface Investigation
Texas - New Mexico Pipe Line Company
16" Historical Release
Lea County, New Mexico
KEI Job No. 610100

Dear Mr. Gripp:

This letter is the Subsurface Investigation Report for field activities conducted March 10 and 11, 1997, at the 16" historical release located on Bureau of Land Management (BLM) land south of Highway 529 in Lea County, New Mexico. The information included herein addresses the purpose and scope of the investigation, the field investigation and analytical results, conclusions, and recommendations.

PURPOSE AND SCOPE

The primary purposes of the investigation were to:

- Identify the distribution of subsurface hydrocarbon across the site.
- Collect soil samples for analysis of hydrocarbon concentrations.
- Install temporary wells for sampling of ground water, if encountered during drilling.

The scope of work during the subsurface investigation included advancing 10 soil borings, collecting native soil samples, collecting ground water samples (if encountered during drilling), and submitting selected samples for determination of total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations. Ground water was not encountered during drilling. Therefore, only native soil samples were collected and submitted for BTEX and TPH analyses.

FIELD INVESTIGATION RESULTS

SUBSURFACE INVESTIGATION

During the subsurface investigation, ten borings, designated B-1 through B-10A, were advanced at the site utilizing a truck-mounted, hydraulically powered direct-push unit. Soil samples were collected continuously from the ground surface to the termination boring depth. The soils were classified in the field, soil samples were field screened using a photoionization detector (PID), and selected samples were prepared and shipped to the laboratory for determination of BTEX and TPH concentrations. A Site Plan with the approximate locations of the soil borings and other site details is presented as FIG. 1.

All drilling and sampling equipment was cleaned prior to first use, between boring locations, and between sampling intervals with a Liqui-Nox detergent wash followed by a double water rinse.

A geologic cross section indicating the subsurface soil profile, depths at which soil samples were obtained from each boring, head-space results, laboratory results, and generalized geologic profiles is presented as FIG. 2.

SOIL CLASSIFICATION

A subsurface soil profile was developed in general accordance with the Unified Soil Classification System by visually observing soil samples obtained during the subsurface investigation. In general, two soil types were encountered. A general description of the soil, approximate thickness, and head-space sample results for each soil type are as follows:

Soil Type I

This soil type consisted of a reddish-orange to brown sand (SM) and was encountered at depths ranging from 0 to 36 feet below ground surface. This soil type was observed at all soil boring locations. The sand was silty and moist. This soil type varied in thickness from approximately 1.0 to 20.0 feet. The head-space readings from samples of this soil type ranged from ND to 1,951 ppm.

Soil Type II

This soil type consisted of a tan gravel (GM) and was encountered at depths ranging from 1.0 to 34.5 feet below ground surface. This soil type was observed at all soil boring locations. The gravel was silty, sandy, and moist. This soil type varied in thickness from approximately 1.0 to 16.0 feet. The head-space readings from samples of this soil type ranged from ND to 1,314 ppm.

SOIL SAMPLING AND ANALYTICAL RESULTS

Samples of the subsurface soils were obtained by hydraulically pushing a four foot long, 1.75 inch internal diameter core sampler equipped with disposable liners. In three of the borings, refusal was encountered prior to attaining the planned total depth. Soil boring B-10 continually collapsed during advancement. Therefore, B-10 was terminated at eight feet below ground surface and soil boring B-10A was advanced adjacent to B-10.

Representative soil samples were divided into two separate portions using clean, disposable gloves and clean sampling tools. One portion of the soil sample was placed in a disposable sample bag. The bag was sealed and labeled for head-space analysis using a photoionization detector (PID) calibrated to a 100 ppm isobutylene standard. Each sample was allowed to volatilize for approximately 30 minutes at ambient temperature prior to conducting the analysis.

The other portion of the soil sample was placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container was filled to capacity with soil to limit the amount of head-space present. Each container was labeled, placed on ice in an insulated cooler, and chilled to a temperature of approximately 40° F (4° C). Upon selection of samples for laboratory analysis, the cooler was sealed for shipment to the laboratory. Proper chain-of-custody documentation was maintained throughout the sampling process.

Two to four soil samples were selected from each soil boring based on the following criteria:

- The sample with the highest head-space reading.
- The sample at the bottom of each boring.

Soil samples obtained during drilling were delivered to Xenco Laboratories in San Antonio, Texas for determination of TPH concentrations by EPA Method 418.1 and BTEX concentrations by EPA Method SW846-8020. Laboratory concentration ranges for soil samples collected during the subsurface investigation are presented below:

Parameter	**Concentration Range (mg/kg)**
Benzene	ND to 1.08
BTEX	ND to 38.47
TPH	ND to 33,600

Laboratory results are summarized in TABLE I. Copies of the certified laboratory report and chain-of-custody documentation are attached.

CLEAN-UP OBJECTIVES

The following preliminary assumptions have been made in calculating closure objectives:

1. Ground water at the site is at a depth of approximately 170 feet below ground surface.
2. The site is greater than 1,000 feet from a water source.
3. The site is greater than 200 feet from a private domestic water source.
4. The site is greater than 1,000 feet from a surface water body.

Based on these assumptions, the calculated State of New Mexico Oil Conservation Division cleanup levels for this site are as follows:

Parameter	Concentration (ppm)
Benzene	10
BTEX	50
TPH	5,000

CONCLUSIONS

The following conclusions are derived from field observations and analytical data obtained during the subsurface investigation:

- All of the soil samples exhibited benzene and BTEX concentrations below the cleanup objectives of 10 mg/kg and 50 mg/kg, respectively.
- Approximately 68% of the soil samples exhibited TPH concentrations below the cleanup objective of 5,000 mg/kg.
- Eight of the ten borings exhibited no detectable TPH concentrations in their bottom hole samples. The two bottom hole samples with detectable TPH concentrations were both below the cleanup objective of 5,000 mg/kg (36 mg/kg and 4,250 mg/kg, respectively).
- Eight of the ten borings exhibited no detectable BTEX concentrations in their bottom hole samples. The two bottom hole samples with detectable BTEX concentrations were both below the cleanup objectives for benzene and BTEX.
- In general, the vertical extent of hydrocarbon has been delineated at the site. Only one boring showed any significant hydrocarbon concentrations from the bottom hole sample. This boring was terminated at a shallower depth than the adjacent borings that exhibited no detectable hydrocarbon concentrations at the bottom of the hole.
- Ground water at the site is at a depth greater than 36 feet below ground surface. A review of available water well records in the general area suggests the depth to initial ground water is approximately 170 feet below ground surface.

RECOMMENDATIONS

KEI recommends the following:

- A sensitive receptor survey be conducted within 1,000 feet of the site to confirm assumptions 2, 3 and 4.
- Advancement of two additional soil borings in the area of the borings which exhibited the two highest TPH concentrations (B-1 and B-6). Soil samples should be collected at the bottom of the borings and submitted for determination of TPH and SPLP TPH.
- Collection of one undisturbed soil sample for determination of engineering index soil parameters.
- Install one monitoring well to confirm depth to ground water.
- A risk assessment should be conducted to address health and safety concerns to humans, endangered species, and the environment in the vicinity of the site.

Please review this report and return your comments to our office by June 30, 1997. Please call me at (210) 680-3767 if you have any questions or need additional information.

Respectfully,

Paul B. Hartnett, P.E.
Senior Engineer

J. Michael Hawthorne, P.E., REM
Senior Geologist

Enclosure

cc: Tony Savoie, TNMPL
Marc Oler, TTTI
Lance Tolson, Texaco

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Approximate Scale: 1"=200'

0 50 100 200

NOTE: Adjacent properties are not to scale.

LEGEND

- Soil Boring Location
- Indicates Edge of Spill Area
- Indicates Clean Area
- B = Benzene Concentration (mg/kg)
- BTEX = Total Benzene, Toluene, Ethylbenzene, and Xylenes Concentration (mg/kg)
- TPH = Total Petroleum Hydrocarbon Concentration (mg/kg)
- ND = Indicates the concentration was below laboratory detection limits.

R-33-E

R-32-E

A

A'

TNM Existing B.P.L.

B-1		
D=1-2'	D=7-8'	D=34-35'
B=ND	B=ND	B=ND
BTEX=ND	BTEX=20.28	BTEX=ND
TPH=11500	TPH=14600	TPH=ND

B-2		
D=1-2'	D=14-15'	D=23-24'
B=ND	B=ND	B=ND
BTEX=ND	BTEX=0.042	BTEX=ND
TPH=8420	TPH=1150	TPH=ND

B-3		
D=1-2'	D=14-15'	D=23-24'
B=ND	B=ND	B=ND
BTEX=ND	BTEX=ND	BTEX=ND
TPH=8490	TPH=ND	TPH=ND

B-4	
D=1-2'	D=7-8'
B=ND	B=ND
BTEX=ND	BTEX=0.658
TPH=395	TPH=8720
D=23-24'	D=27-28'
B=ND	B=ND
BTEX=ND	BTEX=ND
TPH=16.0	TPH=36.0

B-5	
D=1-2'	D=14-15'
B=ND	B=0.95
BTEX=0.175	BTEX=38.47
TPH=8490	TPH=5300
D=23-24'	D=35-36'
B=ND	B=ND
BTEX=0.59	BTEX=ND
TPH=1280	TPH=ND

B-6		
D=1-2'	D=5-6'	D=27-28'
B=ND	B=1.08	B=0.54
BTEX=0.130	BTEX=22.75	BTEX=33.82
TPH=930	TPH=33600	TPH=4250

B-7			
D=1-2'	D=14-15'	D=19-20'	D=31-32'
B=ND	B=ND	B=ND	B=ND
BTEX=ND	BTEX=8.670	BTEX=ND	BTEX=ND
TPH=184	TPH=6680	TPH=1180	TPH=ND

B-8	
D=1-2'	D=14-16'
B=ND	B=ND
BTEX=ND	BTEX=0.121
TPH=1770	TPH=ND

B-9		
D=1-2'	D=9-10'	D=27-28'
B=ND	B=ND	B=ND
BTEX=ND	BTEX=ND	BTEX=ND
TPH=392	TPH=8120	TPH=ND

B-10A	
D=1-2'	D=14-16'
B=ND	B=ND
BTEX=ND	BTEX=ND
TPH=83.0	TPH=ND

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10A

1/4 COR. FND. B.C. 1/4 COR. FND. B.C.

R-33-E

TNM Existing B.P.L.

SEE DETAIL

25 30

Approximate Scale: 1"=1,000'

0 500 1000

NOTE: Adjacent properties are not to scale.

R-32-E

1/4 COR. 1/4 COR.

04/10/97-RM G:\(610100)

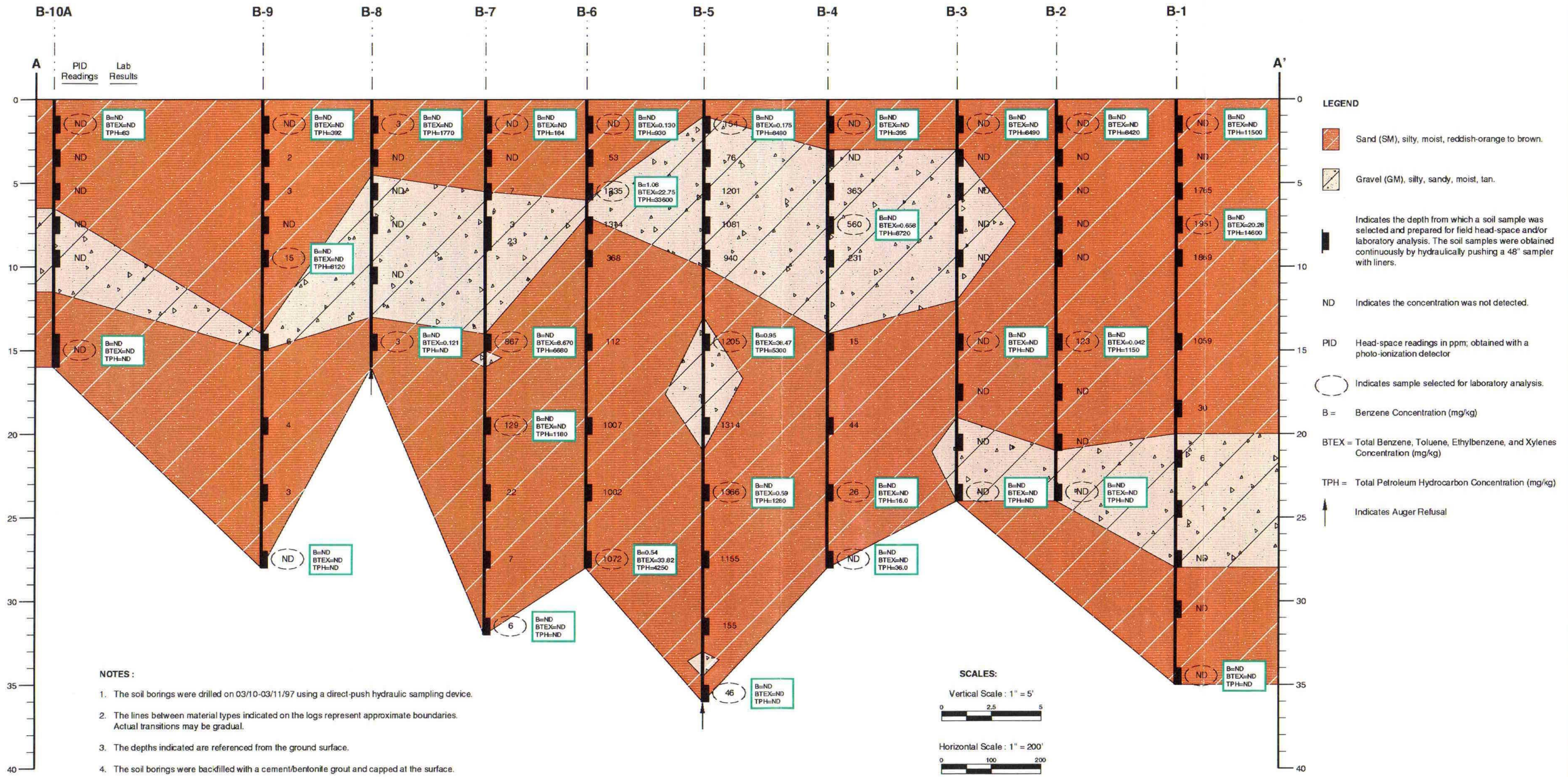
k·e·i

SITE PLAN

TNMPL 16" HISTORICAL RELEASE SOUTH OF HIGHWAY 529 LEA COUNTY, NEW MEXICO

610100

FIG 1



LEGEND

▨ Sand (SM), silty, moist, reddish-orange to brown.

▨ Gravel (GM), silty, sandy, moist, tan.

▮ Indicates the depth from which a soil sample was selected and prepared for field head-space and/or laboratory analysis. The soil samples were obtained continuously by hydraulically pushing a 48" sampler with liners.

ND Indicates the concentration was not detected.

PID Head-space readings in ppm; obtained with a photo-ionization detector

( ) Indicates sample selected for laboratory analysis.

B = Benzene Concentration (mg/kg)

BTEX = Total Benzene, Toluene, Ethylbenzene, and Xylenes Concentration (mg/kg)

TPH = Total Petroleum Hydrocarbon Concentration (mg/kg)

↑ Indicates Auger Refusal

NOTES :

1. The soil borings were drilled on 03/10-03/11/97 using a direct-push hydraulic sampling device.
2. The lines between material types indicated on the logs represent approximate boundaries. Actual transitions may be gradual.
3. The depths indicated are referenced from the ground surface.
4. The soil borings were backfilled with a cement/bentonite grout and capped at the surface.

SCALES:

Vertical Scale : 1" = 5'

Horizontal Scale : 1" = 200'

04/10/97-RM GA(610100)

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CROSS SECTION A - A'

TNMPL

16" HISTORICAL RELEASE SOUTH OF HIGHWAY 529

LEA COUNTY, NEW MEXICO

610100

FIG 2

GENERAL NOTES

ND - Indicates constituent was not detected above the method detection limit.

Depths are referenced from the ground surface.

Method detection limits: BTEX - 0.020 - 0.040 mg/kg
TPH - 10.0 mg/kg

Laboratory test methods: BTEX - EPA Method SW846-8020
TPH - EPA Method 418.1

TABLE I

SUMMARY OF LABORATORY RESULTS - SOIL
TEXAS - NEW MEXICO PIPE LINE COMPANY
16" HISTORICAL RELEASE
SOUTH OF HIGHWAY 529
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	DEPTH (feet)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	TPH (mg/kg)
B-1	3/10/97	1 - 2	ND	ND	ND	ND	ND	11,500
B-1	3/10/97	7 - 8	ND	1.12	16.4	2.76	20.28	14,600
B-1	3/10/97	34 - 35	ND	ND	ND	ND	ND	ND
B-2	3/10/97	1 - 2	ND	ND	ND	ND	ND	8,420
B-2	3/10/97	14 - 15	ND	ND	ND	0.042	0.042	1,150
B-2	3/10/97	23 - 24	ND	ND	ND	ND	ND	ND
B-3	3/10/97	1 - 2	ND	ND	ND	ND	ND	8,490
B-3	3/10/97	14 - 15	ND	ND	ND	ND	ND	ND
B-3	3/10/97	23 - 24	ND	ND	ND	ND	ND	ND
B-4	3/10/97	1 - 2	ND	ND	ND	ND	ND	395
B-4	3/10/97	7 - 8	ND	ND	0.088	0.57	0.658	8,720
B-4	3/10/97	23 - 24	ND	ND	ND	ND	ND	16
B-4	3/10/97	27 - 28	ND	ND	ND	ND	ND	36
B-5	3/10/97	1 - 2	ND	ND	0.03	0.145	0.175	8,490
B-5	3/10/97	14 - 15	0.95	1.86	9.01	26.65	38.47	5,300
B-5	3/10/97	23 - 24	ND	ND	0.14	0.45	0.59	1,280
B-5	3/10/97	35 - 36	ND	ND	ND	ND	ND	ND
B-6	3/11/97	1 - 2	ND	ND	0.13	ND	0.13	930
B-6	3/11/97	5 - 6	1.08	1.64	3.4	16.63	22.75	33,600
B-6	3/11/97	27 - 28	0.54	6.52	6.23	20.53	33.82	4,250
B-7	3/11/97	1 - 2	ND	ND	ND	ND	ND	184
B-7	3/11/97	14 - 15	ND	ND	2.1	6.57	8.67	6,680
B-7	3/11/97	19 - 20	ND	ND	ND	ND	ND	1,180
B-7	3/11/97	31 - 32	ND	ND	ND	ND	ND	ND
B-8	3/11/97	1 - 2	ND	ND	ND	ND	ND	1,770
B-8	3/11/97	14 - 16	ND	0.02	0.024	0.077	0.121	ND
B-9	3/11/97	1 - 2	ND	ND	ND	ND	ND	392
B-9	3/11/97	9 - 10	ND	ND	ND	ND	ND	8,120
B-9	3/11/97	27 - 28	ND	ND	ND	ND	ND	ND
B-10A	3/11/97	1 - 2	ND	ND	ND	ND	ND	83
B-10A	3/11/97	14 - 16	ND	ND	ND	ND	ND	ND

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70612

K.E.I. Consultants, Inc.

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Project Name: TNMPL

Date Received in Lab : Mar 14, 1997 11:30 by CMC
Date Report Faxed: Mar 19, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170612-001	170612-002	170612-003	170612-004	170612-005	170612-006	170612-007	170612-008	170612-009
	Field ID:	B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3
	Depth:	1-2'	7-8'	34-35'	1-2'	14-15'	23-24'	1-2'	14-15'	23-24'
BTEX by EPA 8020		Date Analyzed - Analytical Results								ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Benzene		< 0.050	< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Toluene		< 0.050	1.12	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene		< 0.050	16.40	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
m,p-Xylenes		< 0.100	1.64	< 0.040	< 0.040	0.042	< 0.040	< 0.040	< 0.040	< 0.040
o-Xylene		< 0.050	1.12	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Total BTEX		< 0.300	20.28	< 0.120	< 0.120	0.042	< 0.120	< 0.120	< 0.120	< 0.120
Total Petroleum Hydrocarbons by EPA 418.1		Date Analyzed - Analytical Results								ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Total Petroleum Hydrocarbons		11500	14600	< 10.0	8420	1150	< 10.0	8490	< 10.0	< 10.0

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70612

K.E.I. Consultants, Inc.

Project Name: TNMPL

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Date Received in Lab : Mar 14, 1997 11:30 by CMC
Date Report Faxed: Mar 19, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170612-010	170612-011	170612-012	170612-013	170612-014	170612-015	170612-016	170612-017	170612-018
	Field ID:	B-4	B-4	B-4	B-4	B-5	B-5	B-5	B-6	B-6
	Depth:	1-2'	7-8'	23-24'	27-28'	14-15'	23-24'	35-36'	1-2'	5-6'
BTEX by EPA 8020		Date Analyzed - Analytical Results								ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Benzene		< 0.020	< 0.050	< 0.020	< 0.020	0.95	< 0.10	< 0.020	< 0.10	1.08
Toluene		< 0.020	< 0.050	< 0.020	< 0.020	1.86	< 0.10	< 0.020	< 0.10	1.64
Ethylbenzene		< 0.020	0.088	< 0.020	< 0.020	9.01	0.14	< 0.020	0.13	3.40
m,p-Xylenes		< 0.040	0.464	< 0.040	< 0.040	18.60	0.27	< 0.040	< 0.20	15.80
o-Xylene		< 0.020	0.106	< 0.020	< 0.020	8.05	0.18	< 0.020	< 0.10	0.83
Total BTEX		< 0.120	0.658	< 0.120	< 0.120	38.47	0.59	< 0.120	0.130	22.75
Total Petroleum Hydrocarbons by EPA 418.1		Date Analyzed - Analytical Results								ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Total Petroleum Hydrocarbons		395	8720	16.0	36.0	5300	1280	< 10.0	930	33600

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70612

K.E.I. Consultants, Inc.

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Project Name: TNMPL

Date Received in Lab : Mar 14, 1997 11:30 by CMC
Date Report Faxed: Mar 19, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170612-019	170612-020	170612-021	170612-022	170612-023	170612-024	170612-025	170612-026	170612-027
	Field ID:	B-6	B-7	B-7	B-7	B-7	B-8	B-8	B-9	B-9
	Depth:	27-28'	1-2'	14-15'	19-20'	31-32'	1-2'	14-16'	1-2'	9-10'
BTEX by EPA 8020		Date Analyzed - Analytical Results								ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Benzene		0.54	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Toluene		6.52	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.020	< 0.020	< 0.020
Ethylbenzene		6.23	< 0.020	2.100	< 0.020	< 0.020	< 0.020	0.024	< 0.020	< 0.020
m,p-Xylenes		13.70	< 0.040	6.220	< 0.040	< 0.040	< 0.040	0.053	< 0.040	< 0.040
o-Xylene		6.83	< 0.020	0.350	< 0.020	< 0.020	< 0.020	0.024	< 0.020	< 0.020
Total BTEX		33.82	< 0.120	8.670	< 0.120	< 0.120	< 0.120	0.121	< 0.120	< 0.120
Total Petroleum Hydrocarbons by EPA 418.1		Date Analyzed - Analytical Results								ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Total Petroleum Hydrocarbons		4250	184	6680	1180	< 10.0	1770	< 10.0	392	8120

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70612

K.E.I. Consultants, Inc.

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Project Name: TNMPL

Date Received in Lab : Mar 14, 1997 11:30 by CMC
Date Report Faxed: Mar 19, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170612-028	170612-029	170612-030	170612-031
	Field ID:	B-9	B-10A	B-10A	B-5
	Depth:	27-28'	1-2'	14-16'	1-2'
BTEX by EPA 8020		Date Analyzed - Analytical Results			ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Benzene		< 0.020	< 0.020	< 0.020	< 0.020
Toluene		< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene		< 0.020	< 0.020	< 0.020	0.030
m,p-Xylenes		< 0.040	< 0.040	< 0.040	0.104
o-Xylene		< 0.020	< 0.020	< 0.020	0.041
Total BTEX		< 0.120	< 0.120	< 0.120	0.175
Total Petroleum Hydrocarbons by EPA 418.1		Date Analyzed - Analytical Results			ppm (mg/L - mg/Kg)
		Mar 18, 1997	Mar 18, 1997	Mar 18, 1997	Mar 18, 1997
Total Petroleum Hydrocarbons		< 10.0	83.0	< 10.0	8490

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Project Name: TNMPL

XENCO COC#: 1-70612
Date Received in Lab: Mar 14, 1997 11:30 by CMC
XENCO contact : Carlos Castro/Edward Yonemoto

	Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Date and Time: Sample Collected	Date and Time: Addition Requested	Date and Time: Extraction	Date and Time: Analysis
1	B-1(1-2')	170612-001	BTEX	SW-846	ppm	Standard	Mar 10, 1997 10:05		Mar 18, 1997 by CB	Mar 18, 1997 10:42 by CB
2			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 10:05		Mar 18, 1997 by HL	Mar 18, 1997 14:23 by HL
3	B-1(7-8')	170612-002	BTEX	SW-846	ppm	Standard	Mar 10, 1997 10:10		Mar 18, 1997 by CB	Mar 18, 1997 11:00 by CB
4			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 10:10		Mar 18, 1997 by HL	Mar 18, 1997 14:29 by HL
5	B-1(34-35')	170612-003	BTEX	SW-846	ppm	Standard	Mar 10, 1997 12:00		Mar 18, 1997 by CB	Mar 18, 1997 11:17 by CB
6			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 12:00		Mar 18, 1997 by HL	Mar 18, 1997 14:32 by HL
7	B-2(1-2')	170612-004	BTEX	SW-846	ppm	Standard	Mar 10, 1997 12:25		Mar 18, 1997 by CB	Mar 18, 1997 11:34 by CB
8			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 12:25		Mar 18, 1997 by HL	Mar 18, 1997 14:38 by HL
9	B-2(14-15')	170612-005	BTEX	SW-846	ppm	Standard	Mar 10, 1997 12:50		Mar 18, 1997 by CB	Mar 18, 1997 11:52 by CB
10			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 12:50		Mar 18, 1997 by HL	Mar 18, 1997 14:42 by HL
11	B-2(23-24')	170612-006	BTEX	SW-846	ppm	Standard	Mar 10, 1997 13:25		Mar 18, 1997 by CB	Mar 18, 1997 12:09 by CB
12			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 13:25		Mar 18, 1997 by HL	Mar 18, 1997 14:45 by HL
13	B-3(1-2')	170612-007	BTEX	SW-846	ppm	Standard	Mar 10, 1997 13:55		Mar 18, 1997 by CB	Mar 18, 1997 12:26 by CB
14			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 13:55		Mar 18, 1997 by HL	Mar 18, 1997 14:50 by HL
15	B-3(14-15')	170612-008	BTEX	SW-846	ppm	Standard	Mar 10, 1997 14:15		Mar 18, 1997 by CB	Mar 18, 1997 12:44 by CB
16			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 14:15		Mar 18, 1997 by HL	Mar 18, 1997 14:53 by HL
17	B-3(23-24')	170612-009	BTEX	SW-846	ppm	Standard	Mar 10, 1997 14:45		Mar 18, 1997 by CB	Mar 18, 1997 13:18 by CB
18			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 14:45		Mar 18, 1997 by HL	Mar 18, 1997 14:56 by HL
19	B-4(1-2')	170612-010	BTEX	SW-846	ppm	Standard	Mar 10, 1997 15:00		Mar 18, 1997 by CB	Mar 18, 1997 09:50 by CB
20			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 15:00		Mar 18, 1997 by HL	Mar 18, 1997 14:59 by HL
21	B-4(7-8')	170612-011	BTEX	SW-846	ppm	Standard	Mar 10, 1997 15:10		Mar 18, 1997 by CB	Mar 18, 1997 13:36 by CB
22			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 15:10		Mar 18, 1997 by HL	Mar 18, 1997 15:25 by HL
23	B-4(23-24')	170612-012	BTEX	SW-846	ppm	Standard	Mar 10, 1997 15:40		Mar 18, 1997 by CB	Mar 18, 1997 13:53 by CB
24			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 15:40		Mar 18, 1997 by HL	Mar 18, 1997 15:28 by HL
25	B-4(27-28')	170612-013	BTEX	SW-846	ppm	Standard	Mar 10, 1997 16:15		Mar 18, 1997 by CB	Mar 18, 1997 14:10 by CB
26			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 16:15		Mar 18, 1997 by HL	Mar 18, 1997 15:31 by HL
27	B-5(14-15')	170612-014	BTEX	SW-846	ppm	Standard	Mar 10, 1997 16:45		Mar 18, 1997 by CB	Mar 18, 1997 14:28 by CB
28			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 16:45		Mar 18, 1997 by HL	Mar 18, 1997 15:37 by HL

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Project Name: TNMPL

XENCO COC#: 1-70612
Date Received in Lab: Mar 14, 1997 11:30 by CMC
XENCO contact : Carlos Castro/Edward Yonemoto

	Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Date and Time: Sample Collected	Date and Time: Addition Requested	Date and Time: Extraction	Date and Time: Analysis
29	B-5(23-24')	170612-015	BTEX	SW-846	ppm	Standard	Mar 10, 1997 17:05		Mar 18, 1997 by CB	Mar 18, 1997 14:45 by CB
30			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 17:05		Mar 18, 1997 by HL	Mar 18, 1997 15:42 by HL
31	B-5(35-36')	170612-016	BTEX	SW-846	ppm	Standard	Mar 10, 1997 17:40		Mar 18, 1997 by CB	Mar 18, 1997 15:02 by CB
32			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 17:40		Mar 18, 1997 by HL	Mar 18, 1997 15:45 by HL
33	B-6(1-2')	170612-017	BTEX	SW-846	ppm	Standard	Mar 11, 1997 15:45		Mar 18, 1997 by CB	Mar 18, 1997 15:20 by CB
34			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 15:45		Mar 18, 1997 by HL	Mar 18, 1997 15:50 by HL
35	B-6(5-6')	170612-018	BTEX	SW-846	ppm	Standard	Mar 11, 1997 15:50		Mar 18, 1997 by CB	Mar 18, 1997 15:37 by CB
36			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 15:50		Mar 18, 1997 by HL	Mar 18, 1997 15:56 by HL
37	B-6(27-28')	170612-019	BTEX	SW-846	ppm	Standard	Mar 11, 1997 16:40		Mar 18, 1997 by CB	Mar 18, 1997 15:54 by CB
38			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 16:40		Mar 18, 1997 by HL	Mar 18, 1997 16:00 by HL
39	B-7(1-2')	170612-020	BTEX	SW-846	ppm	Standard	Mar 11, 1997 11:10		Mar 18, 1997 by CB	Mar 18, 1997 16:12 by CB
40			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 11:10		Mar 18, 1997 by HL	Mar 18, 1997 16:03 by HL
41	B-7(14-15')	170612-021	BTEX	SW-846	ppm	Standard	Mar 11, 1997 11:55		Mar 18, 1997 by CB	Mar 18, 1997 18:53 by CB
42			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 11:55		Mar 18, 1997 by HL	Mar 18, 1997 16:27 by HL
43	B-7(19-20')	170612-022	BTEX	SW-846	ppm	Standard	Mar 11, 1997 12:05		Mar 18, 1997 by CB	Mar 18, 1997 19:11 by CB
44			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 12:05		Mar 18, 1997 by HL	Mar 18, 1997 16:32 by HL
45	B-7(31-32')	170612-023	BTEX	SW-846	ppm	Standard	Mar 11, 1997 12:40		Mar 18, 1997 by CB	Mar 18, 1997 19:28 by CB
46			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 12:40		Mar 18, 1997 by HL	Mar 18, 1997 16:35 by HL
47	B-8(1-2')	170612-024	BTEX	SW-846	ppm	Standard	Mar 11, 1997 12:55		Mar 18, 1997 by CB	Mar 18, 1997 19:45 by CB
48			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 12:55		Mar 18, 1997 by HL	Mar 18, 1997 16:39 by HL
49	B-8(14-16')	170612-025	BTEX	SW-846	ppm	Standard	Mar 11, 1997 13:10		Mar 18, 1997 by CB	Mar 18, 1997 20:03 by CB
50			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 13:10		Mar 18, 1997 by HL	Mar 18, 1997 16:42 by HL
51	B-9(1-2')	170612-026	BTEX	SW-846	ppm	Standard	Mar 11, 1997 13:30		Mar 18, 1997 by CB	Mar 18, 1997 20:20 by CB
52			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 13:30		Mar 18, 1997 by HL	Mar 18, 1997 16:45 by HL
53	B-9(9-10')	170612-027	BTEX	SW-846	ppm	Standard	Mar 11, 1997 13:40		Mar 18, 1997 by CB	Mar 18, 1997 20:37 by CB
54			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 13:40		Mar 18, 1997 by HL	Mar 18, 1997 16:50 by HL
55	B-9(27-28')	170612-028	BTEX	SW-846	ppm	Standard	Mar 11, 1997 14:25		Mar 18, 1997 by CB	Mar 18, 1997 18:02 by CB
56			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 14:25		Mar 18, 1997 by HL	Mar 18, 1997 16:53 by HL

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610100-1-0
Project Manager: Ann Baker
Project Location: BLM 16

Project Name: TNMPL

XENCO COC#: 1-70612
Date Received in Lab: Mar 14, 1997 11:30 by CMC
XENCO contact : Carlos Castro/Edward Yonemoto

	Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Date and Time: Sample Collected	Date and Time: Addition Requested	Date and Time: Extraction	Date and Time: Analysis
57	B-10A(1-2')	170612-029	BTEX	SW-846	ppm	Standard	Mar 11, 1997 14:55		Mar 18, 1997 by CB	Mar 18, 1997 20:54 by CB
58			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 14:55		Mar 18, 1997 by HL	Mar 18, 1997 16:56 by HL
59	B-10A(14-16')	170612-030	BTEX	SW-846	ppm	Standard	Mar 11, 1997 15:25		Mar 18, 1997 by CB	Mar 18, 1997 21:12 by CB
60			TPH	EPA 418.1	ppm	Standard	Mar 11, 1997 15:25		Mar 18, 1997 by HL	Mar 18, 1997 16:59 by HL
61	B-5(1-2')	170612-031	BTEX	SW-846	ppm	Standard	Mar 10, 1997 16:25		Mar 18, 1997 by CB	Mar 18, 1997 21:46 by CB
62			TPH	EPA 418.1	ppm	Standard	Mar 10, 1997 16:25		Mar 18, 1997 by HL	Mar 18, 1997 17:05 by HL

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30A93

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 19, 1997 09:00
Date Analyzed: Mar 18, 1997 14:14
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 170612- 003	[A]	[B]	[C]	[D]	[E]	Matrix	[F]	[G]	[H]	[I]	[J]
	Sample	Matrix Spike	Matrix Spike	Matrix	Method	Limit	QC	QC	QC	Matrix Spike	
Parameter	Result	Result	Duplicate Result	Spike Amount	Detection Limit	Relative Difference	Spike Relative Difference	Matrix Spike Recovery	M.S.D. Recovery	Recovery Range	Qualifier
	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	
Total Petroleum Hydrocarbons	9.00	155	167	198	7.50	30.0	7.5	73.9	80.0	65-135	

Spike Relative Difference [F] = 200*(B-C)/(B+C)
Matrix Spike Recovery [G] = 100*(B-A)/[D]
M S D. = Matrix Spike Duplicate
M S D. Recovery [H] = 100*(C-A)/[D]
N D. = Below detection limit or not detected
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30A93

EPA 413.1 Total Petroleum Hydrocarbons

Date Validated: Mar 19, 1997 09:00
Date Analyzed: Mar 18, 1997 14:11
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC LIMITS Blank Spike Recovery %	[F] Recovery Range %	[G] Qualifier
Total Petroleum Hydrocarbons	< 7.50	179	198	7.50	90.6	65-135	

Blank Spike Recovery [E] = 100*(B-A)/(C)
N.C. = Not calculated, data below detection limit
N.D. = Below detection limit
All results are based on MDL and validated for QC purposes only

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30A94

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 19, 1997 09:00
Date Analyzed: Mar 18, 1997 15:16
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170612- 012 / Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	Matrix Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Matrix Spike Recovery %	[H] QC M.S.D. Recovery %	[I] Matrix Spike Recovery Range %	[J] Qualifier
Total Petroleum Hydrocarbons	16.00	192	169	198	7.50	30 0	12.7	89.1	77.4	65-135	

Spike Relative Difference [F] = 200*(B-C)/(B+C)
Matrix Spike Recovery [G] = 100*(B-A)/[D]
M S D = Matrix Spike Duplicate
M S D. Recovery [H] = 100*(C-A)/[D]
N D = Below detection limit or not detected
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30A94

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 19, 1997 09:00
Date Analyzed: Mar 18, 1997 15:13
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Total Petroleum Hydrocarbons	< 7.50	172	198	7.50	87.0	65-135	

Blank Spike Recovery [E] = 100*(B-A)/(C)
N.C. = Not calculated, data below detection limit
N.D. = Below detection limit
All results are based on MDL and validated for QC purposes only

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30A95

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 19, 1997 09:00
Date Analyzed: Mar 18, 1997 16:19
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170612- 028 / Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Method Detection Limit ppm	Matrix Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Matrix Spike Recovery %	[H] QC M.S.D. Recovery %	[I] Matrix Spike Recovery Range %	[J] Qualifier
Total Petroleum Hydrocarbons	< 7.50	163	148	198	7.50	30.0	9.6	82.5	74.9	65-135	

Spike Relative Difference [F] = 200*(B-C)/(B+C)
Matrix Spike Recovery [G] = 100*(B-A)/[D]
M.S.D. = Matrix Spike Duplicate
M.S.D. Recovery [H] = 100*(C-A)/[D]
N.D. = Below detection limit or not detected
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30A95

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 19, 1997 09:00
Date Analyzed: Mar 18, 1997 16:22
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Total Petroleum Hydrocarbons	< 7.50	181	198	7.50	91.6	65-135	

Blank Spike Recovery [E] = 100*(B-A)/(C)
N.C. = Not calculated, data below detection limit
N.D. = Below detection limit
All results are based on MDL and validated for QC purposes only

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A25A81

SW- 846 5030/8020 BTEX

Date Validated: Mar 19, 1997 08:00
Date Analyzed: Mar 18, 1997 10:07
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CB
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 170612- 010	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] Method Detection Limit	Matrix Limit Relative Difference	[F] QC Spike Relative Difference	[G] QC Matrix Spike Recovery	[H] QC M.S.D. Recovery	[I] Matrix Spike Recovery Range	[J] Qualifier
Parameter	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	
Benzene	< 0.020	2.160	2.300	2.000	0.020	25.0	6.3	108.0	115.0	65-135	
Toluene	< 0.020	2.060	2.300	2.000	0.020	25.0	11.0	103.0	115.0	65-135	
Ethylbenzene	< 0.020	2.160	2.300	2.000	0.020	25.0	6.3	108.0	115.0	65-135	
m,p-Xylenes	< 0.040	4.400	4.700	4.000	0.040	25.0	6.6	110.0	117.5	65-135	
o-Xylene	< 0.020	2.120	2.280	2.000	0.020	25.0	7.3	106.0	114.0	65-135	

Spike Relative Difference [F] = 200*(B-C)/(B+C)
Matrix Spike Recovery [G] = 100*(B-A)/[D]
M S D = Matrix Spike Duplicate
M S D. Recovery [H] = 100*(C-A)/[D]
N D = Below detection limit or not detected
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A25A81

SW- 846 5030/3020 BTEX

Date Validated: Mar 19, 1997 08:00
Date Analyzed: Mar 18, 1997 09:33
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CB
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.1120	0.1000	0.0010	112.0	65-135	
Toluene	< 0.0010	0.1080	0.1000	0.0010	108.0	65-135	
Ethylbenzene	< 0.0010	0.1130	0.1000	0.0010	113.0	65-135	
m,p-Xylenes	< 0.0020	0.2340	0.2000	0.0020	117.0	65-135	
o-Xylene	< 0.0010	0.1120	0.1000	0.0010	112.0	65-135	

Blank Spike Recovery [E] = 100*(B-A)/(C)
N.C = Not calculated, data below detection limit
N D = Below detection limit
All results are based on MDL and validated for QC purposes only

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A25A82

SW- 846 5030/8020 BTEX

Date Validated: Mar 19, 1997 08:00
Date Analyzed: Mar 18, 1997 18:19
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CB
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 170612- 028	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] Method Detection Limit	Matrix Limit Relative Difference	[F] QC Spike Relative Difference	[G] QC Matrix Spike Recovery	[H] QC M.S.D. Recovery	[I] Matrix Spike Recovery Range	[J] Qualifier
Parameter	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	
Benzene	< 0.020	2.200	2.080	2.000	0.020	25.0	5.6	110.0	104.0	65-135	
Toluene	< 0.020	2.160	2.040	2.000	0.020	25.0	5.7	108.0	102.0	65-135	
Ethylbenzene	< 0.020	2.180	2.040	2.000	0.020	25.0	6.6	109.0	102.0	65-135	
m,p-Xylenes	< 0.040	4.480	4.180	4.000	0.040	25.0	6.9	112.0	104.5	65-135	
o-Xylene	< 0.020	2.180	2.040	2.000	0.020	25.0	6.6	109.0	102.0	65-135	

Spike Relative Difference [F] = 200*(B-C)/(B+C)
Matrix Spike Recovery [G] = 100*(B-A)/[D]
M S D. = Matrix Spike Duplicate
M.S D. Recovery [H] = 100*(C-A)/[D]
N D. = Below detection limit or not detected
All results are based on MDL and validated for QC purposes

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A25A82

SW- 846 5030/3020 BTEX

Date Validated: Mar 19, 1997 08:00
Date Analyzed: Mar 18, 1997 17:44
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CB
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC LIMITS Blank Spike Recovery %	[F] QC LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.1120	0.1000	0.0010	112.0	65-135	
Toluene	< 0.0010	0.1100	0.1000	0.0010	110.0	65-135	
Ethylbenzene	< 0.0010	0.1090	0.1000	0.0010	109.0	65-135	
m,p-Xylenes	< 0.0020	0.2250	0.2000	0.0020	112.5	65-135	
o-Xylene	< 0.0010	0.1090	0.1000	0.0010	109.0	65-135	

Blank Spike Recovery [E] = 100*(B-A)/(C)
N.C. = Not calculated, data below detection limit
N.D. = Below detection limit
All results are based on MDL and validated for QC purposes only

Edward H. Yonemoto, Ph.D.
QA/QC Manager

XENCO Laboratories
11381 Meadowglen Suite L Houston, Texas 77082
(713) 589-0692 Fax (713) 589-0695

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Lab. Batch # 170602-SA

Contractor: KEI | Phone: (210) 680 3767

Address: 5309 WURZBACH STE 100 San Antonio TX 78238

Project Name: TNMPL- | Project Director: PAUL HARTNETT

Project Location: BLM 16" | Project Manager: Ann Baker

Sampler Signature: | Project No.: 610100-1-0

No. coolers this shipment: 1 | Contractor COC #: 10264

Carrier: | Quote #:

Airbill No. | P.O. No.:

SAMPLE CHARACTERIZATION

	Field ID	Date	Time	DEPTH	SOIL	WATER	COMP	GRAB	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Unl Dies Ker Unknown / Waste Oil / PIT No: / Tank No: / Sample Description	No of CONTAINERS Total	BTEX (5030 or 8020-602)	TPH (418.1)	Please Hold	Turn-around: ASAP, 24 hrs, 48 hrs, Standard	Remarks	LAB ONLY ID #
1	B1 1-2	3/10/97	1005	1-2	X			X	4	G	X		B1, 1-2'	1	X	X				1
2	B1 7-8	3/10/97	1010	7-8	X			X	4	G	X		B1, 7-8'	1		X				2
3	B1 34-35	3/10/97	1208	34-35									B1, 34-35'	1		X				3
4	B2 1-2'	3	1225	1-2'									B2, 1-2'	1						4
5	B2 14-15'		1250	14-15'									B2, 14-15'							5
6	B2 23-24		1325	23-24									B2, 23-24'							6
7	B3 1-2		1355	1-2									B3, 1-2'							7
8	B3 14-15'		1415	14-15									B3, 14-15'							8
9	B3 23-24'		1445	23-24									B3, 23-24							9
10	B4 1-2'		1500	1-2									B4, 1-2'							10

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	3/14/97	1130			
			Received For Laboratory by: Colleen McGuire	3/14/97	1130

Remarks: PLEASE NOTE: ANALYSIS FOR BTEX IS NOT INDICATED ON JAR LABELS.

Pink (Contractor), Yellow & White (Lab).

* Pre-scheduling is recommended

XENCO Laboratories

11381 Meadowglen Suite L Houston, Texas 77082
(713) 589-0692 Fax (713) 589-0695

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Lab. Batch # 170612-SA

Contractor: KEI
Phone (210) 680 3767
Address: 5309 Wurzbach Ste. 100 San Antonio TX 78238
Project Name: TN MPL - BLM
Project Director: Paul Haltnett
Project Location: BLM 16"
Project Manager: Ann Baker
Sampler Signature: [signature]
Project No. 61000-1-0

No. coolers this shipment: 1
Carrier:
Airbill No.
Contractor COC # 10264
Quote #:
P.O. No:

Turn-around: * ASAP / * 24 hrs / 48 hrs / (Standard)

Sample Description: Unl Dies Ker Unknown / Waste Oil / PIT No: Tank No:

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No. of Containers Total	BTEX (5030/8020-602)	TPH (418.1)	Please Hold	Remarks	LAB ONLY ID #
1	B-4 7-8'	3/10/97	1510	7-8	X			X	4	G	X		B4, 7-8'	1	X	X			1
2	B4 23-24	"	1540	23-24	↓			↓	↓	↓	↓		B4, 23-24'	↓	↓	↓			2
3	B4 27-28	"	1615	27-28	↓			↓	↓	↓	↓		B4, 27-28'	↓	↓	↓			3
4	B5 14-15	"	1615	14-15	↓			↓	↓	↓	↓		B5, 14-15'	↓	↓	↓			4
5	B5 23-24	"	1705	23-24	↓			↓	↓	↓	↓		B5, 23-24'	↓	↓	↓			5
6	B5 35-36	"	1740	35-36	↓			↓	↓	↓	↓		B5, 35-36'	↓	↓	↓			6
7	B6 1-2	3/11/97	1545	1-2	↓			↓	↓	↓	↓		B6, 1-2'	↓	↓	↓			7
8	B6 5-6	↓	1550	5-6'	↓			↓	↓	↓	↓		B6, 5-6'	↓	↓	↓			8
9	B6 27-28'	↓	1640	27-28'	↓			↓	↓	↓	↓		B6, 27-28'	↓	↓	↓			9
10	B7 1-2'	↓	1110	1-2	↓			↓	↓	↓	↓		B7, 1-2'	↓	↓	↓			10

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	3/14/97	1130			
			Received For Laboratory by: [signature]	3/14/97	1130

Remarks: Please note: labels on jars do not indicate analysis for BTEX - this was added after sealing bubblewrap bags.

Pink (Contractor), Yellow & White (Lab).

* Pre-scheduling is recommended

Precision Analytical Services

XENCO Laboratories

11381 Meadowglen Suite L Houston, Texas 77082
(713) 589-0692 Fax (713) 589-0695

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Lab. Batch # 170612-SA

Contractor: KEI | Phone: (210) 680 3767

Address: 5309 Culebra Bach Ste 100 San Antonio TX 78238

Project Name: TNMPL | Project Director: PAUL HARTNETT

Project Location: BLM - 16" | Project Manager: ANN BAKER

Sampler Signature: | Project No.: ~~BT005-1~~ 610100-1-0

No. coolers this shipment: 1 | Contractor COC # 10264

Carrier: | Quote #:

Airbill No. | P.O. No.:

SAMPLE CHARACTERIZATION

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No of Containers Total	BTEX (5030/8020-602)	TPH (418.1)	Please Hold	Turn-around	LAB ONLY ID #
1	B-7 14-15	3/11/97	1155	14-15	X			X	4	G	X		B7, 14-15'	1	X	X			1
2	B-7 19-20		~~1205~~ 20	~~19~~ 20									B7, 19-20						2
3	B-7 31-32		1240	31-32									B7, 31-32						3
4	B8 1-2		1255	1-2									B8, 1-2'						4
5	B8 14-16		1310	14-16									B8, 14-16'						5
6	B9 1-2		1330	1-2									B9, 1-2'						6
7	B9 9-10		1340	9-10									B9, 9-10'						7
8	B9 27-28		1425	27-28									B9, 27-28'						8
9	B10A 1-2		1455	1-2									B10A, 1-2'						9
10	B10A 14-16'		1525	14-16									B10A, 14-16'						10

Turn-around: * ASAP * 24 hrs 48 hrs Standard

Preservative: Unl Dies Ker Unknown Waste Oil PIT No: Tank No:

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	3/14/97	1130			
			Received For Laboratory by: Colleen McCrerin	3/14/97	1130

Remarks: PLEASE NOTE: ANALYSIS FOR BTEX IS NOT DENOTED ON INDIVIDUAL JAR LABELS

Pink (Contractor), Yellow & White (Lab)

* Pre-scheduling is recommended

Precision Analytical Services

XENCO Laboratories
11381 Meadowglen Suite L Houston, Texas 77082
(713) 589-0692 Fax (713) 589-0695

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Lab Batch # 170612-SA

Contractor: Kex | Phone: (210) 680 3767

Address: 5309 WURZBACH STE 100 SAN ANTONIO TX 78238

Project Name: TUMPL | Project Director: PAM HARTNETT

Project Location: BLM 16" | Project Manager: ANN BAKER

Sampler Signature: [signature] | Project No.: 610100-1-0

No. coolers this shipment: 1 | Contractor COC #: 10264

Carrier: | Quote #:

Airbill No. | P.O. No.:

Turn-around: ASAP / 24 hrs / 48 hrs / Standard

	SAMPLE CHARACTERIZATION										Preservative		Unl Dies Ker Unknown Waste Oil PIT No: Tank No:	No of CONTAINERS Total	BTEX (5030/8020-602)	TPH (418.1)	Please Hold	Remarks	LAB ONLY ID #
	Field ID	Date	Time	DEPTH	SOIL	WATER	COMP	GRAB	Container Size	Type P, G	Ice	Other	Sample Description						
1	B5 1-2'	3/10/97	1625	1-2'	X			X	4	G	X		B5, 1-2'	1	X	X			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	3/14/97	1130			
			Received For Laboratory by: Colleen McClennen	3/14/97	1130

Remarks

Pink (Contractor), Yellow & White (Lab)

* Pre-scheduling is recommended

Precision Analytical Services

1R0108

EQUIVA
SERVICES LLC
Shell, Texaco & Saudi Aramco Working Together

March 1, 2002

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

SEC 25 - T18S - R32E
30 - T18S - R33E

RECEIVED
MAR 12 2002
Environmental Bureau
Oil Conservation Division

Phase II Investigation Report
Equilon Pipeline Company
BLM Historical 16" Pipeline
Former Texas-Mew Mexico Pipeline
Lea County New Mexico

Mr. Price,

Attached is the Phase II Investigation report for the BLM 16" Historical Release site on the former Texas-New Mexico Pipeline. As indicated in the report TPH and BTEX analytical results are below NMOCD guidelines for closure. Therefore we are requesting a "No Further Action" status for this site. Should you have any questions or comments concerning this letter or attached report, please contact my office at (281) 353-2069

Sincerely
EQUIVA SERVICES LLC

CALLED 3/13/02
REQUESTED
PHOTOS

Kyle Landreneau

Kyle Landreneau CPG
Environmental Geologist
SHE/Science & Engineering

"Equiva Services LLC provides miscellaneous services, including environmental services, on behalf of its owners Motiva Enterprises LLC and Equilon Enterprises LLC, and on behalf of, Shell Oil Company, and Star Enterprise."

CC: Paul Sheeley NMOCD-Hobbs District Office

Link Lacewell-Bureau of Land Management-Carlsbad Office

ENERCON SERVICES, INC.
An Employee Owned Company

2775 Villa Creek, Suite 120
Dallas, TX 75234
(972) 484-3854
Fax: (972) 484-8835

February 19, 2002

Mr. Kyle Landreneau
Environmental Geologist
SE/Science & Engineering
PMB 284
40 FM 1960 West
Houston, Texas 77090

RE: Phase II Subsurface Investigation
Equilon Pipeline Company
BLM Historical 16" Pipeline Release
Texas-New Mexico Pipe Line Company
Lea County, New Mexico

Dear Mr. Landreneau:

Enercon Services, Inc. (Enercon) has completed a Phase II Subsurface Investigation at the above referenced site. The investigation was conducted in accordance with the Work Plan previously submitted to Mr. Link Lacewell of the Carlsbad Field Office, Bureau of Land Management on September 17, 2001. The results of the investigation are presented in the following report.

Background

In March, 1997, KEI, an environmental consulting firm, performed a subsurface investigation on the subject site to determine the spatial distribution of crude oil impacted soils from a previous pipeline release. During the investigation, a total of 10 soil borings were installed to depths of 36 feet below ground surface (bgs) to obtain soil samples for laboratory analysis. Soil samples obtained during this investigation were analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons (TPH). Laboratory analytical results from soil samples obtained during this investigation indicated benzene concentrations ranging from below the detection limit to 1.08 parts per million (ppm), BTEX concentrations ranging from below the detection limit to 38.47 ppm, and TPH concentrations ranging from below the detection limit to 33,600 ppm. The majority of soil TPH contamination exceeding the cleanup level of 5,000 ppm was concentrated in the 1-foot to 15-foot bgs range. Although the depth of soils exhibiting TPH concentrations in excess of the NMOCD cleanup level was relatively shallow, the spill outline was approximately 2,100 feet long and an average of 100 feet wide, covering an area of approximately 210,000 square feet, or 4.8 acres. Ground water was not

encountered during the installation of the borings, and is expected to be present at depths of approximately 170 feet bgs.

In June, 1998 KEI conducted surface soil sampling on 10 grid cells laid out between borings B-3 and B-4. Soil samples were obtained from the 0 to 1 foot bgs intervals and analyzed for BTEX and TPH. Two composite samples were also analyzed for polynuclear aromatic hydrocarbons (PAHs), total Kjeldahl nitrogen (TKN), and total potassium (TP) concentrations. Analytical results indicated BTEX concentrations below the detection limit and TPH concentrations ranging from 326 ppm to 2,130 ppm. PAH concentrations ranged from below the detection limit to 0.7 ppm, all of which was phenanthrene. TKN concentrations ranged from 200 to 201 ppm, and TP concentrations ranged from 310 to 344 ppm.

On September 17, 2001, Equiva Services, LLC. submitted a Work Plan to Mr. Link Lacewell of the Carlsbad Field Office, Bureau of Land Management for further subsurface investigation. The purpose of the investigation proposed in the Work Plan was twofold: 1) To better define the horizontal and vertical distribution of soil TPH contamination, and 2) To obtain recent samples for laboratory analysis to determine the rate of intrinsic bioremediation that was occurring at the site. The Work Plan called for the installation and sampling of an additional nine soil borings, located midway between each of the existing borings. It was first determined that the subject site is RCRA Subtitle C exempt, and therefore subject to regulation by the New Mexico Oil Conservation Division (NMOCD). Closure values were determined for this site by using the NMOCD ranking criteria. The soil contamination is classified as Unsaturated Contaminated Soils and depth to groundwater is greater than 100 feet bgs. There are no surface bodies of water within 1,000 horizontal feet of the subject site and the site is greater than 1,000 feet from a water source. The total ranking score, according to NMOCD guidelines for the site is, therefore, zero (0). Accordingly, for a site ranked between 0 and 9, cleanup levels are as follows:

Constituent	**Concentration**
Benzene	10 ppm
BTEX	50 ppm
TPH	5,000 ppm (above background)

A maximum of two soil samples were to be obtained from each boring, based on visual and olfactory field screening, and forwarded to an analytical laboratory for analysis for total petroleum hydrocarbons (TPH).

December 2001 Subsurface Investigation

Mr. Jeff Kindley, of Enercon, was present onsite on December 7, 2001, to oversee the installation and sampling of nine soil borings. Each boring was located approximately midway between the borings installed in 1997 by KEI, as shown on the attached Figure 1. The borings were to be drilled to depths of approximately 15 feet bgs in order to evaluate the most heavily impacted zones, as previously identified. Borings SB-1 through SB-4

and boring SB-8 were terminated at 15 feet bgs. Because borings SB-5, SB-6, SB-7, and SB-9 encountered hydrocarbon odors at the target total depth (TD) of 15 feet, drilling continued on those borings until slight or no hydrocarbon odor was evident in the cuttings. Boring SB-5 was drilled to a TD of 30 feet bgs; boring SB-6 was drilled to a TD of 20 feet bgs; boring SB-7 was drilled to a TD of 50 feet bgs, and boring SB-9 was drilled to a TD of 40 feet bgs.

Drilling was accomplished using an air rotary mobile drilling rig. Soil samples were obtained on 5-foot centers using a split spoon sampling device. Soil samples were packed into factory cleaned 4-oz. glass sample jars, sealed with a teflon-lined lid, and placed on ice for transportation to the analytical laboratory where they were analyzed in accordance with the previously submitted Work Plan. All sampling equipment was decontaminated between samples by scrubbing in an Alconox/tap water solution, followed by a tap water rinse.

Boring logs and sample descriptions are presented in Attachment A.

Laboratory analytical results of soil samples obtained during this investigation are presented below and in Attachment B.

Table 1
TPH Analytical Results
BLM 16-Inch Pipeline Release
Lea County, New Mexico

Boring No.	Depth	TPH DRO (ppm)	TPH GRO (ppm)	Total (ppm)	NMOCD Maximum (ppm)
SB-1	3 – 5'	<50.0	<1.00	BDL	5,000.00
	13 – 15'	<50.0	<1.00	BDL	5,000.00
SB-2	3 – 5'	<50.0	<1.00	BDL	5,000.00
	13 – 15'	<50.0	<1.00	BDL	5,000.00
SB-3	8 – 10'	551.0	39.50	590.50	5,000.00
	13 – 15'	502.0	11.70	513.70	5,000.00
SB-4	3 – 5'	<50.0	4.21	4.21	5,000.00
	13 – 15'	<50.0	3.00	3.00	5,000.00
SB-5	18 – 20'	917.0	379.00	1,296.00	5,000.00
	28 – 30'	<50.0	2.72	2.72	5,000.00
SB-6	8 – 10'	1,110.0	323.00	1,433.00	5,000.00
	18 – 20'	189.0	225.00	414.00	5,000.00
SB-7	18 – 20'	408.0	305.00	713.00	5,000.00
	48 – 50"	<50.0	7.74	7.74	5,000.00
SB-8	3 – 5'	261.0	8.89	269.89	5,000.00
	13 – 15'	<50.0	3.36	3.36	5,000.00
SB-9	18 – 20'	1,550.0	245.00	1,795.00	5,000.00
	38 – 40'	<50.0	3.92	3.92	5,000.00

As Table 1 demonstrates, TPH concentrations in soil samples obtained from borings SB-1 through SB-9 ranged from below the detection limit of 50 ppm DRO and 1 ppm GRO to a maximum combined (DRO and GRO) TPH of 1,795 ppm; far lower than the NMOCD not to exceed value of 5,000 ppm.

Because the 18 – 20' sample from soil boring SB-5 exhibited the highest GRO range TPH, that sample was also analyzed for volatile organic compounds to determine the benzene, toluene, ethylbenzene and xylenes (BTEX) concentration. Laboratory analytical results for the BTEX constituents of the analysis are presented in Table 2, below:

Table 2
BTEX Concentrations; Soil Boring SB-5
BLM 16" Pipeline Release
Lea County, New Mexico

Boring No.	Depth	Benzene (ppm)	NMOCD Maximum Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	Total BTEX (ppm)	NMOCD Maximum BTEX (ppm)
SB-5	18 – 20'	<0.100	10.000	0.111	2.800	11.550	14.461	50.000

As Table 2 illustrates, both benzene and total BTEX concentrations were below the NMOCD ranking criteria of 10 ppm and 50 ppm, respectively.

Conclusions

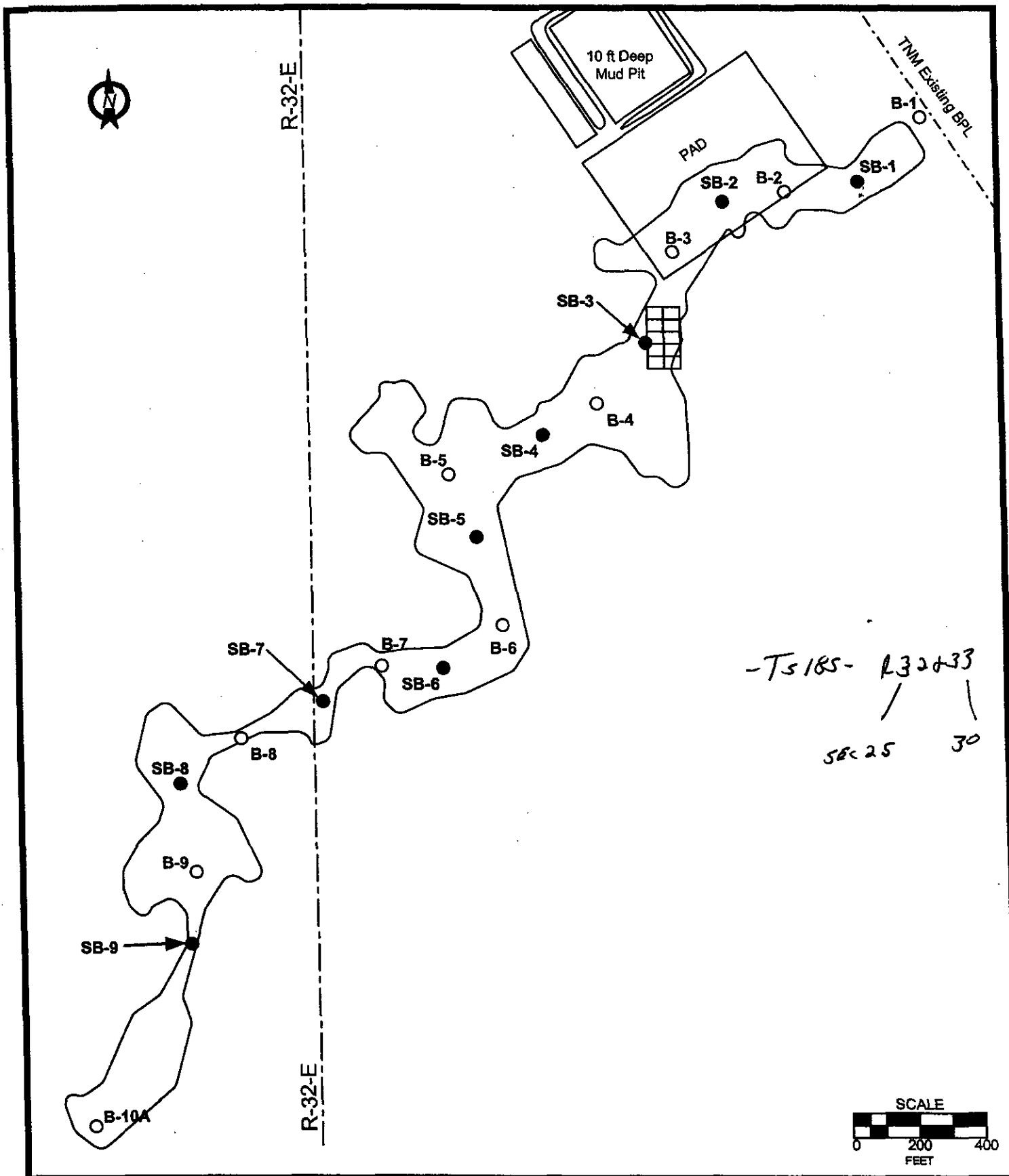
The results of this investigation have demonstrated that intrinsic bioremediation has reduced the TPH concentrations previously observed in the onsite soils to levels below the NMOCD ranking criteria maximum permissible level of 5,000 ppm. Benzene and total BTEX concentrations are, likewise, below the NMOCD maximum of 10 ppm and 50 ppm, respectively.

Since TPH, benzene, and BTEX concentrations are below the NMOCD Remediation Action Levels, the site qualifies for closure under the existing regulations.

Enercon appreciates this opportunity to provide you our professional environmental consulting services. If you have any questions or comments, please call me at (972) 484-3854.

Sincerely yours,
Enercon Services, Inc.

Don R. Parsons, Jr., C.P.G.
Senior Project Manager



SITE PLAN
16" HISTORICAL RELEASE
SOUTH OF HIGHWAY 529
LEA COUNTY, NEW MEXICO

ENERCON SERVICES, INC.
2775 VILLA CREEK
SUITE 120
DALLAS, TX 75234-7420
(972) 484-3854

FIGURE
1

ATTACHMENT A – Boring Logs

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-1	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0					
	Tan well sorted medium grain sand	SB-1 (3-5')	SS	0	Slight hydrocarbon odor and staining
5.0					
10.0	with clay and limestone intermixed		SS	0	No hydrocarbon odor or staining
15.0	Tan fine-medium grain calcareous sand and some clay	SB-1 (13-15')	SS	0	No hydrocarbon odor or staining
	Boring terminated at 15 feet				
20.0					
25.0					
30.0					
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-2	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0					
	Tan fine-medium grain sand	SB-2 (3-5')	SS	0	No hydrocarbon odor or staining
5.0					
	Tan sandy limestone		SS	0	No hydrocarbon odor or staining
10.0					
		SB-2 (13-15')	SS	0	No hydrocarbon odor or staining
15.0	Boring terminated at 15 feet				
20.0					
25.0					
30.0					
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-3	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0	Tan fine-medium grain sand		SS	4	Slight hydrocarbon odor and staining
5.0					
	Tan sandy limestone	SB-3 (8-10')	SS	64	Strong hydrocarbon odor and staining
10.0					
15.0		SB-3 (13-15')	SS	32	Slight hydrocarbon odor and staining
	Boring terminated at 15 feet				
20.0					
25.0					
30.0					
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-4	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0					
	Tan fine-medium grain calcareous sand	SB-4 (3-5')	SS	10	No hydrocarbon odor or staining
5.0					
	Tan sandy limestone		SS	6	No hydrocarbon odor or staining
10.0					
15.0		SB-4 (13-15')	SS	2	No hydrocarbon odor or staining
	Boring terminated at 15 feet				
20.0					
25.0					
30.0					
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-5	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0	Tan fine-medium grain calcareous sand		SS	0	No hydrocarbon odor or staining
5.0					
	Tan sandy limestone		SS	151	Stong hydrocarbon odor and staining
10.0					
15.0			SS	151	Stong hydrocarbon odor and staining
20.0		SB-5 (18-20')	SS	160	Stong hydrocarbon odor and staining
	Tan fine-medium grain sand		SS	100	Strong hydrocarbon odor and staining
25.0					
30.0		SB-5 (28-30')	SS	8	Slight hydrocarbon odor and no staining
	Boring terminated at 30 feet				
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-6	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0	Tan fine-medium grain calcareous sand		SS	141	Strong hydrocarbon odor and staining
5.0					
	Tan sandy limestone	SB-6 (8-10')	SS	158	Stong hydrocarbon odor and staining
10.0					
15.0			SS	145	Stong hydrocarbon odor and staining
		SB-6 (18-20')	SS	40	Slight hydrocarbon odor and no staining
20.0	Boring terminated at 20 feet				
25.0					
30.0					
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
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CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-7	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0	Tan fine-medium grain calcareous sand		SS	0	Slight hydrocarbon odor and no staining
5.0	Tan sandy limestone		SS	111	Stong hydrocarbon odor and staining
10.0			SS	180	Stong hydrocarbon odor and staining
15.0		SB-7 (18-20')	SS	190	Strong hydrocarbon odor and no staining
20.0			SS	185	Strong hydrocarbon odor and no staining
25.0			SS	170	Strong hydrocarbon odor and no staining
30.0			SS	124	Stong hydrocarbon odor and no staining
35.0			SS	102	Stong hydrocarbon odor and no staining
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
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RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-7	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
40.0	Tan sandy limestone with clay		SS	88	Slight hydrocarbon odor and no staining
45.0		SB-7 (48-50')	SS	7	No hydrocarbon odor or staining
50.0	Boring terminated at 50 feet				
55.0					
60.0					
65.0					
70.0					
75.0					
80.0					

0.0 45.0 50.0 55.0 60.0 65.0 70.0 75.0 80.0

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
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CA - Continuous Flight Auger
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CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION	
Project #:	Well/Boring #: SB-8	Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper	Drilling Method: Air Rotary
	Driller: Leonard Henner	Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0	Tan fine-medium grain calcareous sand	SB-8 (3-5')	SS	0	No hydrocarbon odor or staining
5.0					
	Tan sandy limestone		SS	0	No hydrocarbon odor or staining
10.0					
15.0	Boring terminated at 15 feet		SS	0	No hydrocarbon odor or staining
20.0					
25.0					
30.0					
35.0					
40.0					

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ENERCON SERVICES, INC. 306 West Wall, Suite 1312 Midland, Texas 79701	RECORD OF SUBSURFACE EXPLORATION		
Project #:	Well/Boring #: SB-9		Date Drilled: 12/7/01
Project: TNM 16 Inch Historic Release Lea County, NM	Drilling Company: Harrison and Cooper		Drilling Method: Air Rotary
	Driller: Leonard Henner		Logged By: JWK

DEPTH (FEET)	SOIL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	OVA (PPM)	REMARKS
0.0	Tan fine-medium grain calcareous sand		SS	4	No hydrocarbon odor or staining
5.0			SS	151	Strong hydrocarbon odor and staining
10.0			SS	180	Strong hydrocarbon odor and staining
15.0		SB-9 (18-20')	SS	190	Strong hydrocarbon odor and staining
20.0			SS	188	Strong hydrocarbon odor and staining
25.0			SS	133	Strong hydrocarbon odor and staining
30.0	with clay intermixed		SS	3	Slight hydrocarbon odor with no staining
35.0		SB-9 (38-40')	SS	9	No hydrocarbon odor or staining
40.0	Boring terminated at 40 feet				

ABBREVIATIONS AND SYMBOLS

SS - Driven Split Spoon
ST - Pressed Shelby Tube
CA - Continuous Flight Auger
RC - Rock Core
THD - Texas Highway Department Cone
CT-5' - Continous Sampler

HSA - Hollow Stem Auger
CFA - Continous Flight Augers
DC - Driving Casing
MD - Mud Drilling

ATTACHMENT B – Laboratory Analytical Results

Summary Report

Kyle Landreneau
Equilon Kyle Landreneau
PMB 284 40 FM 1960 West
Houston, TX 77090

Report Date: January 9, 2002

Order ID Number: A01121224

Project: ES-934
TA Job Code: BIM Historical 16 Pipeline Release
Casualty Code: ES-934
Project Location: Lea County, New Mexico
Project Address:
Enercon Services Inc. / Midland / Jeff Kindley

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
187011	SB-5 (18-20')	Soil	12/7/01	:	12/12/01
187019	SB-9 (18-20')	Soil	12/7/01	:	12/12/01

This report consists of a total of 3 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample: 187011 - SB-5 (18-20')

Param	Flag	Result	Units
Bromochloromethane		<100	µg/Kg
Dichlorodifluoromethane		<100	µg/Kg
Chloromethane (methyl chloride)		<100	µg/Kg
Vinyl Chloride		<100	µg/Kg
Bromomethane (methyl bromide)		<500	µg/Kg
Chloroethane		<100	µg/Kg
Trichlorofluoromethane		<100	µg/Kg
Acetone		<1000	µg/Kg
Iodomethane (methyl iodide)		<500	µg/Kg
Carbon Disulfide		<100	µg/Kg
Acrylonitrile		<100	µg/Kg
2-Butanone (MEK)		<500	µg/Kg
4-methyl-2-pentanone (MIBK)		<500	µg/Kg
2-hexanone		<500	µg/Kg
trans 1,4-Dichloro-2-butene		<1000	µg/Kg
1,1-Dichloroethene		<100	µg/Kg
Methylene chloride		<500	µg/Kg
MTBE		<100	µg/Kg
trans-1,2-Dichloroethene		<100	µg/Kg
1,1-Dichloroethane		<100	µg/Kg
cis-1,2-Dichloroethene		<100	µg/Kg
2,2-Dichloropropane		<100	µg/Kg
1,2-Dichloroethane (EDC)		<100	µg/Kg
Chloroform		<100	µg/Kg
1,1,1-Trichloroethane		<100	µg/Kg
1,1-Dichloropropene		<100	µg/Kg
Benzene		<100	µg/Kg
Carbon Tetrachloride		<100	µg/Kg

Continued on next page ...

Sample 187011 continued ...

Param	Flag	Result	Units
1,2-Dichloropropane		<100	µg/Kg
Trichloroethene (TCE)		<100	µg/Kg
Dibromomethane (methylene bromide)		<100	µg/Kg
Bromodichloromethane		<100	µg/Kg
2-Chloroethyl vinyl ether		<500	µg/Kg
cis-1,3-Dichloropropene		<100	µg/Kg
trans-1,3-Dichloropropene		<100	µg/Kg
Toluene		111	µg/Kg
1,1,2-Trichloroethane		<100	µg/Kg
1,3-Dichloropropane		<100	µg/Kg
Dibromochloromethane		<100	µg/Kg
1,2-Dibromoethane (EDB)		<100	µg/Kg
Tetrachloroethene (PCE)		<100	µg/Kg
Chlorobenzene		<100	µg/Kg
1,1,1,2-Tetrachloroethane		<100	µg/Kg
Ethylbenzene		2800	µg/Kg
m,p-Xylene		7500	µg/Kg
Bromoform		<100	µg/Kg
Styrene		<100	µg/Kg
o-Xylene		4050	µg/Kg
1,1,2,2-Tetrachloroethane		<100	µg/Kg
2-Chlorotoluene		<100	µg/Kg
1,2,3-Trichloropropane		<100	µg/Kg
Isopropylbenzene		1860	µg/Kg
Bromobenzene		<100	µg/Kg
n-Propylbenzene		3000	µg/Kg
1,3,5-Trimethylbenzene		2600	µg/Kg
tert-Butylbenzene		<100	µg/Kg
1,2,4-Trimethylbenzene		10700	µg/Kg
1,4-Dichlorobenzene (para)		<100	µg/Kg
sec-Butylbenzene		1700	µg/Kg
1,3-Dichlorobenzene		<100	µg/Kg
p-Isopropyltoluene		1400	µg/Kg
4-Chlorotoluene		<100	µg/Kg
1,2-Dichlorobenzene (ortho)		<100	µg/Kg
n-Butylbenzene		1700	µg/Kg
1,2-Dibromo-3-chloropropane		<500	µg/Kg
1,2,3-Trichlorobenzene		<500	µg/Kg
1,2,4-Trichlorobenzene		<500	µg/Kg
Naphthalene		2330	µg/Kg
Hexachlorobutadiene		<500	µg/Kg

Sample: 187019 - SB-9 (18-20')

Param	Flag	Result	Units
Naphthalene		<0.25	mg/Kg
Acenaphthylene		<0.25	mg/Kg
Acenaphthene		<0.25	mg/Kg
Fluorene		0.65	mg/Kg
Phenanthrene		1.71	mg/Kg
Anthracene		1.73	mg/Kg
Fluoranthene		<0.25	mg/Kg

Continued on next page ...

Sample 187019 continued ...

Param	Flag	Result	Units
Pyrene		<0.25	mg/Kg
Benzo(a)anthracene		<0.25	mg/Kg
Chrysene		<0.25	mg/Kg
Benzo(b)fluoranthene		<0.25	mg/Kg
Benzo(k)fluoranthene		<0.25	mg/Kg
Benzo(a)pyrene		<0.25	mg/Kg
Indeno(1,2,3-cd)pyrene		<0.25	mg/Kg
Dibenzo(a,h)anthracene		<0.25	mg/Kg
Benzo(g,h,i)perylene		<0.25	mg/Kg

Summary Report

Kyle Landreneau
Equilon Kyle Landreneau
PMB 284 40 FM 1960 West
Houston, TX 77090

Report Date: December 18, 2001

Order ID Number: A01121224

Project: ES-934
TA Job Code: BIM Historical 16 Pipeline Release
Casualty Code: ES-934
Project Location: Lea County, New Mexico
Project Address:
Enercon Services Inc. / Midland / Jeff Kindley

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
187003	SB-1 (3-5')	Soil	12/7/01	:	12/12/01
187004	SB-1 (13-15')	Soil	12/7/01	:	12/12/01
187005	SB-2 (3-5')	Soil	12/7/01	:	12/12/01
187006	SB-2 (13-15')	Soil	12/7/01	:	12/12/01
187007	SB-3 (8-10')	Soil	12/7/01	:	12/12/01
187008	SB-3 913-15')	Soil	12/7/01	:	12/12/01
187009	SB-4 (3-5')	Soil	12/7/01	:	12/12/01
187010	SB-4 (13-15')	Soil	12/7/01	:	12/12/01
187011	SB-5 (18-20')	Soil	12/7/01	:	12/12/01
187012	SB-5 (28-30')	Soil	12/7/01	:	12/12/01
187013	SB-6 (8-10')	Soil	12/7/01	:	12/12/01
187014	SB-6 (18-20')	Soil	12/7/01	:	12/12/01
187015	SB-7 (18-20')	Soil	12/7/01	:	12/12/01
187016	SB-7 (48-50')	Soil	12/7/01	:	12/12/01
187017	SB-8 (3-5')	Soil	12/7/01	:	12/12/01
187018	SB-8 (13-15')	Soil	12/7/01	:	12/12/01
187019	SB-9 (18-20')	Soil	12/7/01	:	12/12/01
187020	SB-9 (38-40')	Soil	12/7/01	:	12/12/01

This report consists of a total of 2 page(s) and is intended only as a summary of results for the sample(s) listed above.

Sample - Field Code	TPH DRO DRO (ppm)	TPH GRO GRO (ppm)
187003 - SB-1 (3-5')	<50.0	<1.00
187004 - SB-1 (13-15')	<50.0	<1.00
187005 - SB-2 (3-5')	<50.0	<1.00
187006 - SB-2 (13-15')	<50.0	<1.00
187007 - SB-3 (8-10')	551	39.5
187008 - SB-3 913-15')	502	11.7
187009 - SB-4 (3-5')	<50.0	4.21
187010 - SB-4 (13-15')	<50.0	3
187011 - SB-5 (18-20')	917	379
187012 - SB-5 (28-30')	<50.0	2.72
187013 - SB-6 (8-10')	1110	323
187014 - SB-6 (18-20')	189	225

Continued ...

Continued ...

Sample - Field Code	TPH DRO DRO (ppm)	TPH GRO GRO (ppm)
187015 - SB-7 (18-20')	408	305
187016 - SB-7 (48-50')	<50.0	7.74
187017 - SB-8 (3-5')	261	8.89
187018 - SB-8 (13-15')	<50.0	3.36
187019 - SB-9 (18-20')	1550	245
187020 - SB-9 (38-40')	<50.0	3.92

TRACEANALYSIS, INC.

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155 McCutcheon, Suite H El Paso, Texas 79932 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Kyle Landreneau
Equilon Kyle Landreneau
PMB 284 40 FM 1960 West
Houston, TX 77090

Report Date: January 9, 2002

Order ID Number: A01121224

Project: ES-934
TA Job Code: BlM Historical 16 Pipeline Release
Casualty Code: ES-934
Project Location: Lea County, New Mexico
Enercon Services Inc. / Midland / Jeff Kindley

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
187011	SB-5 (18-20')	Soil	12/7/01	:	12/12/01
187019	SB-9 (18-20')	Soil	12/7/01	:	12/12/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 187011 - SB-5 (18-20')

Analysis:	8260	Analytical Method:	S 8260B	QC Batch:	QC16993	Date Analyzed:	12/21/01
Analyst:	JG	Preparation Method:	E 5035	Prep Batch:	PB16782	Date Prepared:	12/21/01

Param	Flag	Result	Units	Dilution	RDL
Bromochloromethane		<100	µg/Kg	100	1
Dichlorodifluoromethane		<100	µg/Kg	100	1
Chloromethane (methyl chloride)		<100	µg/Kg	100	1
Vinyl Chloride		<100	µg/Kg	100	1
Bromomethane (methyl bromide)		<500	µg/Kg	100	5
Chloroethane		<100	µg/Kg	100	1
Trichlorofluoromethane		<100	µg/Kg	100	1
Acetone		<1000	µg/Kg	100	10
Iodomethane (methyl iodide)		<500	µg/Kg	100	5
Carbon Disulfide		<100	µg/Kg	100	1
Acrylonitrile		<100	µg/Kg	100	1
2-Butanone (MEK)		<500	µg/Kg	100	5
4-methyl-2-pentanone (MIBK)		<500	µg/Kg	100	5
2-hexanone		<500	µg/Kg	100	5
trans 1,4-Dichloro-2-butene		<1000	µg/Kg	100	10
1,1-Dichloroethene		<100	µg/Kg	100	1
Methylene chloride		<500	µg/Kg	100	5
MTBE		<100	µg/Kg	100	1
trans-1,2-Dichloroethene		<100	µg/Kg	100	1
1,1-Dichloroethane		<100	µg/Kg	100	1
cis-1,2-Dichloroethene		<100	µg/Kg	100	1
2,2-Dichloropropane		<100	µg/Kg	100	1
1,2-Dichloroethane (EDC)		<100	µg/Kg	100	1
Chloroform		<100	µg/Kg	100	1
1,1,1-Trichloroethane		<100	µg/Kg	100	1
1,1-Dichloropropene		<100	µg/Kg	100	1
Benzene		<100	µg/Kg	100	1
Carbon Tetrachloride		<100	µg/Kg	100	1
1,2-Dichloropropane		<100	µg/Kg	100	1
Trichloroethene (TCE)		<100	µg/Kg	100	1
Dibromomethane (methylene bromide)		<100	µg/Kg	100	1
Bromodichloromethane		<100	µg/Kg	100	1
2-Chloroethyl vinyl ether		<500	µg/Kg	100	5
cis-1,3-Dichloropropene		<100	µg/Kg	100	1
trans-1,3-Dichloropropene		<100	µg/Kg	100	1
Toluene		111	µg/Kg	100	1
1,1,2-Trichloroethane		<100	µg/Kg	100	1
1,3-Dichloropropane		<100	µg/Kg	100	1
Dibromochloromethane		<100	µg/Kg	100	1
1,2-Dibromoethane (EDB)		<100	µg/Kg	100	1
Tetrachloroethene (PCE)		<100	µg/Kg	100	1
Chlorobenzene		<100	µg/Kg	100	1
1,1,1,2-Tetrachloroethane		<100	µg/Kg	100	1
Ethylbenzene		2800	µg/Kg	100	1
m,p-Xylene		7500	µg/Kg	100	1
Bromoform		<100	µg/Kg	100	1
Styrene		<100	µg/Kg	100	1
o-Xylene		4050	µg/Kg	100	1

Continued ...

... *Continued* Sample: 187011 Analysis: 8260

Param	Flag	Result	Units	Dilution	RDL
1,1,2,2-Tetrachloroethane		<100	µg/Kg	100	1
2-Chlorotoluene		<100	µg/Kg	100	1
1,2,3-Trichloropropane		<100	µg/Kg	100	1
Isopropylbenzene		1860	µg/Kg	100	1
Bromobenzene		<100	µg/Kg	100	1
n-Propylbenzene		3000	µg/Kg	100	1
1,3,5-Trimethylbenzene		2600	µg/Kg	100	1
tert-Butylbenzene		<100	µg/Kg	100	1
1,2,4-Trimethylbenzene		10700	µg/Kg	100	1
1,4-Dichlorobenzene (para)		<100	µg/Kg	100	1
sec-Butylbenzene		1700	µg/Kg	100	1
1,3-Dichlorobenzene		<100	µg/Kg	100	1
p-Isopropyltoluene		1400	µg/Kg	100	1
4-Chlorotoluene		<100	µg/Kg	100	1
1,2-Dichlorobenzene (ortho)		<100	µg/Kg	100	1
n-Butylbenzene		1700	µg/Kg	100	1
1,2-Dibromo-3-chloropropane		<500	µg/Kg	100	5
1,2,3-Trichlorobenzene		<500	µg/Kg	100	5
1,2,4-Trichlorobenzene		<500	µg/Kg	100	5
Naphthalene		2330	µg/Kg	100	5
Hexachlorobutadiene		<500	µg/Kg	100	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		49.4	µg/Kg	100	50	98	88 - 112
Toluene-d8		51.2	µg/Kg	100	50	102	90 - 109
4-Bromofluorobenzene		47.8	µg/Kg	100	50	95	84 - 103

Sample: 187019 - SB-9 (18-20')

Analysis:	PAH	Analytical Method:	S 8270C	QC Batch:	QC17149	Date Analyzed:	12/26/01
Analyst:	RC	Preparation Method:	E 3510C	Prep Batch:	PB16913	Date Prepared:	12/20/01

Param	Flag	Result	Units	Dilution	RDL
Naphthalene		<0.25	mg/Kg	1	0.25
Acenaphthylene		<0.25	mg/Kg	1	0.25
Acenaphthene		<0.25	mg/Kg	1	0.25
Fluorene		0.65	mg/Kg	1	0.25
Phenanthrene		1.71	mg/Kg	1	0.25
Anthracene		1.73	mg/Kg	1	0.25
Fluoranthene		<0.25	mg/Kg	1	0.25
Pyrene		<0.25	mg/Kg	1	0.25
Benzo(a)anthracene		<0.25	mg/Kg	1	0.25
Chrysene		<0.25	mg/Kg	1	0.25
Benzo(b)fluoranthene		<0.25	mg/Kg	1	0.25
Benzo(k)fluoranthene		<0.25	mg/Kg	1	0.25
Benzo(a)pyrene		<0.25	mg/Kg	1	0.25
Indeno(1,2,3-cd)pyrene		<0.25	mg/Kg	1	0.25
Dibenzo(a,h)anthracene		<0.25	mg/Kg	1	0.25
Benzo(g,h,i)perylene		<0.25	mg/Kg	1	0.25

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		90.72	mg/Kg	1	80	113	23 - 120
2-Fluorobiphenyl		86.04	mg/Kg	1	80	107	30 - 115
Terphenyl-d14		55.83	mg/Kg	1	80	69	28 - 137

Quality Control Report
Method Blank

Method Blank QCBatch: QC16993

Param	Flag	Results	Units	Reporting Limit
Bromochloromethane		<25.0	µg/Kg	1
Dichlorodifluoromethane		<25.0	µg/Kg	1
Chloromethane (methyl chloride)		<25.0	µg/Kg	1
Vinyl Chloride		<25.0	µg/Kg	1
Bromomethane (methyl bromide)		<125	µg/Kg	5
Chloroethane		<25.0	µg/Kg	1
Trichlorofluoromethane		<25.0	µg/Kg	1
Acetone		<250	µg/Kg	10
Iodomethane (methyl iodide)		<125	µg/Kg	5
Carbon Disulfide		<25.0	µg/Kg	1
Acrylonitrile		<25.0	µg/Kg	1
2-Butanone (MEK)		<125	µg/Kg	5
4-methyl-2-pentanone (MIBK)		<125	µg/Kg	5
2-hexanone		<125	µg/Kg	5
trans 1,4-Dichloro-2-butene		<250	µg/Kg	10
1,1-Dichloroethene		<25.0	µg/Kg	1
Methylene chloride		<125	µg/Kg	5
MTBE		<25.0	µg/Kg	1
trans-1,2-Dichloroethene		<25.0	µg/Kg	1
1,1-Dichloroethane		<25.0	µg/Kg	1
cis-1,2-Dichloroethene		<25.0	µg/Kg	1
2,2-Dichloropropane		<25.0	µg/Kg	1
1,2-Dichloroethane (EDC)		<25.0	µg/Kg	1
Chloroform		<25.0	µg/Kg	1
1,1,1-Trichloroethane		<25.0	µg/Kg	1
1,1-Dichloropropene		<25.0	µg/Kg	1
Benzene		<25.0	µg/Kg	1
Carbon Tetrachloride		<25.0	µg/Kg	1
1,2-Dichloropropane		<25.0	µg/Kg	1
Trichloroethene (TCE)		<25.0	µg/Kg	1
Dibromomethane (methylene bromide)		<25.0	µg/Kg	1
Bromodichloromethane		<25.0	µg/Kg	1
2-Chloroethyl vinyl ether		<125	µg/Kg	5
cis-1,3-Dichloropropene		<25.0	µg/Kg	1
trans-1,3-Dichloropropene		<25.0	µg/Kg	1
Toluene		<25.0	µg/Kg	1
1,1,2-Trichloroethane		<25.0	µg/Kg	1
1,3-Dichloropropane		<25.0	µg/Kg	1
Dibromochloromethane		<25.0	µg/Kg	1
1,2-Dibromoethane (EDB)		<25.0	µg/Kg	1
Tetrachloroethene (PCE)		<25.0	µg/Kg	1
Chlorobenzene		<25.0	µg/Kg	1
1,1,1,2-Tetrachloroethane		<25.0	µg/Kg	1
Ethylbenzene		<25.0	µg/Kg	1
m,p-Xylene		<25.0	µg/Kg	1
Bromoform		<25.0	µg/Kg	1
Styrene		<25.0	µg/Kg	1
o-Xylene		<25.0	µg/Kg	1

Continued ...

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Param	Flag	Results	Units	Reporting Limit
1,1,2,2-Tetrachloroethane		<25.0	µg/Kg	1
2-Chlorotoluene		<25.0	µg/Kg	1
1,2,3-Trichloropropane		<25.0	µg/Kg	1
Isopropylbenzene		<25.0	µg/Kg	1
Bromobenzene		<25.0	µg/Kg	1
n-Propylbenzene		<25.0	µg/Kg	1
1,3,5-Trimethylbenzene		<25.0	µg/Kg	1
tert-Butylbenzene		<25.0	µg/Kg	1
1,2,4-Trimethylbenzene		<25.0	µg/Kg	1
1,4-Dichlorobenzene (para)		<25.0	µg/Kg	1
sec-Butylbenzene		<25.0	µg/Kg	1
1,3-Dichlorobenzene		<25.0	µg/Kg	1
p-Isopropyltoluene		<25.0	µg/Kg	1
4-Chlorotoluene		<25.0	µg/Kg	1
1,2-Dichlorobenzene (ortho)		<25.0	µg/Kg	1
n-Butylbenzene		<25.0	µg/Kg	1
1,2-Dibromo-3-chloropropane		<125	µg/Kg	5
1,2,3-Trichlorobenzene		<125	µg/Kg	5
1,2,4-Trichlorobenzene		<125	µg/Kg	5
Naphthalene		<125	µg/Kg	5
Hexachlorobutadiene		<125	µg/Kg	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		47	µg/Kg	1	50	94	88 - 112
Toluene-d8		49.2	µg/Kg	1	50	98	90 - 109
4-Bromofluorobenzene		47.9	µg/Kg	1	50	95	84 - 103

Method Blank

QCBatch: QC17149

Param	Flag	Results	Units	Reporting Limit
Naphthalene		<0.25	mg/Kg	0.25
Acenaphthylene		<0.25	mg/Kg	0.25
Acenaphthene		<0.25	mg/Kg	0.25
Fluorene		<0.25	mg/Kg	0.25
Phenanthrene		<0.25	mg/Kg	0.25
Anthracene		<0.25	mg/Kg	0.25
Fluoranthene		<0.25	mg/Kg	0.25
Pyrene		<0.25	mg/Kg	0.25
Benzo(a)anthracene		<0.25	mg/Kg	0.25
Chrysene		<0.25	mg/Kg	0.25
Benzo(b)fluoranthene		<0.25	mg/Kg	0.25
Benzo(k)fluoranthene		<0.25	mg/Kg	0.25
Benzo(a)pyrene		<0.25	mg/Kg	0.25
Indeno(1,2,3-cd)pyrene		<0.25	mg/Kg	0.25
Dibenzo(a,h)anthracene		<0.25	mg/Kg	0.25
Benzo(g,h,i)perylene		<0.25	mg/Kg	0.25

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Nitrobenzene-d5		101.07	mg/Kg	1	80	126	23 - 120
2-Fluorobiphenyl		99.68	mg/Kg	1	80	124	30 - 115
Terphenyl-d14		95.23	mg/Kg	1	80	119	28 - 137

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC16993

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
1,1-Dichloroethene	114	113	µg/Kg	1	100	<25.0	114	0	78 - 120	20
Benzene	102	100	µg/Kg	1	100	<25.0	102	1	75 - 118	20
Trichloroethene (TCE)	93	91	µg/Kg	1	100	<25.0	93	2	71 - 106	20
Toluene	96	94	µg/Kg	1	100	<25.0	96	2	75 - 115	20
Chlorobenzene	89	87	µg/Kg	1	100	<25.0	89	2	81 - 112	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Dibromofluoromethane	47.5	48.8	µg/Kg	1	50	95	97	88 - 112
Toluene-d8	49.8	49.6	µg/Kg	1	50	99	99	90 - 109
4-Bromofluorobenzene	49.9	49.2	µg/Kg	1	50	99	98	84 - 103

Laboratory Control Spikes

QCBatch: QC17149

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
Acenaphthene	[1] 86.23	93.12	mg/Kg	1	80	<0.25	107	7	47 - 145	20
Pyrene	40.98	88.91	mg/Kg	1	80	<0.25	51	73	52 - 115	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
Nitrobenzene-d5	97.15	97.21	mg/Kg	1	80	121	121	23 - 120
2-Fluorobiphenyl	95.65	93.83	mg/Kg	1	80	119	117	30 - 115
Terphenyl-d14	85.38	93.8	mg/Kg	1	80	106	117	28 - 137

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC16993

[1]Sample was ran with 8270 spikes, therefor not all of the PAH spikes are present. 8270 compounds show that process was still in control.

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		µg/Kg	100	96	96	80 - 120	12/21/01
1,1-Dichloroethene		µg/Kg	100	99	99	80 - 120	12/21/01
Chloroform		µg/Kg	100	93	93	80 - 120	12/21/01
1,2-Dichloropropane		µg/Kg	100	94	94	80 - 120	12/21/01
Toluene		µg/Kg	100	91	91	80 - 120	12/21/01
Chlorobenzene		µg/Kg	100	84	84	80 - 120	12/21/01
Ethylbenzene		µg/Kg	100	98	98	80 - 120	12/21/01
Dibromofluoromethane		µg/Kg	50	47.9	95	80 - 120	12/21/01
Toluene-d8		µg/Kg	50	49.3	98	80 - 120	12/21/01
4-Bromofluorobenzene		µg/Kg	50	48.0	96	80 - 120	12/21/01

CCV (1)

QCBatch: QC17149

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Naphthalene		mg/Kg	60	63.24	105	80 - 120	12/26/01
Acenaphthylene		mg/Kg	60	62.96	104	80 - 120	12/26/01
Acenaphthene		mg/Kg	60	65.85	109	80 - 120	12/26/01
Fluorene		mg/Kg	60	65.39	108	80 - 120	12/26/01
Phenanthrene		mg/Kg	60	59.15	98	80 - 120	12/26/01
Anthracene		mg/Kg	60	58.61	97	80 - 120	12/26/01
Fluoranthene		mg/Kg	60	68.58	114	80 - 120	12/26/01
Pyrene		mg/Kg	60	53.85	89	80 - 120	12/26/01
Benzo(a)anthracene		mg/Kg	60	58.33	97	80 - 120	12/26/01
Chrysene		mg/Kg	60	55.76	92	80 - 120	12/26/01
Benzo(b)fluoranthene		mg/Kg	60	69.16	115	80 - 120	12/26/01
Benzo(k)fluoranthene		mg/Kg	60	72.11	120	80 - 120	12/26/01
Benzo(a)pyrene		mg/Kg	60	71.32	118	80 - 120	12/26/01
Indeno(1,2,3-cd)pyrene		mg/Kg	60	71.02	118	80 - 120	12/26/01
Dibenzo(a,h)anthracene		mg/Kg	60	67.59	112	80 - 120	12/26/01
Benzo(g,h,i)perylene		mg/Kg	60	65.97	109	80 - 120	12/26/01
Nitrobenzene-d5		mg/Kg	60	55.79	92	80 - 120	12/26/01
2-Fluorobiphenyl		mg/Kg	60	51.14	85	80 - 120	12/26/01
Terphenyl-d14		mg/Kg	60	43.35	72	80 - 120	12/26/01

TRACEANALYSIS, INC.

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Analytical and Quality Control Report

Kyle Landreneau
Equilon Kyle Landreneau
PMB 284 40 FM 1960 West
Houston, TX 77090

Report Date: December 18, 2001

Order ID Number: A01121224

Project: ES-934
TA Job Code: BlM Historical 16 Pipeline Release
Casualty Code: ES-934
Project Location: Lea County, New Mexico
Enercon Services Inc. / Midland / Jeff Kindley

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
187003	SB-1 (3-5')	Soil	12/7/01	:	12/12/01
187004	SB-1 (13-15')	Soil	12/7/01	:	12/12/01
187005	SB-2 (3-5')	Soil	12/7/01	:	12/12/01
187006	SB-2 (13-15')	Soil	12/7/01	:	12/12/01
187007	SB-3 (8-10')	Soil	12/7/01	:	12/12/01
187008	SB-3 913-15')	Soil	12/7/01	:	12/12/01
187009	SB-4 (3-5')	Soil	12/7/01	:	12/12/01
187010	SB-4 (13-15')	Soil	12/7/01	:	12/12/01
187011	SB-5 (18-20')	Soil	12/7/01	:	12/12/01
187012	SB-5 (28-30')	Soil	12/7/01	:	12/12/01
187013	SB-6 (8-10')	Soil	12/7/01	:	12/12/01
187014	SB-6 (18-20')	Soil	12/7/01	:	12/12/01
187015	SB-7 (18-20')	Soil	12/7/01	:	12/12/01
187016	SB-7 (48-50')	Soil	12/7/01	:	12/12/01
187017	SB-8 (3-5')	Soil	12/7/01	:	12/12/01
187018	SB-8 (13-15')	Soil	12/7/01	:	12/12/01
187019	SB-9 (18-20')	Soil	12/7/01	:	12/12/01
187020	SB-9 (38-40')	Soil	12/7/01	:	12/12/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director

Analytical Report

Sample: 187003 - SB-1 (3-5')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		130	mg/Kg	1	150	87	70 - 130

Sample: 187003 - SB-1 (3-5')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		<1.00	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.18	mg/Kg	10	0.10	118	70 - 130
4-BFB	[1]	1.32	mg/Kg	10	0.10	132	70 - 130

Sample: 187004 - SB-1 (13-15')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		142	mg/Kg	1	150	95	70 - 130

Sample: 187004 - SB-1 (13-15')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		<1.00	mg/Kg	10	0.10

[1] High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.22	mg/Kg	10	0.10	122	70 - 130
4-BFB	[2]	1.34	mg/Kg	10	0.10	134	70 - 130

Sample: 187005 - SB-2 (3-5')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		132	mg/Kg	1	150	88	70 - 130

Sample: 187005 - SB-2 (3-5')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		<1.00	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.867	mg/Kg	10	0.10	87	70 - 130
4-BFB		0.968	mg/Kg	10	0.10	97	70 - 130

Sample: 187006 - SB-2 (13-15')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		144	mg/Kg	1	150	96	70 - 130

Sample: 187006 - SB-2 (13-15')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

[2]High surrogate recovery due to peak interference.

Param	Flag	Result	Units	Dilution	RDL
GRO		<1.00	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.749	mg/Kg	10	0.10	75	70 - 130
4-BFB		0.850	mg/Kg	10	0.10	85	70 - 130

Sample: 187007 - SB-3 (8-10')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		551	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		141	mg/Kg	1	150	94	70 - 130

Sample: 187007 - SB-3 (8-10')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		39.5	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.826	mg/Kg	10	0.10	83	70 - 130
4-BFB	[3]	5.30	mg/Kg	10	0.10	530	70 - 130

Sample: 187008 - SB-3 913-15')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		502	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		153	mg/Kg	1	150	102	70 - 130

[3]High surrogate recovery due to peak interference.

Sample: 187008 - SB-3 913-15')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		11.7	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.11	mg/Kg	10	0.10	111	70 - 130
4-BFB	[4]	2.23	mg/Kg	10	0.10	223	70 - 130

Sample: 187009 - SB-4 (3-5')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16627	Date Analyzed:	12/17/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14057	Date Prepared:	12/17/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		120	mg/Kg	1	150	80	70 - 130

Sample: 187009 - SB-4 (3-5')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		4.21	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.814	mg/Kg	10	0.10	81	70 - 130
4-BFB		0.802	mg/Kg	10	0.10	80	70 - 130

Sample: 187010 - SB-4 (13-15')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		128	mg/Kg	1	150	85	70 - 130

[4]High surrogate recovery due to peak interference.

Sample: 187010 - SB-4 (13-15')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		3	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.896	mg/Kg	10	0.10	90	70 - 130
4-BFB		1.05	mg/Kg	10	0.10	105	70 - 130

Sample: 187011 - SB-5 (18-20')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		917	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		155	mg/Kg	1	150	103	70 - 130

Sample: 187011 - SB-5 (18-20')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		379	mg/Kg	20	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[5]	6.34	mg/Kg	20	0.10	16	70 - 130
4-BFB	[6]	12.4	mg/Kg	20	0.10	348	70 - 130

Sample: 187012 - SB-5 (28-30')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16627	Date Analyzed:	12/17/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14057	Date Prepared:	12/17/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

[5] High surrogate recovery due to peak interference.
[6] High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		128	mg/Kg	1	150	85	70 - 130

Sample: 187012 - SB-5 (28-30')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		2.72	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.745	mg/Kg	10	0.10	74	70 - 130
4-BFB		0.859	mg/Kg	10	0.10	86	70 - 130

Sample: 187013 - SB-6 (8-10')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		1110	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		151	mg/Kg	1	150	101	70 - 130

Sample: 187013 - SB-6 (8-10')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		323	mg/Kg	20	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[7]	0.837	mg/Kg	20	0.10	42	70 - 130
4-BFB	[8]	14.6	mg/Kg	20	0.10	730	70 - 130

Sample: 187014 - SB-6 (18-20')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16627	Date Analyzed:	12/17/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14057	Date Prepared:	12/17/01

[7]High surrogate recovery due to peak interference.
[8]High surrogate recovery due to peak interference.

Param	Flag	Result	Units	Dilution	RDL
DRO		189	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		121	mg/Kg	1	150	81	70 - 130

Sample: 187014 - SB-6 (18-20')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		225	mg/Kg	20	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[9]	8.57	mg/Kg	20	0.10	429	70 - 130
4-BFB	[10]	217	mg/Kg	20	0.10	1085	70 - 130

Sample: 187015 - SB-7 (18-20')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		408	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		138	mg/Kg	1	150	92	70 - 130

Sample: 187015 - SB-7 (18-20')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		305	mg/Kg	20	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	[11]	8.19	mg/Kg	20	0.10	409	70 - 130
4-BFB	[12]	8.77	mg/Kg	20	0.10	438	70 - 130

[9] High surrogate recovery due to peak interference.
[10] High surrogate recovery due to peak interference.
[11] High surrogate recovery due to peak interference.
[12] High surrogate recovery due to peak interference.

Sample: 187016 - SB-7 (48-50')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16627	Date Analyzed:	12/17/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14057	Date Prepared:	12/17/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		117	mg/Kg	1	150	78	70 - 130

Sample: 187016 - SB-7 (48-50')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		7.74	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.752	mg/Kg	10	0.10	75	70 - 130
4-BFB		0.853	mg/Kg	10	0.10	85	70 - 130

Sample: 187017 - SB-8 (3-5')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		261	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		152	mg/Kg	1	150	101	70 - 130

Sample: 187017 - SB-8 (3-5')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		8.89	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.05	mg/Kg	10	0.10	105	70 - 130
4-BFB		1.10	mg/Kg	10	0.10	110	70 - 130

Sample: 187018 - SB-8 (13-15')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16627	Date Analyzed:	12/17/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14057	Date Prepared:	12/17/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		131	mg/Kg	1	150	87	70 - 130

Sample: 187018 - SB-8 (13-15')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		3.36	mg/Kg	10	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.774	mg/Kg	10	0.10	77	70 - 130
4-BFB		0.826	mg/Kg	10	0.10	83	70 - 130

Sample: 187019 - SB-9 (18-20')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16574	Date Analyzed:	12/13/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14017	Date Prepared:	12/11/01

Param	Flag	Result	Units	Dilution	RDL
DRO		1550	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		179	mg/Kg	1	150	119	70 - 130

Sample: 187019 - SB-9 (18-20')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		245	mg/Kg	20	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		2.54	mg/Kg	20	0.10	127	70 - 130
4-BFB	[13]	11.7	mg/Kg	20	0.10	585	70 - 130

[13] High surrogate recovery due to peak interference.

Sample: 187020 - SB-9 (38-40')

Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	QC Batch:	QC16627	Date Analyzed:	12/17/01
Analyst:	MM	Preparation Method:	3550 B	Prep Batch:	PB14057	Date Prepared:	12/17/01

Param	Flag	Result	Units	Dilution	RDL
DRO		<50.0	mg/Kg	1	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		125	mg/Kg	1	150	83	70 - 130

Sample: 187020 - SB-9 (38-40')

Analysis:	TPH GRO	Analytical Method:	8015B	QC Batch:	QC16550	Date Analyzed:	12/12/01
Analyst:	CG	Preparation Method:	5035	Prep Batch:	PB13998	Date Prepared:	12/12/01

Param	Flag	Result	Units	Dilution	RDL
GRO		3.92	mg/Kg	20	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		1.41	mg/Kg	20	0.10	70	70 - 130
4-BFB	[14]	0.941	mg/Kg	20	0.10	47	70 - 130

[14] Low surrogate recovery due to dilution.

Quality Control Report
Method Blank

Method Blank

QCBatch: QC16550

Param	Flag	Results	Units	Reporting Limit
GRO		<1.00	mg/Kg	0.10

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.916	mg/Kg	10	0.10	92	70 - 130
4-BFB		1.08	mg/Kg	10	0.10	108	70 - 130

Method Blank

QCBatch: QC16574

Param	Flag	Results	Units	Reporting Limit
DRO		<50.0	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		133	mg/Kg	1	150	88	70 - 130

Method Blank

QCBatch: QC16627

Param	Flag	Results	Units	Reporting Limit
DRO		<50.0	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		122	mg/Kg	1	150	81	70 - 130

Quality Control Report
Lab Control Spikes and Duplicate Spikes

Laboratory Control Spikes

QCBatch: QC16550

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
GRO	11.5	11.44	mg/Kg	10	1	<1.00	98	168	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	0.872	1.28	mg/Kg	10	0.10	87	128	70 - 130
4-BFB	0.901	1.06	mg/Kg	10	0.10	90	106	70 - 130

Laboratory Control Spikes

QCBatch: QC16574

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
DRO	243	268	mg/Kg	1	250	<50.0	97	10	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
n-Triacontane	125	134	mg/Kg	1	150	83	89	70 - 130

Laboratory Control Spikes

QCBatch: QC16627

Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
DRO	232	225	mg/Kg	1	250	<50.0	93	3	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
n-Triacontane	122	120	mg/Kg	1	150	81	80	70 - 130

Quality Control Report
Matrix Spikes and Duplicate Spikes

Matrix Spikes

QCBatch: QC16550

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
GRO	8.27	8.3	mg/Kg	10	1	<1.00	83	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
TFT	[15] 0.569	0.848	mg/Kg	10	0.10	57	85	70 - 130
4-BFB	0.797	0.966	mg/Kg	10	0.10	80	97	70 - 130

[15]Low surrogate recovery due to prep error. LCS/LCSD show the method to be in control.

Matrix Spikes

QCBatch: QC16574

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
DRO	255	227	mg/Kg	1	250	<50.0	102	12	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
n-Triacontane	124	118	mg/Kg	1	150	83	79	70 - 130

Matrix Spikes

QCBatch: QC16627

Param	MS Result	MSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
DRO	202	203	mg/Kg	1	250	<50.0	81	0	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
n-Triacontane	114	113	mg/Kg	1	150	76	75	70 - 130

Quality Control Report
Continuing Calibration Verification Standards

CCV (1)

QCBatch: QC16550

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1	1.13	113	75 - 125	12/12/01

CCV (2)

QCBatch: QC16550

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1	1.14	114	75 - 125	12/12/01

ICV (1)

QCBatch: QC16550

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1	0.947	94	75 - 125	12/12/01

CCV (1) QCBatch: QC16574

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	243	97	75 - 125	12/13/01
n-Octane		mg/Kg	150	128	85	75 - 125	12/13/01

CCV (2) QCBatch: QC16574

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	248	99	75 - 125	12/13/01
n-Octane		mg/Kg	150	132	88	75 - 125	12/13/01

CCV (3) QCBatch: QC16574

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	256	102	75 - 125	12/13/01
n-Octane		mg/Kg	150	135	90	75 - 125	12/13/01

ICV (1) QCBatch: QC16574

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	269	107	75 - 125	12/13/01
n-Octane		mg/Kg	150	127	85	75 - 125	12/13/01

CCV (1) QCBatch: QC16627

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	233	93	75 - 125	12/17/01
n-Octane		mg/Kg	250	124	49	75 - 125	12/17/01

ICV (1)

QCBatch: QC16627

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	224	90	75 - 125	12/17/01
n-Octane		mg/Kg	250	118	47	75 - 125	12/17/01

187003 - 187020

TraceAnalysis, Inc.

6701 Aberdeen Avenue, Ste. 9 Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

LAB Order ID # 40112122-1

Company Name: Enercon Services Inc
Phone #: 972-484-3854 915-570-8726
Fax #: 915-684-7587
Address: 306 West Wall, Suite 1312, Midland, Tx 79701
Contact Person: Jeffrey Kindley
Invoice to: (If different from above) Equiva Services Inc Attn: Kyle Landreneau
Project #: ES-934
Project Name: TNM Pipeline BLM Historical 16" Pipeline Release
Project Location: Lea County, New Mexico
Sampler Signature: Jeffrey Kindley

LAB # (LAB USE ONLY)	FIELD CODE		# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
187003	SB-1 (3-5')	*	1	4oz		✓					✓	✓	12/07/01	
04	SB-1 (13-15')	*	1	4oz		✓					✓	✓	12/07/01	
05	SB-2 (3-5')	*	1	4oz		✓					✓	✓	12/07/01	
06	SB-2 (13-15')	*	1	4oz		✓					✓	✓	12/07/01	
07	SB-3 (8-10')	*	1	4oz		✓					✓	✓	12/07/01	
08	SB-3 (13-15')	*	1	4oz		✓					✓	✓	12/07/01	
09	SB-4 (3-5')	*	1	4oz		✓					✓	✓	12/07/01	
10	SB-4 (13-15')	*	1	4oz		✓					✓	✓	12/07/01	
11	SB-5 (18-20')	*	1	4oz		✓					✓	✓	12/07/01	
12	SB-5 (28-30')	*	1	4oz		✓					✓	✓	12/07/01	

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8020/602	BTEX 8020/602	TPH 8015 modified (DRO/GRO)	PAH 8270	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624 1,2-DCA, EDB	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 8080/608	BOD, TSS, PH				Turn Around Time if different from standard	Hold
		✓							X								19	

K 12-

Relinquished by: Jeffrey Kindley Date: 12/11/01 Time: 0800
Received by: Helen Kelton Date: 12/11/01 Time: 0800

Relinquished by: Helen Kelton Date: 12/11/01 Time: 1830
Received by: Date: Time:

Relinquished by: Date: Time:
Received at Laboratory by: Date: Time:

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp 4°
Log-In Review MJ

REMARKS: NO SPLP on BL 12-17
* Any sample with TPH DRO/GRO > than 5000 ppm (combined) is to be analyzed for SPLP TPH
** Also highest TPH of 18 samples is to be analyzed for BTEX and VOC's.

Carrier # Greyhound GLI 163-546-723-1

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C. 10 samples - 1FS

TraceAnalysis, Inc.

6701 Aberdeen Avenue, Ste. 9 Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

LAB Order ID #: A0112124

Company Name: Enercon Services Inc
Phone #: 915-570-8726
Address: 306 West Wall, Suite 1312, Midland, TX 79701
Fax #: 915-684-7587
Contact Person: Jeffrey Kindley
Invoice to: (If different from above) Equiva Services Inc, Attn: Kyle Landreneau
Project #: ES-934
Project Name: TNM Pipeline BLM Historical 16" Pipeline Release
Project Location: Lea County, New Mexico
Sampler Signature: Jeffrey Kindley

LAB # (LAB USE ONLY)	FIELD CODE		# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
1812013	SB-6	(8-10') *	1	4oz		✓					✓	✓	12/07/01	
14	SB-6	(18-20') *	1	4oz		✓					✓	✓	12/07/01	
15	SB-7	(18-20') *	1	4oz		✓					✓	✓	12/07/01	
16	SB-7	(48-50') *	1	4oz		✓					✓	✓	12/07/01	
17	SB-8	(3-5') *	1	4oz		✓					✓	✓	12/07/01	
18	SB-8	(13-15') *	1	4oz		✓					✓	✓	12/07/01	
19	SB-9	(18-20') *	1	4oz		✓					✓	✓	12/07/01	
20	SB-9	(38-40') *	1	4oz		✓					✓	✓	12/07/01	

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8020/602	BTEX 8020/602	TPH 8015 Modified (DRO/GRO)	PAH 8270 1812013 pm 12-12	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 8080/608	BOD, TSS, PH					Turn Around Time if different from standard	Hold
		✓																	
		✓																	
		✓																	
		✓																	
		✓																	
		✓																	
		✓																	
		✓	X																

Relinquished by: Jeffrey Kindley Date: 12/11/01 Time: 0800
Received by: Helen Shelton Date: 12/11/01 Time: 0800
Relinquished by: Helen Shelton Date: 12/11/01 Time: 1830
Received by: Date: Time:
Relinquished by: Date: Time:
Received at Laboratory by: Date: Time:

LAB USE ONLY
Intact Y / N
Headspace Y / N
Temp
Log-In Review

REMARKS:
* Any sample with TPH DRO/GRO > than 5000 ppm (combined) is to be analyzed for SPLP TPH
** Also highest TPH of 18 samples, to be analyzed for PAH and VOCs

Carrier # Greyhound

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C. 8 samples-HTS

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
DISTRICT I HOBBS
PO BOX 1980, Hobbs, NM 88241
(505) 393-6161
FAX (505) 393-0720

Jennifer A. Salisbury
CABINET SECRETARY

December 19, 1997

Mr. Edwin H. Gripp
Texas-New Mexico Pipe Line Company
P.O. Box 60028
San Angelo, Tx 76906

Re: Subsurface Investigation
Texas-New Mexico Pipe Line Company
16" Historical Release
Lea County, New Mexico
KEI Job No. 610100

Dear Mr. Gripp:

New Mexico Oil Conservation Division (NMOCD) Environmental Bureau in Santa Fe, NM has delegated the regulatory oversight for the above referenced site back to the NMOCD Disrtict I office in Hobbs, NM. The primary reason for this is the work load of the Environmental Bureau and the fact that groundwater has not been impacted.

As of this date the NMOCD is in receipt of KEI's July 23, 1997 report. Please provide to the NMOCD District I office the latest findings of the additional investigation and a proposed work plan with time schedule for the remediation and restoration of the site.

Please provide this information within 30 days of receipt of this letter.

If you require any further information or assistance please do not hesitate to call (505-393-6161) or write this office.

Sincerely Yours,

Wayne Price-Environmental Engineer

cc: Chris Williams-NMOCD District I Supervisor
Bill Olson-Environmental Bureau, Santa Fe, NM
Gary Bowers-BLM Carlsbad, NM Office

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 0950	Date 10/23/97

Originating Party	Other Parties
Bill Olson - Environmental Bureau	Wayne Price - OCD Hobbs

Subject

Tex-Mex 16" Historical Spill

Discussion

Conclusions or Agreements

Referred to District since no GW contamination
District will do all future spills, except those with GW
GW cases will be referred to Santa Fe

Distribution

Signed Bill Olson

TEXAS-NEW MEXICO PIPE LINE COMPANY

EDWIN H. GRIPP
DISTRICT MANAGER

P.O. BOX 60028
SAN ANGELO, TX 76906
915/949-7019
915/944-2721 FAX

August 15, 1997

William C. Olson
State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Wayne Price
State of New Mexico
Oil Conservation Division
726 East Michigan, Suite 165
Hobbs, NM 88240

Bobbe K. Young
U.S. Department of the Interior
Bureau of Land Management
620 East Greene
Carlsbad, NM 88220

RE: **ENV-SUBSURFACE INVESTIGATION**
16" HISTORICAL RELEASE
KEI JOB NO. 610100

Enclosed is the Subsurface Investigation Report for the 16" Historical Release located in Lea County, New Mexico.

Sincerely,

EHG-AER
Enc.

JAS w/o enc.