CLOSURE REPORT

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TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-98-04
LOT 15, SECTION 6, TOWNSHIP 16 SOUTH, RANGE 36 EAST
LEA COUNTY, NEW MEXICO

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LOT 15, SECTION 6, TOWNSHIP 16 SOUTH, RANGE 36 EAST
LEA COUNTY, NEW MEXICO

PREPARED FOR:

TEXAS - NEW MEXICO PIPE LINE COMPANY
P. O. Box 1030
Jal, New Mexico 88252

Mr. Tony Savoie

PREPARED BY:

KEI

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Theresa Nix
Project Manager

Michael J. Lewis, P.E.

KEI Job No. 810059-1-0

April 1, 1999

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PURPOSE AND SCOPE

The objective of the reported site closure activities is to obtain closure for site TNM-98-04 based on New Mexico Oil Conservation Division (OCD) regulations. The following activities were performed to achieve this objective:

- determination of site specific closure standards
- removal of impacted soil
- characterization of removed impacted soil
- confirmation sampling in excavation
- off-site landfarming of impacted soil

SITE LOCATION AND BACKGROUND

The Texas - New Mexico Pipe Line Company (TNMPL) release site TNM-98-04 is located approximately 2.5 miles west of Lovington, Lea County, New Mexico in Lot 15, Section 6, Township 16 South, Range 36 East (latitude 32° 57' 15" N, longitude 103° 23' 36" W) . A site location map is presented as FIG. 1. The site is located on property owned by Mr. Dan Field. Site details are presented on FIG. 2.

The release was discovered and reported to the New Mexico OCD on January 31, 1998. According to TNMPL estimates, approximately 30 barrels were released from a 4-inch crude oil pipeline due to external corrosion, and approximately 25 barrels were recovered during initial abatement activities. Apparent hydrocarbon impact to soils was identified at the subject site and the leak was excavated and repaired at the time of discovery. Affected soils were excavated and placed on plastic pending transport to the landfarm facility.

CLOSURE ACTIVITIES

WATER WELL SURVEY

A survey of registered water wells was conducted for the area within a 1 mile radius of the site. According to water well information provided by the New Mexico Office of the State Engineer (OSE), 123 registered water wells are possibly located within a 1 mile radius of the site. The most recent water level reported for this section was taken in 1986 at well number 112414, which is within 1 mile of the site. This well had a measured depth to water of approximately 55 feet below ground surface and a total well depth of 102 feet. Water well information provided by OSE is presented as APPENDIX A.

CLOSURE STANDARDS

The New Mexico OCD Guidelines for Remediation of Leaks, Spills, and Releases contains standard criteria for remediation activities. A ranking analysis for the site was performed to determine appropriate soil remediation levels. The ranking analysis is as follows:

Depth to Ground Water	Greater than 50 Feet	10 Points
Well Head Protection	Greater Than 1000 Feet to Water Source Greater Than 200 Feet to Private Water Source	0 Points
Surface Water Body	Greater Than 1000 Feet	0 Points
	Total Ranking Score	**10 Points**

Based on the total ranking score, the closure objectives for this site for concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX), and total petroleum hydrocarbons (TPH) are summarized below.

CONSTITUENT	CLOSURE CONCENTRATIONS (mg/kg)
BENZENE	10
BTEX	50
TPH	1000 + Background Concentration

SOIL INVESTIGATION

During the subsurface investigation, 1 soil boring (designated SB-1) was installed utilizing air rotary drilling. Soil samples were collected at selected intervals from the ground surface to the bottom of the boring. The soils were classified in the field, soil samples were field screened, and selected samples were prepared and shipped to the laboratory for analysis.

SOIL DESCRIPTION

The subsurface soil profile was classified in general accordance with the Unified Soil Classification System by visually observing the soil samples obtained during the investigation. In general, 3 soil types were encountered. A general description, approximate thickness, and head-space sample results for each soil type are as follows:

Soil Type I

This soil type was encountered at the ground surface and consisted of dark brown clay. The clay was medium stiff and very moist. The observed thickness of this soil type was approximately 6 inches. Samples of this soil type were not collected.

Soil Type II

This soil type consisted of tan sand and was encountered below Soil Type I. The sand was fine to medium grained, slightly clayey with depth, very calcareous, loose, and moist. The observed thickness of this soil type was approximately 9 feet. Head-space readings from samples of this soil type ranged from not detected (ND) to 138 ppm.

Soil Type III

This soil type consisted of light pink sandstone and was encountered below Soil Type II. The sandstone was fine to medium grained, hard, and dry. The observed thickness of this soil type was approximately 6 inches to the bottom of the boring. Head-space readings from the sample of this soil type were ND.

The boring log indicating the subsurface soil profile, depths at which soil samples were obtained, head-space results, laboratory results, and generalized geologic profile is presented on FIG. 3.

SOIL SAMPLING AND ANALYTICAL RESULTS

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

- the sample collected from 0 to 2 feet below ground surface (highest PID reading)
- the sample collected from the bottom of the soil boring

Soil samples selected for analytical testing consisted of the following:

- two soil samples from the soil boring were tested for benzene, toluene, ethylbenzene, and xylenes (BTEX), and total petroleum hydrocarbons diesel range organics (TPH-DRO)
- the soil sample exhibiting the highest concentration of TPH was also tested for synthetic precipitate leaching procedure (SPLP) volatile organic compounds (VOC), SPLP semi volatile organic compounds (SVOC), and SPLP TPH
- laboratory results for the selected soil samples indicated the following concentration ranges:

CONSTITUENT	CONCENTRATION RANGE
BENZENE	ND to 0.780 mg/kg
BTEX	ND to 14.050 mg/kg
TPH	52.6 to 516 ppm
SPLP SVOC	ND
SPLP VOC	ND to 0.005 mg/l
SPLP TPH	ND

SOIL EXCAVATION, CHARACTERIZATION, LANDFARMING, AND BACKFILLING

Hydrocarbon impact to soil was visually determined on site. Impacted soil was excavated and stockpiled on plastic. Stockpile soil samples were collected and submitted for analysis. The measurements of the excavation and soils removed are summarized below:

APPROXIMATE MEASUREMENTS	VALUE
Length	180 to 200 feet
Width	20 to 25 feet
Area	4,500 square feet
Depth	3 to 4 feet
Volume Landfarmed	382 cubic yards
Approximate Depth to Water (based on well records within a 1 mile radius of the site)	55 feet

Soils from the Initial Stockpile and Stockpiles SP-1 through SP-4 were hauled to C&C Landfarm in New Mexico on January 12, 1999. Disposal documentation is included in APPENDIX D. Analytical results from composite samples of the stockpile indicated the following concentration ranges:

CONSTITUENT	CONCENTRATION RANGE (mg/kg)
BENZENE	ND
BTEX	3.318
TPH	712 to 4,730

During investigations performed by KEI, composite soil samples from the sides and bottom of the excavated area were submitted for determination of BTEX and TPH concentrations. For sampling purposes, the excavated area was divided into 4 sections: Section A, Section B, Section C, and Section D. Two trenches were installed adjacent to the pipeline to determine the approximate lateral and vertical extent of the hydrocarbon impact in proximity to the pipeline. Soil samples were collected and submitted for determination of TPH concentrations. KEI began excavation at the site on December 15, 1998. Excavation samples collected on December 16, 1998, revealed TPH concentrations above closure limits. Additional excavation and sampling activities were conducted on December 22, 23, and 28, 1998. Final concentration ranges representing soil remaining in the excavation are summarized below:

CONSTITUENT	SECTION A (mg/kg)	SECTION B (mg/kg)	SECTION C (mg/kg)	SECTION D (mg/kg)	TRENCH 1 (mg/kg)	TRENCH 2 (mg/kg)
BENZENE	0.283	ND	ND	ND	---	---
BTEX	8.196	1.567	ND	3.474	---	---
TPH	ND to 565	ND to 337	67	337	ND to 200	ND

Approximately 168 cubic yards of caliche and 96 cubic yards of top soil were used to backfill the excavation. Samples of backfill materials were analyzed for BTEX and TPH concentrations. Laboratory results were ND for all constituents. The project site was graded and closure activities completed on January 8, 1999.

Soil analytical results are summarized in TABLE I. The laboratory reports and chain-of-custody documentation are provided in APPENDIX B. Sampling locations at the subject site are shown on FIG. 2.

CLOSURE SUMMARY

The following can be summarized from field and laboratory data:

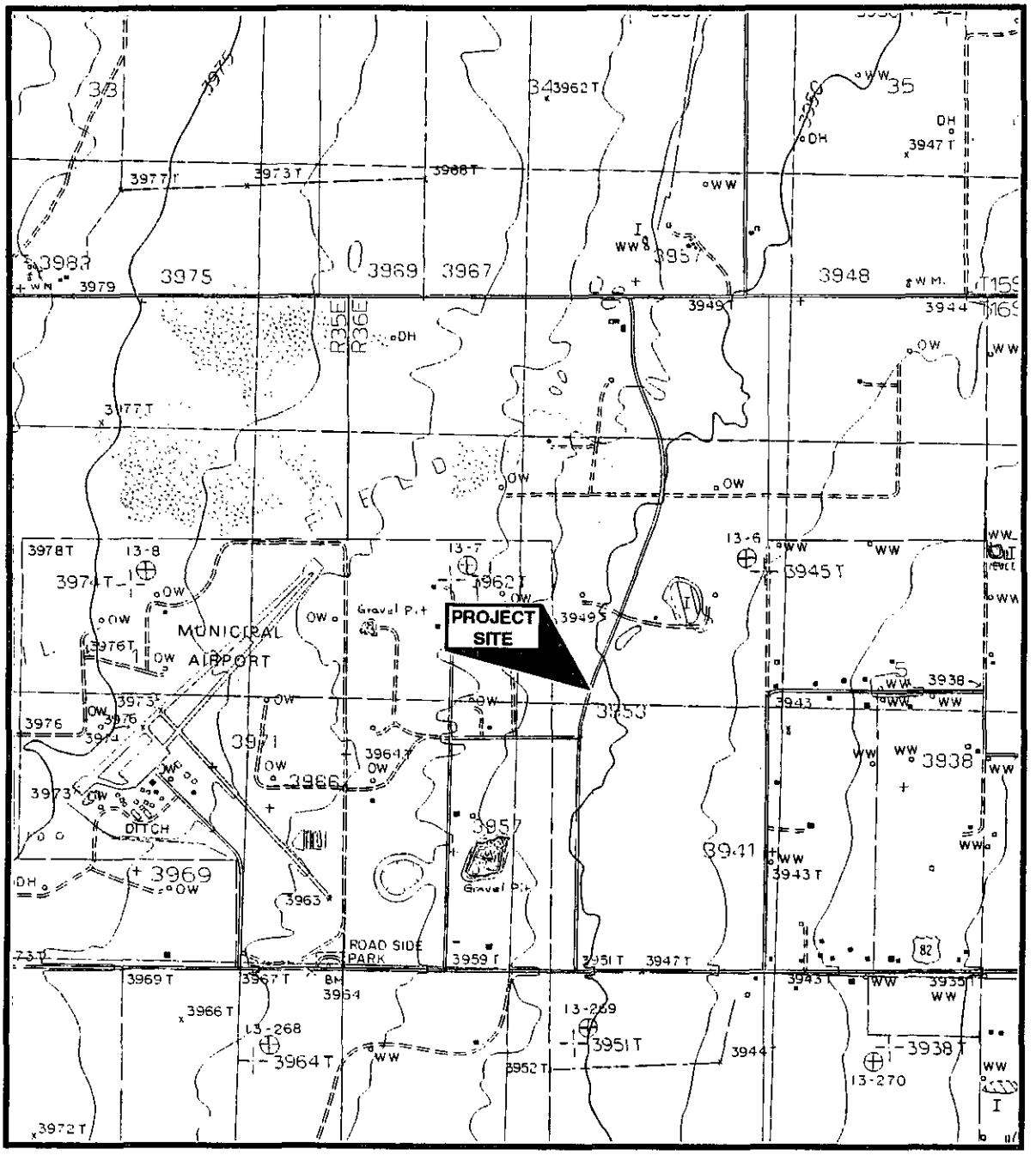
- site specific closure criteria were determined using OCD regulations
- a soil investigation was conducted to evaluate site conditions and estimate required soil excavation area
- previously impacted soil was excavated, stockpiled, and landfarmed off-site
- samples obtained from the excavated area of the site indicated BTEX and TPH concentrations below OCD site specific closure standards

Based on activities completed at the site and analytical results from selected soil samples, we request the site be closed under OCD regulations.

LOVINGTON QUADRANGLE

NEW MEXICO - LEA CO.

PRINTED 1985



SCALE 1:24000

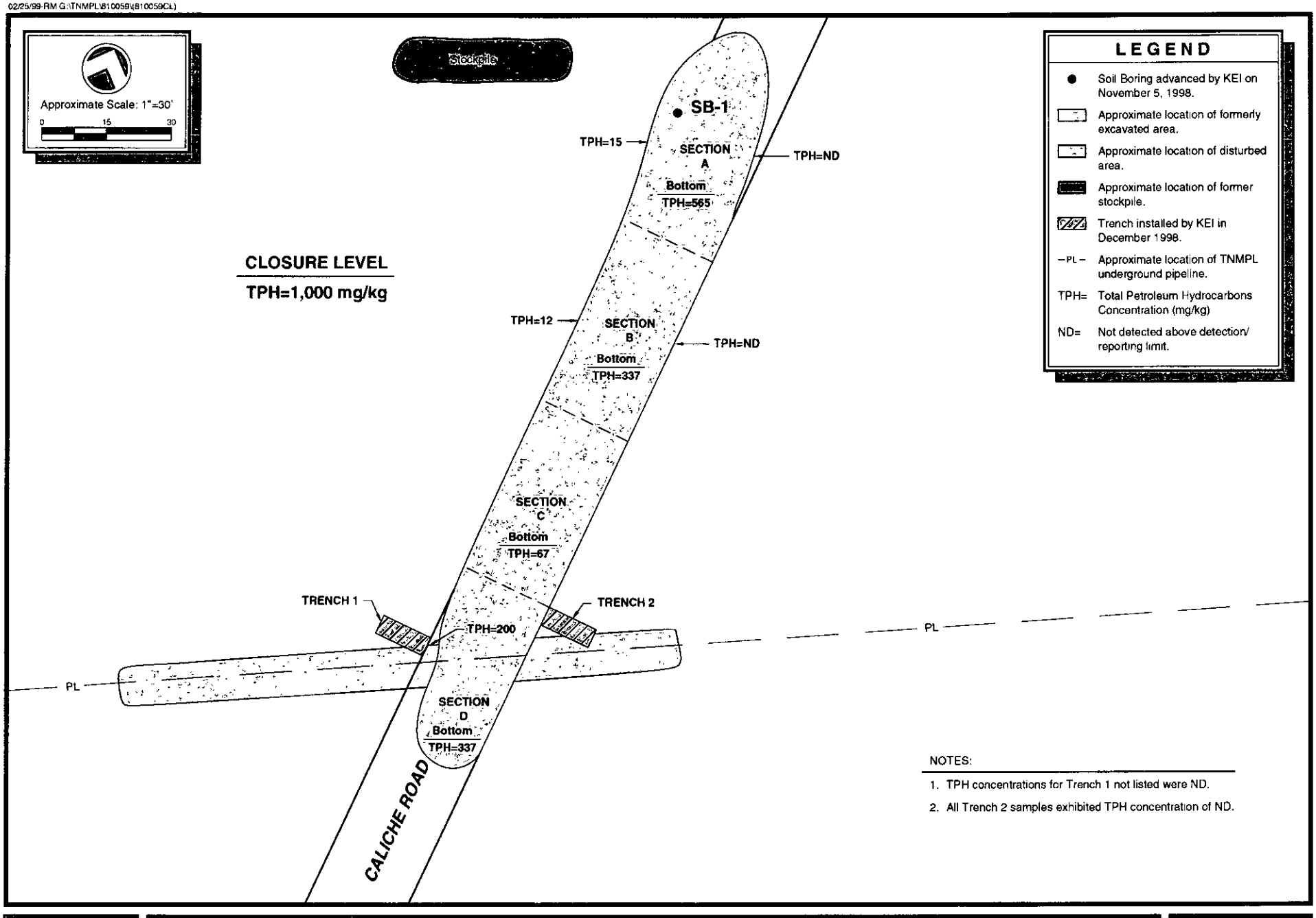
1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET

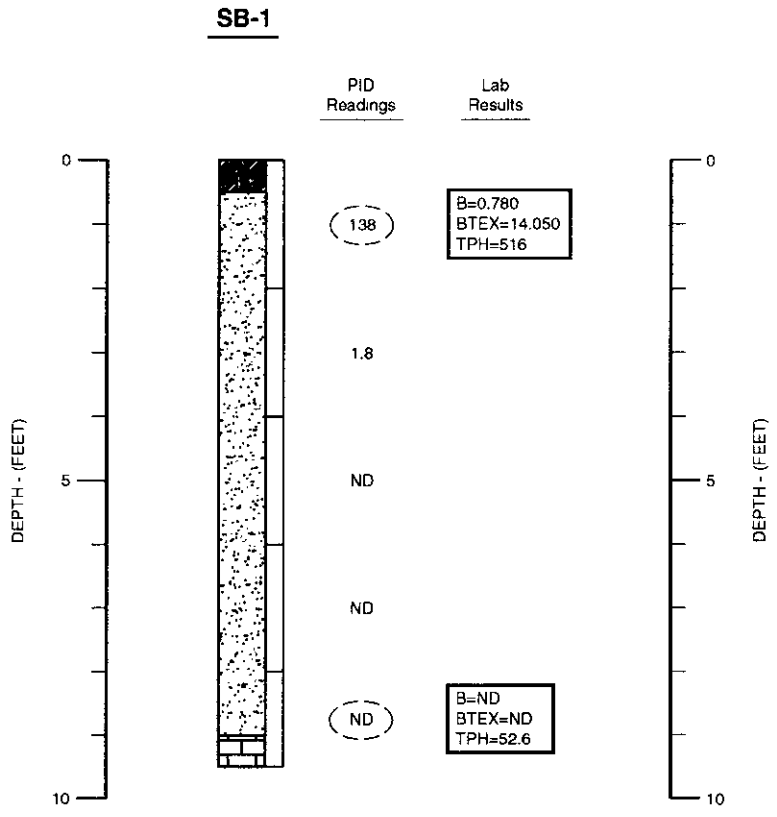
k·e·i	*SITE LOCATION MAP*	810059-1-0
	TEXAS-NEW MEXICO PIPE LINE CO. TNM-98-04 LEA COUNTY, NEW MEXICO	FIG 1



NOTES:

1. TPH concentrations for Trench 1 not listed were ND.
2. All Trench 2 samples exhibited TPH concentration of ND.

k·e·i	*SITE DETAILS*	810059-1-0
	TEXAS - NEW MEXICO PIPE LINE CO. TNM-98-04 LEA COUNTY, NEW MEXICO	FIG 2



LEGEND

Clay (CL), medium stiff, dark brown, very moist.

Sand (SM), fine to medium grained, slightly clayey with depth, very calcareous, loose, tan, moist.

Sandstone, fine to medium grained, hard, light pink, dry.

Indicates the depth interval from which a soil sample was selected and prepared for field head-space and/or laboratory analysis. The soil samples were obtained using a split-spoon sampler.

Indicates sample selected for laboratory analysis.

B = Benzene Concentration (mg/kg)
BTEX = Total BTEX Concentration (mg/kg)
TPH = Total Petroleum Hydrocarbon Concentration (mg/kg)

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

ND = Indicates the concentration was below laboratory detection limits.

NOTES:

1. The soil boring was advanced utilizing an air rotary rig on November 5, 1998.
2. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
3. The depths indicated are referenced from the ground surface.
4. The soil boring was grouted to the ground surface with a cement and bentonite grout.

k·e·i

LOG AND DETAILS OF SOIL BORING SB-1

TEXAS - NEW MEXICO PIPE LINE CO. TNM-98-04 LEA COUNTY, NEW MEXICO

810059-1-0

FIG 3

GENERAL NOTES

--- - Indicates constituent was not analyzed.

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

Method reporting/detection limits:

TPH	- 10.0 to 400 mg/kg
BTEX	- 0.050 to 0.100 mg/kg
SPLP SVOC	- 0.005 to 0.013 mg/l
SPLP VOC	- 0.005 to 0.010 mg/l
SPLP TPH	- 1.3 ppm

Laboratory test methods:

BTEX	- EPA Method SW846-8020
TPH	- Modified EPA Method 8015 Diesel Range Organics
SPLP SVOC	- EPA Method 1312/8270
SPLP VOC	- EPA Method 1312/8260
SPLP TPH	- EPA Method 1312/418.1

TABLE I

SUMMARY OF SOIL RESULTS - BTEX AND TPH
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-98-04
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	DEPTH (feet)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	TPH (mg/kg)
SB-1	11/5/98	0 - 2	0.780	3.320	1.250	8.700	14.050	516
SB-1	11/5/98	8 - 9.5	ND	ND	ND	ND	ND	52.6
Section A	12/16/98	Excavation Surface	0.283	0.298	0.800	6.815	8.196	1,670
Section B	12/16/98	Excavation Surface	ND	0.071	0.268	1.228	1.567	2,090
Section C	12/16/98	Excavation Surface	ND	ND	ND	ND	ND	133
Section D	12/16/98	Excavation Surface	ND	ND	0.354	3.120	3.474	6,440
Initial Stockpile	12/16/98	Surface	ND	0.244	0.434	2.640	3.318	4,730
Section A Bottom	12/28/98	4	---	---	---	---	---	565
Section A E. Wall	12/28/98	Composite	---	---	---	---	---	ND
Section A W. Wall	12/28/98	Composite	---	---	---	---	---	15
Section B Bottom	12/28/98	3	---	---	---	---	---	337
Section B E. Wall	12/28/98	Composite	---	---	---	---	---	ND
Section B W. Wall	12/28/98	Composite	---	---	---	---	---	12
Section C Bottom	12/28/98	3 - 4	---	---	---	---	---	67
Section D Bottom	12/28/98	3 - 4	---	---	---	---	---	337
T-1 N. Wall	12/28/98	Composite	---	---	---	---	---	ND
T-1 S. Wall	12/28/98	Composite	---	---	---	---	---	ND
T-1 E. Wall	12/28/98	Composite	---	---	---	---	---	200
T-1 W. Wall	12/28/98	Composite	---	---	---	---	---	ND

TABLE I

SUMMARY OF SOIL RESULTS - BTEX AND TPH
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-98-04
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	DEPTH (feet)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	TPH (mg/kg)
T-1 Bottom	12/28/98	2	---	---	---	---	---	ND
T-2 N. Wall	12/28/98	Composite	---	---	---	---	---	ND
T-2 S. Wall	12/28/98	Composite	---	---	---	---	---	ND
T-2 E. Wall	12/28/98	Composite	---	---	---	---	---	ND
T-2 W. Wall	12/28/98	Composite	---	---	---	---	---	ND
T-2 Bottom	12/28/98	2	---	---	---	---	---	ND
SP-1	12/28/98	Composite	---	---	---	---	---	2,637
SP-2	12/28/98	Composite	---	---	---	---	---	1,245
SP-3	12/28/98	Composite	---	---	---	---	---	712
SP-4	12/28/98	Composite	---	---	---	---	---	929
*Bottom	1/5/99	3	ND	ND	ND	ND	ND	ND
*North Wall	1/5/99	Composite	ND	ND	ND	ND	ND	ND
*South Wall	1/5/99	Composite	ND	ND	ND	ND	ND	ND
*East Wall	1/5/99	Composite	ND	ND	ND	ND	ND	ND
*West Wall	1/5/99	Composite	ND	ND	ND	ND	ND	ND

NOTES:

1. T = Trench
2. SP = Stockpile
3. *Backfill material - samples were collected and analyzed from the source area prior to closure.
4. The samples collected on 12/16/98 were obtained from the excavation surface (approximately 1 - 2 feet below ground surface.)

Well No.		Subdivision	Section-Twnshp-Range
-3212	Dom	SW¼ NE¼ SE¼	5-16S-36E.
-3385	Dom	NW¼ SW¼ SW¼	5-16S-36E.
-3700	Dom	SW¼ Lot 16	5-16S-36E.
-2465	D&S	SW¼ SW¼	5-16S. 36E.
-97	Irr	NW¼ SW¼	5-16S.-36E
-4659	Dom	SW¼ SW¼ SE¼	5-16S-36E
-5798	Irr	SW Pt. Lot 14	5-16S-36E
-5835	Dom	SW¼ SE¼ SE¼	5-16S-36E
-7430	Dom	NW¼ SW¼	5-16S-36E
-8665	Dom&Stk	NW¼ NE¼	5-16S-36E.
-8715	Dom	NW¼ NW¼ NE¼	5-16S-36E.
-8852	Dom	SW¼ SW¼	5-16S-36E.
-8926	Dom	NW¼ SW¼ NE¼	5-16S-36E.
-9262	Dom	NW¼ NW¼ SW¼	5-16S-36E.
-9316	Dom	NW¼ SW¼ SW¼	5-16S-36E
-9354	Dom	SW¼ NW¼	5-16S-36E.
-9387	Dom.	NW¼ NE¼	5-16S-36E.
-9532	OWD	SW¼ NW¼ NW¼	5-16S-36E.
-9579	OWD	SW¼ NW¼ SW¼	5-16S-36E.
-6969	Dom.	NW¼ SW¼	5-16S-36E
-7182	Dom	W½ of SE¼ SE¼ SE¼ SW¼	5-16S-36E
-7500	Stk.	SW¼ NE¼ NW¼ SE¼	5-16S-36E
-7632	Dom	NW¼ NW¼ NW¼ SE¼	5-16S-36E.
-7709	Dom.	NW¼ SE¼	5-16S-36E.
-7832	Dom.	NW¼ of Lot 14	5-16S-36E.
-7993	Dom	W½ of Lot 15	5-16S-36E.
-8478	Dom.	NW¼ NW¼ NW¼	5-16S-36E
-3104	OWD	NW¼ Lot 4	6-16S-36E
-3549	Dom.	NE¼ SE¼ NW¼	6-16S-36E.
-3697	OWD	Lot 9	6-16S-36E
-3773	OWD	Lot 14	6-16S-36E
-3797	Dom	Lot 1	6-16S-36E
-3862	OWD		6-16S-36E

Well No.		Subdivision	Section - Twnshp - Range
- 6243	Stk.	SE¼ NW¼ NE¼	31 - 15S - 36E.
- 6554	Dom	SE¼ SE¼ SE¼	31 - 15S - 36E
- 6841	Dom	SW¼ S¼	31 - 15S - 36E.
- 6924	Drinking & Sanit Pur	SE¼ SE¼ SE¼	31 - 15S - 36E
- 8276	Dom & Stk	SE¼ SE¼	31 - 15S - 36E
- 8480	Dom & Stk	SE¼ NW¼ SW¼	31 - 15S - 36E.
~~-6842~~	~~Dom~~	~~SE¼~~	~~31 - 15S - 36E~~
~~-7301~~	~~Stk.~~	~~SE¼ SE¼~~	~~31 - 15S - 36E~~
- 3164	OWD	SW¼ Lot 13	1 - 16S - 35E
- 3214	OWD	SE¼ SW¼	1 - 16S - 35E
- 3309	OWD	SE Corner Lot 14	1 - 16S - 35E.
- 10,272	OWD	SE¼ NE¼ NW¼	1 - 16S - 35E
10,594	OWD	SW¼ SW¼ NW¼	1 - 16S - 35E.
- 5573	Dom	N½ SE¼	1 - 16S - 35E.
- 6508	Dom	N½ SE¼	1 - 16S - 35E.
- 153 - Enlgds	Irr	NE¼ NE¼ SE¼	12 - 16S - 35E.
- 10,801	OWD	NE¼ NE¼ SE¼	12 16S - 35E.
- 2910	Dom	SW¼ SW¼ SW¼	5 - 16S - 36E.
- 53	Irr	SW¼ NW¼ SE¼	5 - 16S - 36E
- 53 - A	Irr	NW¼ NW¼ SE¼	5 - 16S - 36E
- 54	Irr	NW¼ Lot 14	5 - 16S - 36E
- 55	Irr	NW¼ Lot 10	5 - 16S - 36E
- 57	Irr	NW¼ NE¼ SW¼	5 - 16S - 36E.
- 57 - S	Irr	NW¼ NE¼ SW¼	5 - 16S - 36E.
- 97	Irr	NW¼ SW¼	5 - 16S - 36E.
- 97 - A	Irr	W½ SW¼ SW¼	5 - 16S - 36E.
- 141	Irr	NW¼ S½ Lot 6	5 - 16S - 36E
- 240	Irr	NW¼ SE¼	5 - 16S - 36E
- 240 - S	Irr	SW¼ NE¼ SE¼	5 - 16S - 36E
- 967	Irr	SW¼ SW¼ SW¼	5 - 16S - 36E.

Well No.		Subdivision	Section - Twnshp - Range
-10,670	Dom.	SE¼ NE¼	36 - 15S - 35E
-10,843	Dom	SE¼ NE¼	36 - 15S - 35E
-3582	Dom.	SE¼ SW¼ SE¼	31 - 15S 36E.
-2608	Dom.	SE¼ Lot 3	31 - 15S 36E.
-3069	Dom.	SE¼ SW¼ Lot 3	31 - 15S 36E.
-3070	Dom.	SW¼ Lot 4	31 - 15S 36E.
-1152	Dom.	SE¼ SW¼ SE¼	31 - 15S 36E.
-3154	Dom	SW¼ SE¼ SE¼	31 - 15S 36E.
-1601	Dom.	SE¼ Corner Lot 3	31 15S 36E.
-3328	Dom	SE¼ Lot 3	31 15S 36E
-3446	Dom	SW¼ Lot 3	31 15S 36E.
-3491	Dom.	SE¼ SW¼ S¼	31 15S 36E
-3242	Dom.	SE¼ Lot 3	31 15S. 36E
-3250	Dom	SE¼ SW¼ SE¼	31 15S 36E
-3256	Dom	SE¼ SE¼ SE¼	31 15S. 36E
-633	~~IRR~~	SW¼ NE¼ SE¼	31 15S 36E
-1095	Dom	SW¼ Lot 4	31 15S 36E
-1416	Dom	SE¼ Corner Lot 4	31 15S 36E.
-2544	Dom	SW¼ Lot 3	31 15S 36E
-2624	Dom	SW¼ SE¼ SE¼	31 15S 36E
-2505	Dom	SW¼ Lot 3	31 15S 36E
-3848	Dom	SE¼	31 15S 36E
-3883	Dom	SE¼	31 15S 36E.
-3917	Dom	S½ S½ Lot 4	31 15S 36E.
-4248	Dom	SW¼ Lot 1	31 15S 36E.
-4286	Dom	SE¼ Lot 3	31 15S 36E
-4608	Dom.	SE¼ Lot 3	31 15S 36E.
-4761	Dom	SE¼ Lot 3	31 15S 36E.
-4908	Dom	SW¼ Lot 3	31 15S 36E.
-5223	Dom	S½ Lot 1	31 15S 36E.
-5658	Dom	SW¼	31 15S 36E
-5831	Dom	SW¼ SW¼ SE¼	31 15S 36E

ANALYTICAL REPORT 1-84320

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: TNM-98-04

Project Id: 810059-1-0

December 8, 1998

11381 Meadowglen Lane Suite L * Houston, Texas 77082-2647
Phone (281) 589-0692 Fax (281) 589-0695

XENCO Laboratories

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Houston - Dallas - San Antonio - Latin America

December 8, 1998

Project Manager: Theresa Nix
K.E.I. Consultants, Inc.
5309 Wurzbach Rd. Suite 100
San Antonio, TX 78238

Reference: **XENCO Report No.: 1-84320**
Project Name: TNM-98-04
Project ID: 810059-1-0
Project Address: Lea County, NM.

Dear Theresa Nix:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with XENCO Chain of Custody Number 1-84320. All results being reported to you apply only to the samples analyzed, properly identified with a Laboratory ID number. This letter documents the official transmission of the contents of the report and validates the information contained within.

All the results for the quality control samples passed thorough examination. Also, all parameters for data reduction and validation checked satisfactorily. In view of this, we are able to release the analytical data for this report within acceptance criteria for accuracy, precision, completeness or properly flagged.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 3 years in our archives and after that time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 1-84320 will be filed for 60 days, and after that time they will be properly disposed of without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

XENCO operates under the A2LA guidelines. Our Quality System meets ISO/IEC Guide 25 requirements which is strictly implemented and enforced through our standard QA/QC procedures.

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Sincerely,

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810059-1-0
Project Manager: Theresa Nix
Project Location: Lea County, NM.

Project Name: TNM-98-04

XENCO COC#: 1-84320
Date Received in Lab: Nov 9, 1998 09:55 by JO
XENCO contact : Carlos Castro/Karen Olson

	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	SB-1	184320-001	BTEX	SW-846	ppm	10 days	Nov 5, 1998 13:45		Nov 12, 1998 by HL	Nov 12, 1998 18:35 by HL
2			TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Nov 5, 1998 13:45		Nov 16, 1998 by JM	Nov 19, 1998 12:30 by LC
3			VOA (8260)	EPA1312/8260	mg/kg	24 hours	Nov 5, 1998 13:45	Dec 1,1998 11:00	Dec 1, 1998 by CCE	Dec 1, 1998 16:28 by CCE
4			SPLP TPH	EPA	ppm	24 hours	Nov 5, 1998 13:45	Dec 1,1998 11:00	Dec 1, 1998 by EZ	Dec 1, 1998 16:40 by EZ
5			SPLP-SV(TCL)	SW846-1312/82	ug/L	24 hours	Nov 5, 1998 13:45	Dec 1,1998 11:00	Dec 1, 1998 by SS	Dec 3, 1998 02:11 by MM
6		184320-002	BTEX	SW-846	ppm	10 days	Nov 5, 1998 14:15		Nov 12, 1998 by HL	Nov 12, 1998 18:53 by HL
7			TPH8015M-D	SW-846 8015 M	mg/kg	10 days	Nov 5, 1998 14:15		Nov 16, 1998 by JM	Nov 19, 1998 12:50 by LC

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-84320

K.E.I. Consultants, Inc.

Project Name: TNM-98-04

Project ID: 810059-1-0
Project Manager: Theresa Nix
Project Location: Lea County, NM.

Date Received in Lab : Nov 9, 1998 09:55
Date Report Faxed: Dec 8, 1998
XENCO contact : Carlos Castro/Karen Olson

Analysis Requested	*Lab ID:*	184320 001	184320 002		
	Field ID:	SB-1	SB-1		
	Depth:	0-2'	8-9.5'		
	Matrix:	Solid	Solid		
	Sampled:	11/05/98 13:45	11/05/98 14:15		
TPH-DRO (Diesel) **EPA 8015 M**	*Analyzed:*	11/19/98	11/19/98		
	Units:	mg/kg R.L.	mg/kg R.L.		
Total Petroleum Hydrocarbons		516 (10.0)	52.6 (10.0)		
BTEX **EPA 8021B**	*Analyzed:*	11/12/98	11/12/98		
	Units:	ppm R.L.	ppm R.L.		
Benzene		0.780 (0.050)	< 0.050 (0.050)		
Toluene		3.320 (0.050)	< 0.050 (0.050)		
Ethylbenzene		1.250 (0.050)	< 0.050 (0.050)		
m,p-Xylene		6.100 (0.100)	< 0.100 (0.100)		
o-Xylene		2.600 (0.050)	< 0.050 (0.050)		
Total BTEX		14.050	N.D.		
SPLP-Semivolatiles **EPA1312/8270**	*Analyzed:*	12/03/98			
	Units:	mg/L R.L.			
Acenaphthene		< 0.005 (0.005)			
Acenaphthylene		< 0.005 (0.005)			
Anthracene		< 0.005 (0.005)			
Benz(a)anthracene		< 0.005 (0.005)			
Benzo(a)pyrene		< 0.005 (0.005)			
Benzo(b)fluoranthene		< 0.005 (0.005)			
Benzo(g,h,i)perylene		< 0.005 (0.005)			
Benzo(k)fluoranthene		< 0.005 (0.005)			
4-Bromophenyl-phenylether		< 0.005 (0.005)			
Butyl benzyl phthalate		< 0.005 (0.005)			
Carbazole		< 0.005 (0.005)			
4-Chloro-3-methylphenol		< 0.005 (0.005)			
4-Chloroaniline		< 0.005 (0.005)			
2-Chloronaphthalene		< 0.005 (0.005)			
2-Chlorophenol		< 0.005 (0.005)			
4-Chlorophenyl-phenyl ether		< 0.005 (0.005)			
Chrysene		< 0.005 (0.005)			
Di-n-butyl phthalate		< 0.005 (0.005)			
Di-n-octylphthalate		< 0.005 (0.005)			
Dibenz(a,h)anthracene		< 0.005 (0.005)			
Dibenzofuran		< 0.005 (0.005)			
1,2-Dichlorobenzene		< 0.005 (0.005)			
1,3-Dichlorobenzene		< 0.005 (0.005)			
1,4-Dichlorobenzene		< 0.005 (0.005)			

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-84320

K.E.I. Consultants, Inc.

Project Name: TNM-98-04

Project ID: 810059-1-0
Project Manager: Theresa Nix
Project Location: Lea County, NM.

Date Received in Lab : Nov 9, 1998 09:55
Date Report Faxed: Dec 8, 1998
XENCO contact : Carlos Castro/Karen Olson

Analysis Requested	*Lab ID:*	184320 001	184320 002		
	Field ID:	SB-1	SB-1		
	Depth:	0-2'	8-9.5'		
	Matrix:	Solid	Solid		
	Sampled:	11/05/98 13:45	11/05/98 14:15		
SPLP-Semivolatiles EPA1312/8270	*Analyzed:*	12/03/98			
	Units:	mg/L R.L.			
3,3'-Dichlorobenzidine		< 0.005 (0.005)			
2,4-Dichlorophenol		< 0.005 (0.005)			
Diethyl phthalate		< 0.005 (0.005)			
2,4-Dimethylphenol		< 0.005 (0.005)			
Dimethyl phthalate		< 0.005 (0.005)			
4,6-Dinitro-2-methylphenol		< 0.013 (0.013)			
2,4-Dinitrophenol		< 0.013 (0.013)			
2,4-Dinitrotoluene		< 0.005 (0.005)			
2,6-Dinitrotoluene		< 0.005 (0.005)			
Fluoranthene		< 0.005 (0.005)			
Fluorene		< 0.005 (0.005)			
Hexachlorobenzene		< 0.005 (0.005)			
Hexachlorobutadiene		< 0.005 (0.005)			
Hexachlorocyclopentadiene		< 0.005 (0.005)			
Hexachloroethane		< 0.005 (0.005)			
Indeno(1,2,3-cd)pyrene		< 0.005 (0.005)			
Isophorone		< 0.005 (0.005)			
2-Methylnaphthalene		< 0.005 (0.005)			
2-Methylphenol		< 0.005 (0.005)			
4-Methylphenol		< 0.005 (0.005)			
N-Nitrosodi-n-propylamine		< 0.005 (0.005)			
N-Nitrosodiphenylamine		< 0.005 (0.005)			
Naphthalene		< 0.005 (0.005)			
2-Nitroaniline		< 0.013 (0.013)			
3-Nitroaniline		< 0.013 (0.013)			
4-Nitroaniline		< 0.013 (0.013)			
Nitrobenzene		< 0.005 (0.005)			
2-Nitrophenol		< 0.005 (0.005)			
4-Nitrophenol		< 0.005 (0.005)			
Pentachlorophenol		< 0.013 (0.013)			
Phenanthrene		< 0.005 (0.005)			
Phenol		< 0.005 (0.005)			
Pyrene		< 0.005 (0.005)			
1,2,4-Trichlorobenzene		< 0.005 (0.005)			
2,4,5-Trichlorophenol		< 0.013 (0.013)			

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-84320

K.E.I. Consultants, Inc.

Project Name: TNM-98-04

Project ID: 810059-1-0
Project Manager: Theresa Nix
Project Location: Lea County, NM.

Date Received in Lab : Nov 9, 1998 09:55
Date Report Faxed: Dec 8, 1998
XENCO contact : Carlos Castro/Karen Olson

Analysis Requested	*Lab ID:*	184320 001	184320 002		
	Field ID:	SB-1	SB-1		
	Depth:	0-2'	8-9.5'		
	Matrix:	Solid	Solid		
	Sampled:	11/05/98 13:45	11/05/98 14:15		
SPLP-Semivolatiles EPA1312/8270	*Analyzed:*	12/03/98			
	Units:	mg/L R.L.			
2,4,6-Trichlorophenol		< 0.005 (0.005)			
bis(2-Chloroethoxy) methane		< 0.005 (0.005)			
bis(2-Chloroethyl) ether		< 0.005 (0.005)			
bis(2-Chloroisopropyl) ether		< 0.005 (0.005)			
bis(2-Ethylhexyl) phthalate		< 0.005 (0.005)			
SPLP Volatiles EPA 8260	*Analyzed:*	12/01/98			
	Units:	mg/L R.L.			
Benzene		< 0.005 (0.005)			
Bromobenzene		< 0.005 (0.005)			
Bromochloromethane		< 0.005 (0.005)			
Bromodichloromethane		< 0.005 (0.005)			
Bromoform		< 0.005 (0.005)			
Bromomethane		< 0.005 (0.005)			
Carbon tetrachloride		< 0.005 (0.005)			
Chlorobenzene		< 0.005 (0.005)			
Chlorodibromomethane		< 0.005 (0.005)			
Chloroethane		< 0.010 (0.010)			
Chloroform		< 0.005 (0.005)			
Chloromethane		< 0.010 (0.010)			
2-Chlorotoluene		< 0.005 (0.005)			
4-Chlorotoluene		< 0.005 (0.005)			
1,2-Dibromo-3-chloropropane		< 0.005 (0.005)			
1,2-Dibromoethane		< 0.005 (0.005)			
Dibromomethane		< 0.005 (0.005)			
1,2-Dichlorobenzene		< 0.005 (0.005)			
1,3-Dichlorobenzene		< 0.005 (0.005)			
1,4-Dichlorobenzene		< 0.005 (0.005)			
Dichlorodifluoromethane		< 0.005 (0.005)			
1,1-Dichloroethane		< 0.005 (0.005)			
1,2-Dichloroethane		< 0.005 (0.005)			
1,1-Dichloroethene		< 0.005 (0.005)			
1,2-Dichloropropane		< 0.005 (0.005)			
1,3-Dichloropropane		< 0.005 (0.005)			
2,2-Dichloropropane		< 0.005 (0.005)			

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-84320

K.E.I. Consultants, Inc.

Project Name: TNM-98-04

Project ID: 810059-1-0
Project Manager: Theresa Nix
Project Location: Lea County, NM.

Date Received in Lab : Nov 9, 1998 09:55
Date Report Faxed: Dec 8, 1998
XENCO contact : Carlos Castro/Karen Olson

Analysis Requested	*Lab ID:*	184320 001	184320 002		
	Field ID:	SB-1	SB-1		
	Depth:	0-2'	8-9.5'		
	Matrix:	Solid	Solid		
	Sampled:	11/05/98 13:45	11/05/98 14:15		
SPLP Volatiles **EPA 8260**	*Analyzed:*	12/01/98			
	Units:	mg/L R.L.			
1,1-Dichloropropene		< 0.005 (0.005)			
Ethylbenzene		< 0.005 (0.005)			
Hexachlorobutadiene		< 0.005 (0.005)			
Isopropylbenzene (Cumene)		< 0.005 (0.005)			
MTBE		< 0.010 (0.010)			
Methylene chloride		< 0.010 (0.010)			
Naphthalene		< 0.005 (0.005)			
Styrene		< 0.005 (0.005)			
1,1,1,2-Tetrachloroethane		< 0.005 (0.005)			
1,1,2,2-Tetrachloroethane		< 0.005 (0.005)			
Tetrachloroethene		< 0.005 (0.005)			
Toluene		< 0.005 (0.005)			
1,2,3-Trichlorobenzene		< 0.005 (0.005)			
1,2,4-Trichlorobenzene		< 0.005 (0.005)			
1,1,1-Trichloroethane		< 0.005 (0.005)			
1,1,2-Trichloroethane		< 0.005 (0.005)			
Trichloroethene		< 0.005 (0.005)			
Trichlorofluoromethane		< 0.005 (0.005)			
1,2,3-Trichloropropane		< 0.005 (0.005)			
1,2,4-Trimethylbenzene		< 0.005 (0.005)			
1,3,5-Trimethylbenzene		0.005 (0.005)			
Vinyl chloride		< 0.005 (0.005)			
cis-1,2-Dichloroethene		< 0.005 (0.005)			
cis-1,3-Dichloropropene		< 0.005 (0.005)			
m,p-Xylene		< 0.005 (0.005)			
n-Butylbenzene		< 0.005 (0.005)			
n-Propylbenzene		< 0.005 (0.005)			
o-Xylene		< 0.005 (0.005)			
p-Isopropyltoluene (p-Cymene)		< 0.005 (0.005)			
sec-Butylbenzene		< 0.005 (0.005)			
tert-Butylbenzene		< 0.005 (0.005)			
trans-1,2-Dichloroethene		< 0.005 (0.005)			
trans-1,3-Dichloropropene		< 0.005 (0.005)			

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-84320

K.E.I. Consultants, Inc.

Project Name: TNM-98-04

Project ID: 810059-1-0
Project Manager: Theresa Nix
Project Location: Lea County, NM.

Date Received in Lab : Nov 9, 1998 09:55
Date Report Faxed: Dec 8, 1998
XENCO contact : *Carlos Castro/Karen Olson*

Analysis Requested	*Lab ID:*	184320 001	184320 002		
	Field ID:	SB-1	SB-1		
	Depth:	0-2'	8-9.5'		
	Matrix:	Solid	Solid		
	Sampled:	11/05/98 13:45	11/05/98 14:15		
SPLP TPH 1312/418.1	*Analyzed:*	12/01/98			
	Units:	ppm R.L.			
Total Petroleum Hydrocarbons		< 1.3 (1.3)			

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A40100

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Nov 23, 1998 12:45
Date Analyzed: Nov 20, 1998 16:05

Analyst: AM
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 184298- 011	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	%	
Total Petroleum Hydrocarbons	25.37	228	239	200	10.00	30.0	4.7	101.3	106.8	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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch :: 18A40100

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Nov 23, 1998 12:45
Date Analyzed: Nov 20, 1998 18:14

Analyst: AM
Matrix: Solid

	BLANK SPIKE ANALYSIS						
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
					QC	LIMITS	
Parameter	Blank Result	Blank Spike Result	Blank Spike Amount	Detection Limit	Blank Spike Recovery	Recovery Range	Qualifier
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	
Total Petroleum Hydrocarbons	< 10.00	211	200	10.00	105.5	65-135	

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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25E03

SW- 846 5030/8021B BTEX

Date Validated: Nov 13, 1998 13:00
Date Analyzed: Nov 12, 1998 16:06

Analyst: HL
Matrix: Solid

BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Detection Limit ppm	[E] QC LIMITS Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.1010	0.1000	0.0010	101.0	65-135	
Toluene	< 0.0010	0.1000	0.1000	0.0010	100.0	65-135	
Ethylbenzene	< 0.0010	0.1000	0.1000	0.0010	100.0	65-135	
m,p-Xylene	< 0.0020	0.2030	0.2000	0.0020	101.5	65-135	
o-Xylene	< 0.0010	0.0992	0.1000	0.0010	99.2	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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18À25E03

SW- 846 5030/8021B BTEX

Date Validated: Nov 13, 1998 13:00
Date Analyzed: Nov 12, 1998 16:43

Analyst: HL
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 184324- 001 / **Parameter**	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] 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
Benzene	< 0.020	1.996	1.932	2.000	0.020	25.0	3.3	99.8	96.6	65-135	
Toluene	< 0.020	1.976	1.944	2.000	0.020	25.0	1.6	98.8	97.2	65-135	
Ethylbenzene	< 0.020	1.958	1.934	2.000	0.020	25.0	1.2	97.9	96.7	65-135	
m,p-Xylene	< 0.040	4.000	3.940	4.000	0.040	25.0	1.5	100.0	98.5	65-135	
o-Xylene	< 0.020	1.994	1.952	2.000	0.020	25.0	2.1	99.7	97.6	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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch = 18A23E79

EPA1312/8260 SPLP Volatiles

Date Validated: Dec 3, 1998 12:00
Date Analyzed: Dec 1, 1998 19:45

Analyst: CCE
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/kg	[B] Blank Spike Result mg/kg	[C] Blank Spike Amount mg/kg	[D] Detection Limit mg/kg	[E] QC LIMITS Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.0383	0.0500	0.0010	76.6	66-142	
Chlorobenzene	< 0.0010	0.0400	0.0500	0.0010	80.0	60-133	
1,1-Dichloroethene	< 0.0040	0.0358	0.0500	0.0040	71.6	59-172	
Toluene	< 0.0010	0.0395	0.0500	0.0010	79.0	59-139	
Trichloroethene	*< 0.0030*	*0.0372*	*0.0500*	*0.0030*	74.4	62-137	

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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A23E79

EPA1312/8260 SPLP Volatiles

Date Validated: Dec 3, 1998 12:00
Date Analyzed: Dec 1, 1998 14:45

Analyst: CCE
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 184388- 001	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	%	
Benzene	< 0.0010	0.0531	0.0486	0.0500	0.0010	20.0	8.8	106.2	97.2	66-142	
Chlorobenzene	< 0.0010	0.0482	0.0460	0.0500	0.0010	20.0	4.7	96.4	92.0	60-133	
1,1-Dichloroethene	< 0.0040	0.0582	0.0527	0.0500	0.0040	25.0	9.9	116.4	105.4	59-172	
Toluene	0.0095	0.0543	0.0505	0.0500	0.0010	20.0	7.3	89.6	82.0	59-139	
Trichloroethene	< 0.0030	0.0533	0.0482	0.0500	0.0030	20.0	10.0	106.6	96.4	62-137	

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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A02D69

SW846- 1312/8270MOD SPLP- Semivolatiles

Date Validated: Dec 8, 1998 12:30
Date Analyzed: Dec 2, 1998 23:53

Analyst: MM
Matrix: Solid

	BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY										
Parameter	[A] Blank Result ug/L	[B] Blank Spike Result ug/L	[C] Blank Spike Duplicate Result ug/L	[D] Blank Spike Amount ug/L	[E] Detection Limit ug/L	Blank Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Blank Spike Recovery %	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	[J] Qualifier
Acenaphthene	< 0.0025	0.0329	0.0365	0.0500	0.0025	19.0	10.4	65.8	73.0	31-137	
4-Chloro-3-methylphenol	< 0.0038	0.0326	0.0345	0.0500	0.0038	33.0	5.7	65.2	69.0	26-103	
2-Chlorophenol	< 0.0050	0.0276	0.0307	0.0500	0.0050	28.7	10.6	55.2	61.4	25-102	
1,4-Dichlorobenzene	< 0.0042	0.0285	0.0332	0.0500	0.0042	32.1	15.2	57.0	66.4	28-104	
2,4-Dinitrotoluene	< 0.0050	0.0321	0.0349	0.0500	0.0050	21.8	8.4	64.2	69.8	28-89	
N-Nitrosodi-n-propylamine	< 0.0040	0.0333	0.0372	0.0500	0.0040	55.4	11.1	66.6	74.4	41-126	
4-Nitrophenol	< 0.0040	0.0095	0.0092	0.0500	0.0040	47.2	3.2	19.0	18.4	11-114	
Pentachlorophenol	< 0.0086	0.0246	0.0251	0.0500	0.0086	48.9	2.0	49.2	50.2	17-109	
Phenol	< 0.0037	0.0112	0.0120	0.0500	0.0037	22.6	6.9	22.4	24.0	26-90	A
Pyrene	< 0.0020	0.0403	0.0434	0.0500	0.0020	25.2	7.4	80.6	86.8	35-142	
1,2,4-Trichlorobenzene	< 0.0054	0.0309	0.0349	0.0500	0.0054	23.0	12.2	61.8	69.8	38-107	

(A) BKS/BSD recoveries were below laboratory acceptance limits. Associated samples were N.D.
Spike Relative Difference [F] = 200*(B-C)/(B+C)
Blank Spike Recovery [G] = 100*(B-A)/[D]
B.S.D. = Blank Spike Duplicate
B.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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A07E40

EPA 1312/418.1 SPLP TPH

Date Validated: Dec 2, 1998 09:37
Date Analyzed: Dec 1, 1998 14:55

Analyst: EZ
Matrix: Solid

	BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY										
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Duplicate Result ppm	[D] Blank Spike Amount ppm	[E] Detection Limit ppm	Blank Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Blank Spike Recovery %	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	[J] Qualifier
Total Petroleum Hydrocarbons	< 0.50	3.59	3.71	4.01	0.50	20.0	3.3	89.5	92.5	65-135	

Spike Relative Difference [F] = 200*(B-C)/(B+C)
Blank Spike Recovery [G] = 100*(B-A)/[D]
B.S.D. = Blank Spike Duplicate
B.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

Eddie L. Clemons, II
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

Page 1 of 1

Lab. Batch # 184320-SA

Contractor: KEI Consultants | Phone: (210) 680-3767

Address: 5309 Wurzbach Ste 100, SA, TX 78238

Project Name: TNM-98-04 | Project Director: Mike Hawthorne

Project Location: Lea Co, N.M. | Project Manager: Theresa Nix

Sampler Signature: [signature] | Project No.: 810059-1-0

No. coolers this shipment: 1 | Contractor COC #: 194

Carrier: UPS | Quote #:

Airbill No.: N240 1475 907 | P.O. No.: 810059-1-0

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 (8020/8020-602)	TPH (8015 Modified DRO)	SPLP TPH (1312/8015D)	SPLP VOCs (1312/8260)	SPLP SVOCs (1312/8270)	Please Hold	Turn-around: ASAP / 24 hrs / 48 hrs / Standard — Remarks	LAB ONLY ID #
1 SB-1	11/5/98	13:15	0-2'	X			X	8oz	G	X		Soil boring 1	1	X	X	X	X	X		See below	1
2 SB-1	11/5/98	14:15	8-9.5'	X			X	8oz	G	X		Soil boring 1	1	X	X	X	X	X		See below	2
3																					3
4																					4
5																					5
6																					6
7																					7
8																					8
9																					9
10																					10

N240 1475 907

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	11/6/98	16:00			
			Via U.P.S.		
			Received For Laboratory by: Johnny Orona	11/9/98	9:55

Remarks: Only do SPLP analysis on the sample with the highest TPH. Fax results to Theresa Nix at (512) 364-3556

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

* Pre-scheduling is recommended

Precision Analytical Services

ANALYTICAL REPORT 1-84915

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: Dan Fields

Project Id: 810059

December 24, 1998

XENCO Laboratories

HOUSTON - DALLAS - SAN ANTONIO

11381 Meadowglen Lane Suite L * Houston, Texas 77082-2647
Phone (281) 589-0692 Fax (281) 589-0695

XENCO Laboratories

11381 Meadowglen Suite L
Houston, Texas 77082-2647
(281) 589-0692 Fax: (281) 589-0695
Houston - Dallas - San Antonio - Latin America

December 24, 1998

Project Manager: Theresa Nix
K.E.I. Consultants, Inc.
5309 Wurzbach Rd. Suite 100
San Antonio, TX 78238

Reference: **XENCO Report No.: 1-84915**
Project Name: Dan Fields
Project ID: 810059
Project Address: Lovington, NM

Dear Theresa Nix:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with XENCO Chain of Custody Number 1-84915. All results being reported to you apply only to the samples analyzed, properly identified with a Laboratory ID number. This letter documents the official transmission of the contents of the report and validates the information contained within.

All the results for the quality control samples passed thorough examination. Also, all parameters for data reduction and validation checked satisfactorily. In view of this, we are able to release the analytical data for this report within acceptance criteria for accuracy, precision, completeness or properly flagged.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 3 years in our archives and after that time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 1-84915 will be filed for 60 days, and after that time they will be properly disposed of without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

XENCO operates under the A2LA guidelines. Our Quality System meets ISO/IEC Guide 25 requirements which is strictly implemented and enforced through our standard QA/QC procedures.

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Sincerely,

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810059
Project Manager: Theresa Nix
Project Location: Lovington, NM

Project Name: Dan Fields

XENCO COC#: 1-84915
Date Received in Lab: Dec 17, 1998 10:15 by JO
XENCO contact : Carlos Castro/Karen Olson

	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	S-A	184915-001	BTEX	SW-846	ppm	24 hours	Dec 16, 1998 12:43		Dec 17, 1998 by HL	Dec 17, 1998 16:11 by HL
2			TPH8015M-D	SW-846 8015 M	mg/kg	24 hours	Dec 16, 1998 12:43		Dec 18, 1998 by SS	Dec 22, 1998 12:30 by CG
3	S-B	184915-002	BTEX	SW-846	ppm	24 hours	Dec 16, 1998 12:55		Dec 17, 1998 by HL	Dec 17, 1998 16:30 by HL
4			TPH8015M-D	SW-846 8015 M	mg/kg	24 hours	Dec 16, 1998 12:55		Dec 18, 1998 by SS	Dec 22, 1998 01:03 by CG
5	S-C	184915-003	BTEX	SW-846	ppm	24 hours	Dec 16, 1998 13:10		Dec 17, 1998 by HL	Dec 17, 1998 16:48 by HL
6			TPH8015M-D	SW-846 8015 M	mg/kg	24 hours	Dec 16, 1998 13:10		Dec 18, 1998 by SS	Dec 21, 1998 23:57 by CG
7	S-D	184915-004	BTEX	SW-846	ppm	24 hours	Dec 16, 1998 13:25		Dec 17, 1998 by HL	Dec 17, 1998 17:07 by HL
8			TPH8015M-D	SW-846 8015 M	mg/kg	24 hours	Dec 16, 1998 13:25		Dec 18, 1998 by SS	Dec 22, 1998 01:36 by CG
9	Stockpile	184915-005	BTEX	SW-846	ppm	24 hours	Dec 16, 1998 13:40		Dec 17, 1998 by HL	Dec 17, 1998 17:26 by HL
10			TPH8015M-D	SW-846 8015 M	mg/kg	24 hours	Dec 16, 1998 13:40		Dec 18, 1998 by SS	Dec 22, 1998 02:08 by CG

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-84915

KEI Consultants, Inc.

Project ID: 810059
Project Name: Dan Fields
Date Received in Lab : Dec 17, 1998 10:15
Project Manager: Theresa Nix
Date Report Faxed: Dec 24, 1998
Project Location: Lovington, NM
XENCO contact : Carlos Castro/Karen Olson

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	184915 001 S-A surface Solid 12/16/98 12:43		184915 002 S-B surface Solid 12/16/98 12:55		184915 003 S-C surface Solid 12/16/98 13:10		184915 004 S-D surface Solid 12/16/98 13:25		184915 005 Stockpile surface Solid 12/16/98 13:40	
TPH-DRO (Diesel) EPA 8015 M	*Analyzed:* / *Units:*	12/22/98 mg/kg *	R.L.	12/22/98 mg/kg *	R.L.	12/21/98 mg/kg *	R.L.	12/22/98 mg/kg *	R.L.	12/22/98 mg/kg *	R.L.
Total Petroleum Hydrocarbons		1670	(20.0)	2090	(50.0)	133	(10.0)	6440	(400)	4730	(400)
TPH-DRO (Diesel), Rerun EPA 8015 M	*Analyzed:* / *Units:*	01/11/99 mg/kg *	R.L.	01/11/99 mg/kg *	R.L.	01/11/99 mg/kg *	R.L.	01/12/99 mg/kg *	R.L.	01/12/99 mg/kg *	R.L.
Total Petroleum Hydrocarbons		1650	(100)	2280	(100)	214	(50)	6180	(100)	6840	(100)
BTEX EPA 8021B	*Analyzed:* / *Units:*	12/17/98 ppm	R.L.	12/17/98 ppm	R.L.	12/17/98 ppm	R.L.	12/17/98 ppm	R.L.	12/17/98 ppm	R.L.
Benzene		0.283	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)
Toluene		0.298	(0.050)	0.071	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	0.244	(0.050)
Ethylbenzene		0.800	(0.050)	0.268	(0.050)	< 0.050	(0.050)	0.354	(0.050)	0.434	(0.050)
m,p-Xylene		4.375	(0.100)	0.770	(0.100)	< 0.100	(0.100)	2.005	(0.100)	1.505	(0.100)
o-Xylene		2.440	(0.050)	0.458	(0.050)	< 0.050	(0.050)	1.115	(0.050)	1.135	(0.050)
Total BTEX		8.196		1.567		N.D.		3.474		3.318	

*TPH-DRO analyses re-analyzed to confirm results due to QC failure

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25E51

SW- 846 5030/8021B BTEX

Date Validated: Dec 18, 1998 07:45
Date Analyzed: Dec 17, 1998 11:08

Analyst: HL
Matrix: Solid

BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Detection Limit ppm	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.1030	0.1000	0.0010	103.0	65-135	
Toluene	< 0.0010	0.1030	0.1000	0.0010	103.0	65-135	
Ethylbenzene	< 0.0010	0.1040	0.1000	0.0010	104.0	65-135	
m,p-Xylene	< 0.0020	0.2080	0.2000	0.0020	104.0	65-135	
o-Xylene	*< 0.0010*	*0.1030*	*0.1000*	*0.0010*	*103.0*	*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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25E51

SW- 846 5030/8021B BTEX

Date Validated: Dec 18, 1998 07:45
Date Analyzed: Dec 17, 1998 12:04

Analyst: HL
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 184910- 005	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] 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	2.340	2.200	2.000	0.020	25.0	6.2	117.0	110.0	65-135	
Toluene	< 0.020	2.340	2.180	2.000	0.020	25.0	7.1	117.0	109.0	65-135	
Ethylbenzene	< 0.020	2.360	2.200	2.000	0.020	25.0	7.0	118.0	110.0	65-135	
m,p-Xylene	< 0.040	4.740	4.420	4.000	0.040	25.0	7.0	118.5	110.5	65-135	
o-Xylene	< 0.020	2.340	2.200	2.000	0.020	25.0	6.2	117.0	110.0	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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 19A02A23

SW- 846 8015 M TPH- DRO (Diesel), Rerun

Date Validated: Jan 12, 1999 13:30
Date Analyzed: Jan 11, 1999 22:11

Analyst: MM
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 184915- 003 / **Parameter**	[A] Sample Result mg/kg	[B] Matrix Spike Result mg/kg	[C] Matrix Spike Duplicate Result mg/kg	[D] Matrix Spike Amount mg/kg	[E] Detection Limit mg/kg	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	214	193	212	100	50	30.0	9.4	21.0	2.0	65-135	A

(A) MS/MSD % recovery is less than laboratory acceptance limits due to sample non-homogeneity
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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 19A02A23

SW- 846 8015 M TPH- DRO (Diesel), Rerun

Date Validated: Jan 12, 1999 13:30
Date Analyzed: Jan 11, 1999 19:09

Analyst: MM
Matrix: Solid

	BLANK SPIKE ANALYSIS						
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
	Blank	Blank Spike	Blank		QC	LIMITS	
Parameter	Result	Result	Spike Amount	Detection Limit	Blank Spike Recovery	Recovery Range	Qualifier
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	
Total Petroleum Hydrocarbons	*< 10.00*	*86.70*	*100*	*10.00*	*86.7*	*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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

☐ 11381 Meadowglen, Suite L, Houston TX 77082 281-589-0692
☑ 5309 Wurzbach Road, Suite 104, San Antonio, TX 78238 210-509-3334
☐ 11078 Morrison Road, Suite D, Dallas, TX 75229 972-481-9999

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

On-LINE Help & Technical Services at XENCO.com

Company COC No: 221 Work Order No:

14574

Page 1 of 1

Company: K.e.i Consultants **Phone:** 210-680-3767

Project Name: Dan Fields ☐ Previously done at XENCO **Project ID:** 810059

Location: Lovington, NM

Project Manager (PM): Theresa Nix **Project Director (PD):** Mike Hawthorne

Fax Results to ☑ PM (and) / or Stas Grover 210-680-3763 **Fax** ~~512-634-3056~~ 512-364-3556

Invoice to ☑ Accounting ☐ Include Invoice with Final Report Attn PM ☐ Invoice must have a P.O Bill to: 810059-1-0

Quote No. **P.O No** 810059-1-0 ☐ Call for a P.O.

Special DLs (RR I RR II DW QAPP See Lab PM Call Proj. PM)

Specifications For any Questions Call Theresa Nix @ 512-634-

Sampler Name Stas Grover Signature [signature]

Lab Only: 184915-SA

TAT: 5h 12h 20h (24h) 48h 3d 5d 7d 14d 21d Standard TAT is 10 Working Days unless otherwise agreed in writing. But often reported in 5-7 Working Days

	Sample ID	Sampling Date	Time	Depth ft' in" m	Matrix A P S W	Composite	Grab	# Containers	Container Size	Type	Preservatives	BTEX by (8020) 8021 8260 602 624 Other	BTEX-MTBE by 8020 8021 8260 602 624 Other	TPH by TX1005 418.1 8015GRO (8015DRO) 8015JetF	PAHs by 8270 8100 8310	METALS by 6010 8RCRA Tot Pb TCLP8 13PP 23TAL See List	VOAs by 8260 624 BTEX MTBE PPs TCL See List Call PM	SVOAs by 8270 625 PAHs BN&A TCL PPs See List Call PM	TAT 5h 12h 20h (24h) 48h 3d 5d 7d 10d 14d 21d	Addn: PAH above mg/L W. mg/Kg S Highest Hit	Hold Analysis	
1	S-A	12-16-98	12:43	Surface		/		2	4oz	GA	C4	/		/								1
2	S-B	↓	12:55	↓		↓		↓	↓	↓	↓	↓		↓								2
3	S-C	↓	13:10	↓		↓		↓	↓	↓	↓	↓		↓								3
4	S-D	↓	13:25	↓		↓		↓	↓	↓	↓	↓		↓								4
5	Stock Pile SP	↓	13:40	↓		↓		↓	↓	↓	↓	↓		↓								5
6																						6
7																						7
8																						8
9																						9
10																						10

Remarks: Analysis Need:
• BTEX = SW846-8020
• TPH 8015 MDRO

VIA UPS

Lab Only Additions: From: / Rcv by: / Date (×3)

	Relinquished by (Initials and Signature)	Relinquished to (Initials and Signature)	Date & Time
1	STG [signature]		12/16/98 1600
2			
3		Lab: Johnny Oram	12/17/98 10:15

Total Containers per COC: 10

Rush TATs Fax Due: Final Fax Due:

Final Report Data Package Due Date:

Rush Charges are Pre-Approved upon Requesting them. All Terms Apply

Preservatives - Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO4 pH<2 (N), NaOH+Asbc Acid (NAA), ZnAc+NaOH (ZA), (Cool,<4C) (C4), None (N), See Label (SL), Other (O) ______

SIZE: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (V), 1L (1), 500ml (.5), Tedlar Bag (B), Wipe (W), Other ______ **TYPE** Glass Amb (GA), Glass Clear (GC), Plastic (P), Other (O) ______

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX & M. HAWTHORNE
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 512-364-3556
FAX: 210-680-3763 (Stas Grover)

Receiving Date: 12/29/98
Sample Type: Soil
Project #: 810059-1-0
Project Name: Dan Field
Project Location: Lovington, N.M.

Analysis Date: 12/29/98
Sampling Date: 12/28/98
Sample Condition: Intact/Iced

ELT#	FIELD CODE	TPH (DRO) C10-C28 mg/kg
16440	Section A Bottom	565
16441	Section A East Wall	<10
16442	Section A West Wall	15
16443	Section B Bottom	337
16444	Section B East Wall	<10
16445	Section B West Wall	12
16446	Section C Bottom	67
16447	Section D Bottom	337
16448	T-1 North Wall	<10
16449	T-1 South Wall	<10
16450	T-1 East Wall	200
16451	T-1 West Wall	<10
16452	T-1 Bottom	<10
16453	T-2 North Wall	<10
16454	T-2 South Wall	<10
16455	T-2 East Wall	<10
16456	T-2 West Wall	<10
16457	T-2 Bottom	<10
16458	SP-1	2,637
16459	SP-2	1,245
16460	SP-3	712
16461	Sp-4	929
	BLANK	<10
	% INSTRUMENT ACCURACY	95
	% EXTRACTION ACCURACY	80

METHODS: SW 846- 8015m DRO

KEI CONSULTANTS
JAN 4 1999
SAN ANTONIO

Raland K. Tuttle

12-30-98
Date

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

C-O-C # 223

Project Manager: Theresa Nix
Phone #: 512-364-3440
FAX #: 512-364-3556

Company Name & Address: K-E-I Consultants
5309 Wurzbach, Ste 100
San Antonio, TX 78238

Project #: 810059-1-0
Project Name: DMW Field

Project Location: Lovington, NM
Sampler Signature: Stanley Graves

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME
16440	Section-A Bottom	1	4oz		X						X			12/28/98	1210
16441	Section-A East wall				X						X				1145
16442	Section-A West wall				X						X				1140
16443	Section-B Bottom				X						X				1230
16444	Section-B East wall				X						X				1200
16445	Section-B West wall				X						X				1150
16446	Section-C Bottom				X						X				1245
16447	Section-D Bottom	↓	↓		X						X			↓	14:45

ANALYSIS REQUEST

BTEX 8120/5030	TPH 8015 MDRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
	X						
	X						
	X						
	X						
	X						
	X						
	X						
	X						

Relinquished by:	Date:	Times:	Received by:
Stanley Graves	12/29/98	0855	Roland OK Jeb
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS: Please Fax Results to Theresa @ 512-364-3556 and Stan Grover @ 210-680-3763

Analysis: TPH 8015 MDRO

- If you have any question call Stan Grover @ 505-631-1278 or 738-9006
- 24hr turn around

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

COC # 223

Project Manager: Theresa Nix

Phone #: 1-512-364-3440

FAX #: 1-512-364-3556

Company Name & Address: K·e·i Consultants
5309 Wurzbach, Ste 100
San Antonio, TX 78238

Project #: 810059-1-0

Project Name: Dan Field

Project Location: Lovington, NM

Sampler Signature: Stanley Grover

	LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8020/5030	TPH 8015 MDRO	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
6448	T-1 N	T-1 North wall	1	4oz		/						/			28 Dec 98	1030		/						
6449	T-1 S	T-1 South Wall																						
6450	T-1 E	T-1 East wall																						
6451	T-1 W	T-1 west wall																						
6452	T-1 B	T-1 Bottom														↓								
	16453	T-2 North wall														1100								
	16454	T-2 South wall																						
	16455	T-2 East wall																						
	16456	T-2 West Wall																						
	16457	T-2 Bottom	↓	↓		↓						↓				↓		↓						

Relinquished by:	Date:	Times:	Received by:
Stanley Grover	12/28/98	0855	Calvin dt Wel
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
Please fax analytical Results To Theresa Nix @ 512-364-3556 and STAS Grover @ 210-680-3763
Analysis:
- TPH 8015 MDRO

IF you have any question call STAS Grover @ 505-631-1278

24 hr turn-around

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

C-O-C # 223

Project Manager: Theresa Nix
Phone #: 512-364-3448
FAX #: 512-364-3556

Company Name & Address: H·E·I Consultants
5309 Wurzbach, Ste 100
San Antonio, TX 78238

Project #: 810069-1-0
Project Name: DAN Field

Project Location: Lovington, NM
Sampler Signature: Stanley Thomas

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	MATRIX: OTHER	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: NONE	PRESERVATIVE METHOD: OTHER	SAMPLING: DATE	SAMPLING: TIME	ANALYSIS REQUEST: BTEX 8020/5030	TPH 8015 MOD	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
16458	SP-1	1			X						X			28 Dec 98	1223		X					
16459	SP-2														1228							
16460	SP-3														1233							
16461	SP-4														1455							

Relinquished by:	Date:	Times:	Received by:
Stanley Thomas	12/29/98	0855	Richard Jones
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS: Please fax Results to Theresa Nix @ and 512-364-3556
STAN Groover @ 210-680-3763
ANALYSIS: TPH 8015 MOD
*If you have any questions call STAN Groover @ 505-631-1278
24 hr turn-around

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI
ATTN: THERESA NIX
5309 WURZBACH SUITE 100
SAN ANTONIO, TEXAS 78238
FAX: 512-364-3556
FAX: 505-738-9006 (Stas Grover)

Receiving Date: 01/05/99
Sample Type: Soil
Project #: 810059-1-0
Project Name: Dan Fields
Project Location: Lovington, N.M.

Analysis Date: 01/05/99
Sampling Date: 01/05/99
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH (DRO) C10-C28 mg/kg
16557	Bottom	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16558	North Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16559	South Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16560	East Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16561	West Wall	<0.100	<0.100	<0.100	<0.100	<0.100	<10
	% IA	97	98	98	96	98	98
	% EA	97	96	96	96	97	92
	BLANK	<0.100	<0.100	<0.100	<0.100	<0.100	<10

METHODS: SW 846-8021B, 5030 , 8015m DRO

Raland K Tuttle
Raland K. Tuttle

1-6-99
Date

KEI CONSULTANTS
JAN 11 1999
SAN ANTONIO

Environmental Lab of Texas, Inc.

12600 West I-20 East Odessa, Texas 79763
(915) 563-1800 FAX (915) 563-1713

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Theresa Nix
Phone #: 512-364-3440
FAX #: 512-364-3656

Company Name & Address: K-E-I Consultants 5309 Interbach, Ste 100, San Antonio, TX 78238

Project #: 810059-1-0
Project Name: Dan Fields

Project Location: Lovington NM
Sampler Signature: Stanley Sowers

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	OTHER	SAMPLING: DATE	TIME	BTEX 8120/5030	TPH 418.1 8015 MOD	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
16557	Bottom	1	4oz		/						/			1/5/99	6:00	/	/						
16558	North Wall	1			/						/				6:06								
16559	South Wall	1			/						/				6:13								
16560	East Wall	1			/						/				6:20								
16561	West Wall	1			/						/				6:26								

Relinquished by:	Date:	Times:	Received by:
Stanley Sowers	01/05/99	12:05	Rebecca Jones
Relinquished by:	Date:	Times:	Received by:
Relinquished by:	Date:	Times:	Received by Laboratory:

REMARKS
- Please fax a copy to STAS @ 505-738-9006
M. (505)-631-1278

QA/QC PROCEDURES

SOIL SAMPLING

Representative soil samples selected for analysis were placed in sterile glass containers 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. The container was labeled and placed on ice in an insulated cooler. The cooler was sealed for shipment to XENCO Laboratories in San Antonio, Texas or Environmental Lab of Texas, Inc. in Odessa, Texas for determination of the following constituents:

- BTEX concentrations by EPA Method SW846-8020
- TPH concentrations by EPA Method 8015-DRO
- SPLP SVOC concentrations by EPA Method 1312/8270
- SPLP VOC concentrations by EPA Method 1312/8260
- SPLP TPH concentrations by EPA Method 1312/418.1

Proper chain-of-custody documentation was maintained throughout the sampling process.

LABORATORY PROTOCOL

The laboratory was responsible for proper QA/QC procedures. These procedures are either transmitted with the laboratory reports or are on file at the laboratory.

C & C LANDFARM, INC.

BOX 55
MONUMENT, NEW MEXICO 88265
PHONE: (505) 397-2045
(505) 397-2860
(505) 392-2236

001735

COMPANY NAME K.e.i Consultants / TNMPL

COMPANY REPRESENTATIVE NAME Stan George

LEASE NAME Dan Field / Job No 8100-?-1-0

SEC. 6 TOWNSHIP 16 South RANGE 36 East

TRUCKING COMPANY NAME Ramirez Trucking

DRIVERS SIGNATURE [signature]

TYPE OF MATERIAL BEING HAULED AND QUANTITY Soil Contaminated with crude oil (382 yards)

COPY OF ANALYSIS ATTACHED, IF REQUIRED yes

TPHC 2837 mg/Kg

BENZENE ND

TOLUENE .244

ETHYL BENZENE .434

PARA XYLENE 2.640

Norm free

ATTENDANT ON DUTY [signature]

DATE Jan. 12, 99

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 21, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-662

Ms. Lennah Frost
EOTT Energy Pipeline Limited Partnership
P.O. Box 1660
Midland, Texas 79702

RE: TNM-98-04 SITE
LEA COUNTY, NEW MEXICO

Dear Ms. Frost:

The New Mexico Oil Conservation Division (OCD) understands that EOTT Energy Pipeline Limited Partnership (EOTT) is the current operator of the above referenced pipeline site which was previously operated by the Texas-New Mexico Pipe Line Company (TNMPLC). The OCD has reviewed TNMPLC's April 1, 1999 "CLOSURE REPORT, TNM-98-04, LOT 15, SECTION 6, TOWNSHIP 16 SOUTH, RANGE 37 EAST, LEA COUNTY, NEW MEXICO, JOB NO. 810059-1" which was submitted on behalf of TNMPLC by their consultant KEI. This document contains information regarding the remediation of a crude oil pipeline spill site at the TNM-98-04 site. The document also recommends closure of the site remedial actions.

The remedial actions at the site are satisfactory and the OCD **approves** of the above referenced closure request. Please be advised that OCD approval does not relieve EOTT of liability should remaining contaminants pose a future threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve EOTT of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions or comments, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Theresa Nix, KEI

Z 274 520 662

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Return Receipt Showing to Whom, Date, & Addressee's Address	

April 1995

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

ENV-PI-REPORTS

April 1, 1999

RECEIVED
APR 0 5 1999
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Mr. Tony Savoie
TEXAS - NEW MEXICO PIPE LINE COMPANY
P.O. Box 1030
Jal, New Mexico 88252

Re: Closure Report
TNM-98-04
Lot 15, Section 6, Township 16 South, Range 36 East
Lea County, New Mexico
Job No. 810059-1

Dear Mr. Savoie:

Transmitted with this letter is the Closure Report for the Texas-New Mexico Pipe Line (TNMPL) site TNM-98-04 located approximately 2.5 miles west of Lovington in Lea County, New Mexico.

Please contact me at (210) 680-3767 if you have any questions or need additional information.

Respectfully,

Theresa Nix

Theresa Nix
Project Manager

Enclosure

cc: Marc Oler; Equilon
William C. Olson, OCD Santa Fe
Chris Williams, OCD Hobbs

mkh\p:\tnmpl\810059\closure\rclosure.doc