ASSESSMENT REPORT

COMPREHENSIVE ASSESSMENT REPORT

TEXAS - NEW MEXICO PIPELINE COMPANY
MONUMENT SITE NO. 7
LEA COUNTY, NEW MEXICO

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COMPREHENSIVE ASSESSMENT REPORT

MONUMENT SITE NO. 7
LEA COUNTY, NEW MEXICO

PREPARED FOR:

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EXECUTIVE SUMMARY

This report summarizes the results of subsurface assessment activities conducted at Monument Site No. 7, located in Lea County, New Mexico. Activities were performed in general accordance with the work plan submitted with the Phase I - Preliminary Site Characterization Report prepared for the site and approved by the State of New Mexico Oil Conservation Division

Field activities associated with the subsurface assessment consisted of advancing ten soil borings for the collection of native soil samples for laboratory analysis. A sensitive receptor survey/migration pathway evaluation was also conducted.

Results of the assessment included the following:

- Soil analytical results indicated the presence of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) at concentrations noted within the report.
- Ground water was encountered at depths ranging from 42 to 49 feet below ground surface (bgs) during the assessment.
- Observed petroleum hydrocarbon impact to soils exceeding State of New Mexico Oil Conservation Division regulatory closure concentrations extended from the ground surface to a maximum depth of 6 feet below ground surface.

Recommended additional assessment and remediation activities to be conducted pursuant to final site closure include:

- Excavate soil with TPH concentrations exceeding closure concentrations.
- Conduct off-site landfarming of excavated soil.

INTRODUCTION

This report summarizes the results of the subsurface assessment activities conducted in response to suspected crude oil impact at Monument Site No. 7, located in Lea County, New Mexico. Site No. 7 consisted three surficially impacted areas located adjacent to a TNMPL crude oil pipeline and designated 7A, 7B, and 7C. A site location map is presented as FIG. 1. A description of each of the areas investigated is as follows:

- Site No 7A consists of an area of surface hydrocarbon impact approximately 10 feet wide and 15 feet long.
- Site No. 7B consists of an irregularly shaped area of hydrocarbon impact with major sections approximately 12 feet wide by 30 feet long and 40 feet wide by 150 feet long.
- Site No. 7C consists of a small excavation.

A scope of work for the subsurface assessment was prepared based upon field observations obtained during a preliminary investigation of surface site conditions. The proposed work plan was presented in the Phase I - Preliminary Site Characterization report dated June 21, 1996, and was approved by the State of New Mexico Oil Conservation Division in a letter dated August 16, 1996. The general scope of work for the subsurface investigation included:

- A sensitive receptor survey, migration pathway evaluation, and registered water well search.
- Soil borings within and in the periphery of each of the surficially impacted areas.

SUBSURFACE INVESTIGATION

SENSITIVE RECEPTOR SURVEY/MIGRATION PATHWAY EVALUATION

Receptor Survey

A sensitive receptor survey/migration pathway evaluation was conducted at the site. Potential receptors identified within a 500-foot radius of the site consisted of two active and two abandoned water wells located approximately 450 feet west of the site. Adjacent properties consisted of an inactive oil well approximately 120 feet to the north; vacant rangeland to the east and south; and a Texaco crude oil above ground storage tank battery located approximately 80 feet to the west.

A search of State of New Mexico water well registrations indicated nine registered water wells within a 1/2-mile radius of the site. Approximate locations of the wells are presented on FIG. 1. A copy of the well registration data is presented in APPENDIX A.

Migration Pathway Evaluation

Potential manmade migration pathways identified during the survey included a TNMPL crude oil pipeline extending from east to west through the center of the site and pipeline right-of-ways of undetermined ownership extending along the northeast and northwest site boundaries. Approximate locations of the identified manmade potential migration pathways are presented on FIG. 2.

The ground water gradient and direction of flow at the site were not determined during the assessment. Surface drainage at the site is to the southeast.

FIELD ACTIVITIES

Soil Borings

On March 12 and 25, and April 4 and 5, 1997, Soil Borings B7A-1 through B7A-3; B7B-1 through B7B-6; and B7C-1 and B7C-2 were advanced utilizing a direct-push hydraulic sampling system and/or air rotary coring methods (Note: the soil boring designation "B7B-5" was not utilized during the assessment). Field observations obtained during soil boring advancement included the following:

- Observed depths to ground water during soil boring advancement ranged from 42 to 49 feet below ground surface (bgs).
- Phase-separate hydrocarbon (PSH) was not identified in soils or on ground water at any boring location.
- Observed hydrocarbon impact above OCD closure levels from the ground surface to approximately six feet bgs.
- Hydrocarbon impact to vadose zone soils appears to have been delineated.

Upon completion of sampling activities, each soil boring was backfilled to the ground surface with a cement/bentonite grout. Approximate locations of the soil borings are presented on FIG. 2.

SOIL ASSESSMENT

The subsurface profile was classified in general accordance with the Unified Soil Classification System by visually observing soil samples obtained during drilling. In general, 2 soil types and one limestone type were encountered. A general description, approximate thickness, and head-space results of each soil type are discussed as follows:

Soil Type 1

This soil type consisted of a brown clay encountered at the surface of all soil boring locations. This moist clay was gravely and contained organic material. Observed thicknesses of this soil type varied from approximately 0.5 to 1.0 feet. The head-space readings from samples of this soil type were all below instrument detection levels (ND).

Limestone

A light grey limestone was encountered beneath the upper clay at all soil boring locations. This moist limestone was well cemented and interbedded with reddish-brown sandstone layers. Observed thicknesses of this soil type varied from approximately 25 to 41 feet. The limestone was encountered from depths ranging from 0.5 to 42 feet bgs. The head-space readings from samples of this soil type ranged from ND to 50 ppm.

Soil Type 2

This soil type consisted of a reddish-brown sand encountered beneath the light grey limestone at all soil boring locations. This moist to wet sand was fine grained,

medium dense to dense, and contained gravel. This soil type was encountered at depths ranging from 26 feet bgs to the maximum depth investigated in soil borings with a total depth greater than 25 feet. The head-space readings from samples of this soil type were all ND.

Graphic logs indicating the subsurface soil profile, depths at which soil samples were obtained, head-space results, laboratory results, and soil boring details are presented on FIGS. 3 through 5.

LABORATORY ANALYSES

Soil samples were selected for laboratory analysis from sample intervals that, at a minimum, represented the high field screening result and the bottom of the hole of each soil boring. The selected soil samples were express mailed 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. Additional analyses of SPLP Volatiles by EPA Method SW846-1312/8260, SPLP Semi-Volatiles by EPA Method SW846-1312/8270 and SPLP TPH by EPA Method 1312/418.1 were conducted on the soil boring sample with the highest TPH concentration. A determination of fraction organic carbon was conducted on an unimpacted sample collected from Soil Boring B7B-3.

Analytical results indicated the following range of constituent concentrations for the soil boring samples:

CONSTITUENT	RANGE OF CONCENTRATIONS
TPH	ND to 6,950 mg/kg
BTEX	ND to 0.36 mg/kg
Benzene	ND
SPLP VOC	
Ethylbenzene	0.053 mg/l
o-Xylene	0.025 mg/l
m,p-Xylene	0.051 mg/l
SPLP SVOC	
Di-n-butylphthalate	0.033 mg/l
SPLP TPH	ND
Fraction Organic Carbon	1.3 %

All SPLP VOC and SPLP SVOC constituent concentrations not listed above were ND.

A complete summary of analytical results for soil samples is presented in TABLES I through III. Copies of the certified laboratory reports and chain-of-custody documentation for soils are presented in APPENDIX A.

WASTE MANAGEMENT AND DISPOSITION

Cuttings generated during the advancement of air rotary soil borings were spread over surficial hydrocarbon-stained soil at the site.

QA/QC PROCEDURES

DECONTAMINATION OF EQUIPMENT

Cleaning of drilling equipment was the responsibility of the drilling company. In general, the cleaning procedures consisted of using high pressure steam to wash the drilling and sampling equipment prior to drilling and prior to starting each hole. Prior to use, the sampling equipment was cleaned with Liqui-Nox detergent and rinsed with distilled water.

SOIL SAMPLING

Samples of the subsurface soils were obtained utilizing a direct-push continuous sampling device or air rotary/split spoon methods. 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 labeled and sealed for head-space analysis using a photo-ionization 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 to limit the amount of head-space present. Each container was labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler was sealed for shipment to the laboratory. 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.

CONCLUSIONS

The following conclusions are presented based on the field observations, drilling activities, and soil laboratory results:

- Soil impact above OCD closure levels extends from the ground surface to approximately six feet bgs based on laboratory results and field PID readings.
- State of New Mexico Oil Conservation Division regulatory site closure concentrations for soils were exceeded by TPH concentrations in samples collected from Soil Borings B7A-1, B7B-1 and B7C-1 in the upper six feet of the soil horizon.
- Hydrocarbon impact above closure concentrations appears to be limited to areas associated with surface hydrocarbon impact located adjacent to the TNMPL pipeline.

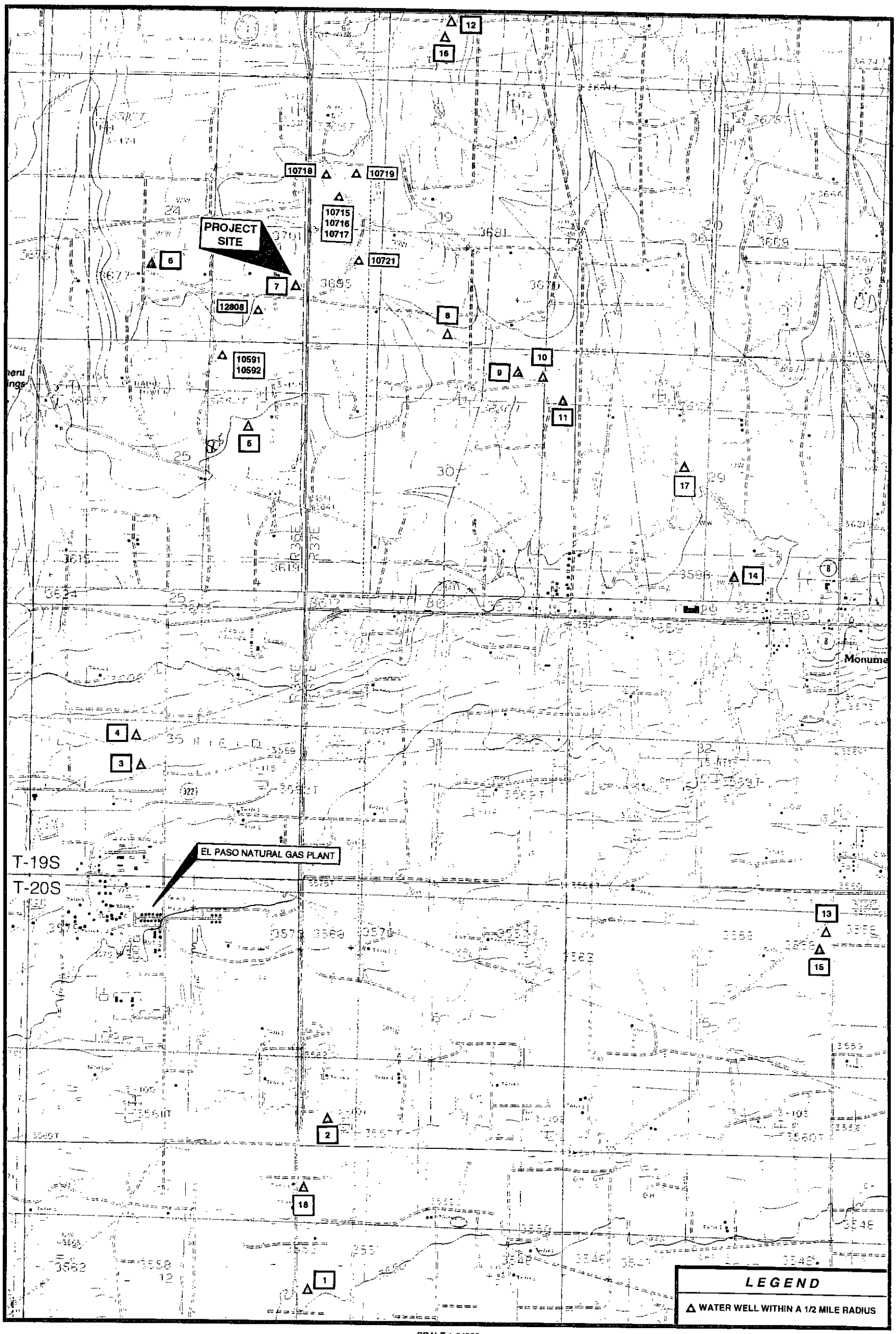
RECOMMENDATIONS

Recommendations for remediation consist of the following:

- Excavate soil with TPH concentrations exceeding closure concentrations.
- Conduct off-site landfarming of excavated soil.

MONUMENT NORTH QUADRANGLE
NEW MEXICO - LEA COUNTY
PRINTED 1985

MONUMENT SOUTH QUADRANGLE
NEW MEXICO - LEA COUNTY
PRINTED 1985



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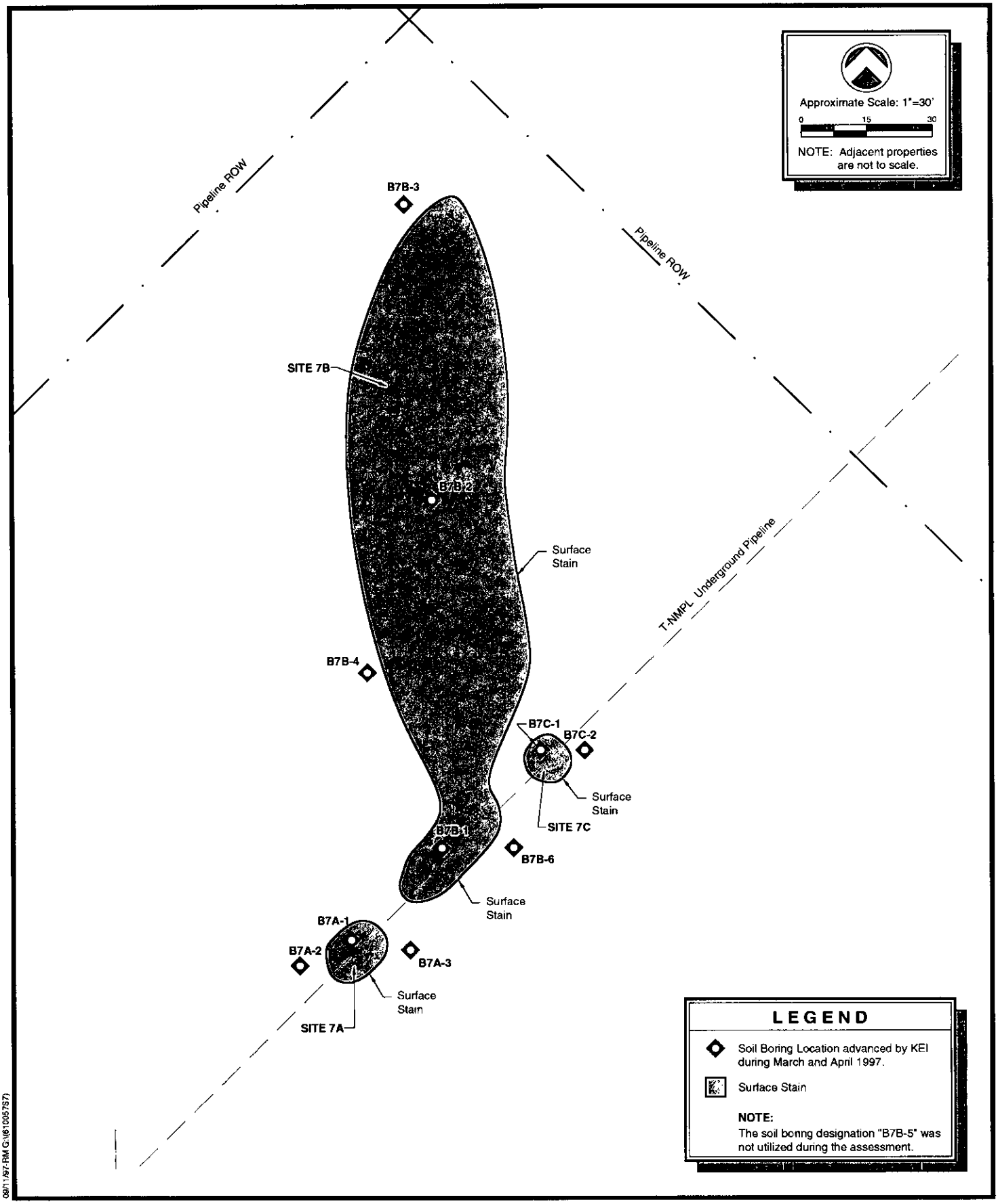
SITE LOCATION MAP			610057
TEXAS - NEW MEXICO PIPE LINE CO.	MONUMENT SITE NO. 7	LEA COUNTY, NEW MEXICO	FIG 1



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SITE DETAILS			610057
TEXAS - NEW MEXICO PIPE LINE CO.	MONUMENT SITE NO. 7	LEA COUNTY, NEW MEXICO	FIG 2

LEGEND

Gravel (GC), clayey to very clayey with limestone fragments and some organics, moist, dark brown.

Limestone (LS), well cemented and interbedded with sandstone, hard to very hard, moist, light grey to reddish brown.

Sand (SP), fine grained, with occassional gravel, medium dense to dense, moist to wet, reddish brown.

Indicates the depth interval from which a soil sample was selected and prepared for field head-space and/or laboratory analysis.

Indicates sample selected for laboratory analysis.

▽ Depth of groundwater during drilling.

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 photoionization detector.

ND = Indicates the concentration was below instrument detection limits.

NOTES:

1. The soil borings were advanced utilizing a direct-push sampling system on March 13 and utilizing an air rotary rig on March 25, April 4, and April 5, 1997.
2. Ground water was encountered during soil boring advancement at depths of 42 to 49 feet below ground surface in soil borings B7B-3, B7B-4, and B7C-2.
3. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
4. The depths indicated are referenced from the ground surface.
5. The soil borings were grouted to the ground surface with cement grout containing 5 percent bentonite.

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k·e·i	*LEGEND AND NOTES FOR SOIL BORINGS*	610057
	TEXAS - NEW MEXICO PIPE LINE CO. MONUMENT SITE NO. 7 LEA COUNTY, NEW MEXICO	FIG 3

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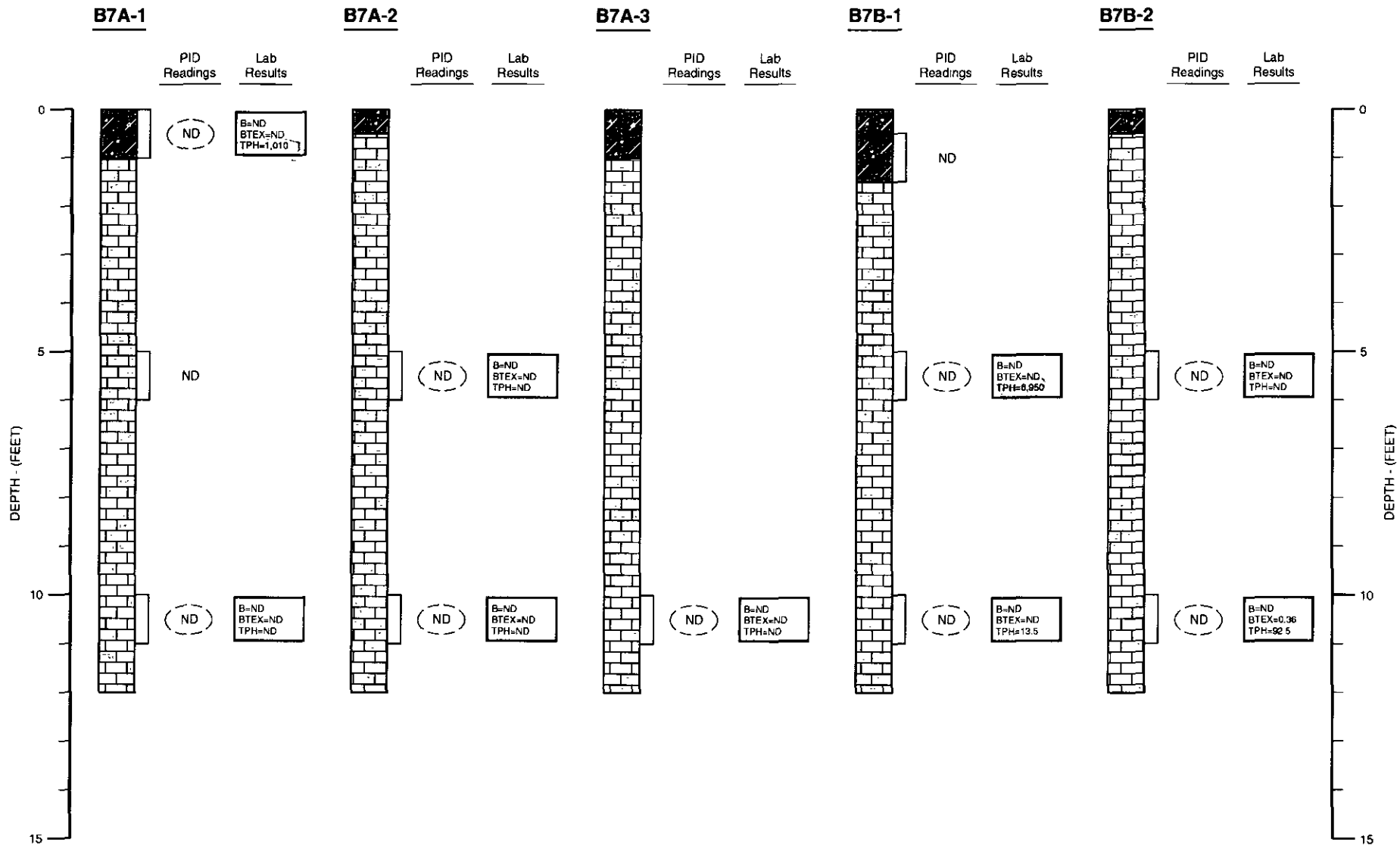
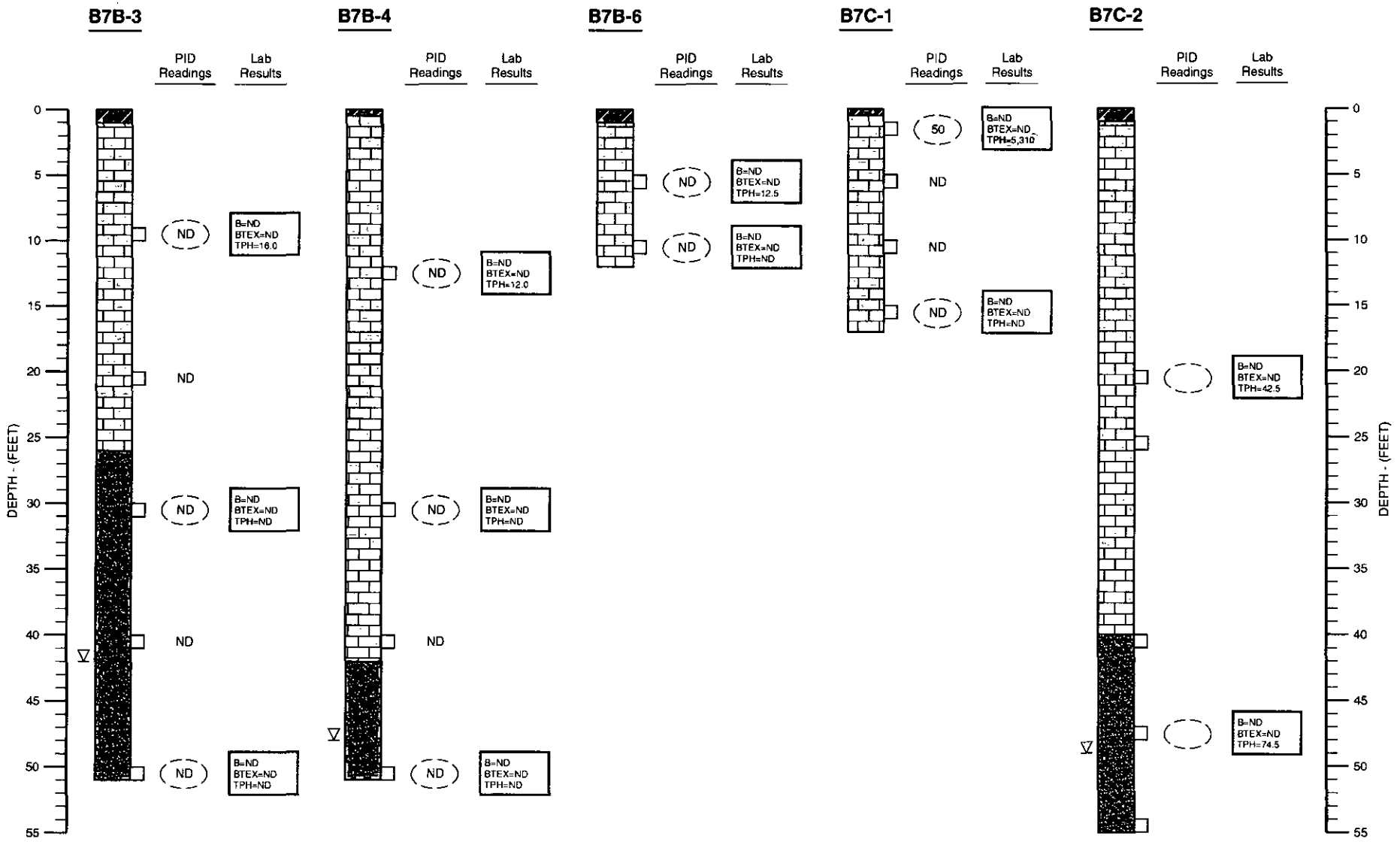


k·e·i	*LOG AND DETAILS OF SOIL BORINGS*	610057
	TEXAS - NEW MEXICO PIPE LINE CO. MONUMENT SITE NO. 7 LEA COUNTY, NEW MEXICO	FIG 4



k·e·i	*LOG AND DETAILS OF SOIL BORINGS*	610057
	TEXAS - NEW MEXICO PIPE LINE CO. MONUMENT SITE NO. 7 LEA COUNTY, NEW MEXICO	FIG 5

GENERAL NOTES

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

Depth is referenced from ground surface

Method detection limit:

Benzene	-	0.020 to 0.10 mg/kg
Toluene	-	0.020 to 0.10 mg/kg
Ethylbenzene	-	0.020 to 0.10 mg/kg
Xylene	-	0.060 to 0.30 mg/kg
BTEX	-	0.120 to 0.60 mg/kg
TPH	-	10 mg/kg
SPLP VOC	-	0.025 to 0.050 mg/l
SPLP SVOC	-	0.010 to 0.025 mg/l
SPLP TPH	-	1.2 mg/l
FOC	-	N/A

Laboratory testing method:

BTEX	-	EPA Method SW846-8020
TPH	-	EPA Method 418.1
SPLP VOC	-	EPA Method 1312/8260
SPLP SVOC	-	EPA Method 1312/8270
SPLP TPH	-	EPA Method 1312/418.1
FOC	-	ASTM D2974

TABLE I

SUMMARY OF LABORATORY BTEX/TPH RESULTS - SOIL
MONUMENT SITE NO. 7
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)
B7A-1	04/05/97	1-2	ND	ND	ND	ND	ND	1,010
B7A-1	04/05/97	10-11	ND	ND	ND	ND	ND	ND
B7A-2	04/05/97	5-6	ND	ND	ND	ND	ND	ND
B7A-2	04/05/97	10-11	ND	ND	ND	ND	ND	ND
B7A-3	04/05/97	10-11	ND	ND	ND	ND	ND	ND
B7B-1	04/05/97	5-6	ND	ND	ND	ND	ND	6,950
B7B-1	04/05/97	10-11	ND	ND	ND	ND	ND	13.5
B7B-2	04/04/97	5-6	ND	ND	ND	ND	ND	ND
B7B-2	04/04/97	10-11	ND	0.10	ND	0.26	0.36	92.5
B7B-3	03/25/97	9-10	ND	ND	ND	ND	ND	16.0
B7B-3	03/25/97	30-31	ND	ND	ND	ND	ND	ND
B7B-3	03/25/97	40-41	ND	ND	ND	ND	ND	ND
B7B-4	04/04/97	12-13	ND	ND	ND	ND	ND	12.0
B7B-4	04/04/97	30-31	ND	ND	ND	ND	ND	ND
B7B-4	04/04/97	50-51	ND	ND	ND	ND	ND	ND
B7B-6	04/04/97	5-6	ND	ND	ND	ND	ND	12.5
B7B-6	04/04/97	10-11	ND	ND	ND	ND	ND	ND
B7C-1	04/05/97	1-2	ND	ND	ND	ND	ND	5,310
B7C-1	04/05/97	15-16	ND	ND	ND	ND	ND	ND
B7C-2	03/25/97	20-21	ND	ND	ND	ND	ND	42.5
B7C-2	03/25/97	47-48	ND	ND	ND	ND	ND	74.5

TABLE II

SUMMARY OF LABORATORY SPLP RESULTS - SOIL
MONUMENT SITE NO. 7
LEA COUNTY, NEW MEXICO

CONSTITUENT	SAMPLE LOCATION	DEPTH INTERVAL	DATE SAMPLED	CONCENTRATION (mg/l)
Ethylbenzene	B7B-1	5-6	04/05/97	0.053
o-Xylene	B7B-1	5-6	04/05/97	0.025
m,p-Xylene	B7B-1	5-6	04/05/97	0.051
Di-n-butyl phthalate	B7B-1	5-6	04/05/97	0.033

NOTE:

The sample collected from Soil Boring B7B-1 at a depth of 5-6 feet bgs on 04/05/97 was analyzed for SPLP volatiles, SPLP semi-volatiles and SPLP TPH concentrations. Constituents not listed above were ND.

TABLE III

SUMMARY OF GEOTECHNICAL PARAMETER RESULTS
MONUMENT SITE NO. 7
LEA COUNTY, NEW MEXICO

PARAMETER	SAMPLE LOCATION	SAMPLE DATE	DEPTH (feet)	RESULT (%)
Fraction Organic Carbon (%)	B7B-3	03/25/97	5-6	1.3

10694	L	03517			05	01	1957	PMT	OWD	19S	37E	15	110	19S	37E	15	0964	64		CACTUS DRG CO	0.00	0.00	0			
10695	L	03378			12	07	1956	PMT	NDT	19S	37E	15	130	19S	37E	15	0864	64		MAKIN DRG CO	0.00	0.00	0			
10696	L	03525			05	06	1957	PMT	OWD	19S	37E	15	320	19S	37E	15	0964	64		DENVER DRG CORP	0.00	0.00	0			
10697	L	03417			01	23	1957	PMT	OWD	19S	37E	15	330	19S	37E	15	0864	64		SHELRO DRG CO	0.00	0.00	0			
10698	L	02602			08	04	1954	PMT	OWD	19S	37E	16	110	19S	37E	16	0764	64		OSCAR BOURG DRG CO	0.00	0.00	0			
10699	L	03185			04	26	1956	PMT	OWD	19S	37E	16	240	19S	37E	16	0864	64		CARPER DRG CO	0.00	0.00	0			
10700	L	01975			12	10	1953	PMT	OWD	19S	37E	16	430	19S	37E	16	0764	64		O & W DRILLING CO	0.00	0.00	0			
10701	L	03228			06	20	1956	PMT	OWD	19S	37E	16	440	19S	37E	16	0864	64		MAKIN DRG CO	0.00	0.00	0			
10702	L	06933			04	12	1972	PMT	OWD	19S	37E	17	423	19S	37E	17	0672	64		GULF OIL CORP	0.00	0.00	0			
12791	L	10271 EXP	L	10271	07	07	1992	PMT	EXP SHA	19S	37E	18	11	19S	37E	18	0792	64		SNYDER RANCHES INC	0.00	0.00	0	THIS EXP WELL WILL BE U		
SED FOR COM ST WHEN APPL L-10,271 APPROVED																											
12815	L	10271	L	10271 EXP	07	07	1992	PMT	CON SHA	19S	37E	18	11	19S	37E	18	0792	64	M	SNYDER RANCHES INC	0.00	10.00	10	THIS WELL IS EXPLORATOR		
Y WELL L-10,271-EXP																											
10703	L	02033			03	02	1953	LIC	NTU	19S	37E	18	1111	19S	37E	18	0764	64		SNYDER RANCHES LTD	0.00	17.60	14			
10704	L	01277			10	18	1951	PMT	NDT	19S	37E	18	241	19S	37E	18	0564	64		GULF OIL CORP	0.00	0.00	0			
10705	L	02615	L	02612	08	09	1954	LIC	PFP	19S	37E	18	3120	19S	36E	36	0266	64		WARREN PETRO CORP	0.00	102.87	103			
10706	L	00158	L	02617	08	09	1954	LIC	PFP	19S	37E	18	3310	20S	36E	01	0364	64		WARREN PETRO CORP	0.00	0.00	0			
10707	L	00157	L	02614	08	28	1945	LIC	PFP	19S	37E	18	3020	20S	36E	01	0266	64		WARREN PETRO CORP	0.00	93.75	94			
10708	L	00061	L	00062	04	23	1937	LIC	NDT	19S	37E	18	430	19S	37E	18	0364	64		TEXAS COMPANY THE	0.00	0.00	0			
10709	L	00062	L	00061	04	23	1937	LIC	NDT	19S	37E	18	440	19S	37E	18	0364	64		TEXAS COMPANY THE	0.00	0.00	0			
10710	L	00039	L	00041	08	26	1935	PMT	NDT	19S	37E	19	110	19S	37E	19	0364	64		HOLLAND L B	0.00	0.00	0			
10711	L	00040	L	00039	08	26	1935	PMT	NDT	19S	37E	19	110	19S	37E	19	0765	64		HOLLAND L B	0.00	0.00	0			
10712	L	00041	L	00039	08	26	1935	PMT	NDT	19S	37E	19	110	19S	37E	19	0765	64		HOLLAND L B	0.00	0.00	0			
10713	L	04313			10	23	1959	PMT	OWD	19S	37E	19	110	19S	37E	19	0964	64		MCVAY & STAFFORD	0.00	0.00	0			
10714	L	01259			10	18	1951	PMT	DCN	19S	37E	19	121	19S	37E	19	0564	64		GULF OIL CORP	0.00	3.00	0			
• 10715	L	00042	L	00044	08	26	1935	PMT	NDT	19S	37E	19	130	19S	37E	19	0364	64		HOLLAND L B	0.00	0.00	0			
• 10716	L	00043	L	00039	08	26	1935	PMT	NDT	19S	37E	19	130	19S	37E	19	0765	64		HOLLAND L B	0.00	0.00	0			
• 10717	L	00044	L	00039	08	26	1935	PMT	NDT	19S	37E	19	130	19S	37E	19	0765	64		HOLLAND L B	0.00	0.00	0			
• 10718	L	01249			10	18	1951	PMT	NDT	19S	37E	19	131	19S	37E	19	0564	64		GULF OIL CORP	0.00	0.00	0			
• 10719	L	01262			10	18	1951	PMT	DCN	19S	37E	19	132	19S	37E	19	0765	64		GULF OIL CORP	0.00	0.00	0			
10720	L	05430			07	15	1964	CAN	NDT	19S	37E	19	140	19S	37E	19	0776	64		GULF OIL CORP	0.00	0.00	0			
10721	L	06822			06	17	1971	CAN	NDT	19S	37E	19	310	19S	37E	19	0672	64		REPUBLIC FACTORS	0.00	0.00	0			
[illegible]	L	[illegible]			12	14	1992	PMT	EXT SHA	19S	37E	19	40222	19S	37E	19	0892	64		SNYDER RANCHES INC	0.00	3.00	3			
[illegible]	L	[illegible]			[illegible]															[illegible]	0.00	0.00	0			

Section 18
Sec 12 T19E

Sec 8
in Section 19

Monument State No. 1

12831	L	10300				12	07	1992	PMT	STK SHA	19S	36E	22	31234	19S	36E	22	0993	63	COOPER BETTY P	0.00	3.00	0					
10579	L	04746				10	19	1961	PMT	EXP	19S	36E	23	000	19S	36E	23	0776	63	CLIMAX CHEMICAL CO	0.00	0.00	0					
10580	L	04719	L	04719	X	09	15	1961	PMT	MFG	19S	36E	23	110	19S	36E	23	1064	63	CLIMAX CHEMICAL CO	0.00	375.50	376					
10581	L	03098				01	31	1955	PMT	DWD	19S	36E	23	120	19S	36E	23	0864	63	THE TEXAS CO	0.00	0.00	0					
10582	L	04748				10	25	1961	CAN	NOT	19S	36E	23	120	19S	36E	23	0265	63	FRISTOE CHARLES B	0.00	0.00	0					
10583	L	04772				12	14	1961	PMT	EXP	19S	36E	24	000	19S	36E	24	1064	63	CLIMAX CHEMICAL CO	0.00	0.00	0					
10584	L	01279				10	18	1951	PMT	NOT	19S	36E	24	214	19S	36E	24	0564	63	GULF OIL CORP	0.00	0.00	0					
10590	L	02131				00	00	1935	PBU	COM SHA	19S	36E	24	22	19S	36E	24	1093	63	COOPER JIMMIE T MR & MRS	0.00	30.00	25	WELL L-2131 ABANDONED;				
NOT BEING USED: LOCATED IN SE/4 SE/4																												
10585	L	02612	L	03557		06	04	1957	LIC	PPP	19S	36E	24	3224	19S	36E	36	0266	63	WARREN PETRO CORP	0.00	90.00	90					
10586	L	02614	L	00157		06	28	1945	LIC	PPP	19S	36E	24	3221	19S	36E	36	0265	63	WARREN PETRO CORP	0.00	56.25	56					
10587	L	02612	L	02615		08	09	1954	LIC	PPP	19S	36E	24	3222	20S	36E	01	0266	63	WARREN PETRO CORP	0.00	61.73	62					
10588	L	02613	L	00564		04	05	1948	LIC	PPP	19S	36E	24	3240	20S	36E	01	0266	63	WARREN PETRO CORP	0.00	15.00	15					
10589	L	01272				10	18	1951	PMT	OIL	19S	36E	24	414	19S	36E	24	0564	63	GULF OIL CORP	0.00	3.00	0					
12908	L	02131	S	L	02131	08	03	1992	PBU	COM SHA	19S	36E	24	44	19S	36E	24	1093	63	M	COOPER JIMMIE T MR & MRS	0.00	0.00	0				
10591	L	01262				10	18	1951	PMT	NOT	19S	36E	25	212	19S	36E	25	0564	63	GULF OIL CORP	0.00	0.00	0					
10592	L	01280				10	18	1951	PMT	NOT	19S	36E	25	212	19S	36E	25	0564	63	GULF OIL CORP	0.00	0.00	0					
10593	L	00024	L	00027		05	04	1935	LIC	NOT	19S	36E	25	310	19S	36E	25	0364	63	LEA COUNTY WATER	0.00	0.00	0					
10594	L	00025	L	00024		05	04	1935	LIC	NOT	19S	36E	25	310*	19S	36E	25	0365	63	LEA COUNTY WATER	0.00	0.00	0					
10595	L	00026	L	00024		05	04	1935	LIC	NOT	19S	36E	25	310*	19S	36E	25	0365	63	LEA COUNTY WATER	0.00	0.00	0					
10596	L	00027	L	00024		05	04	1935	LIC	NOT	19S	36E	25	310*	19S	36E	25	0365	63	LEA COUNTY WATER	0.00	0.00	0					
10597	L	00028	L	00024		05	04	1935	LIC	NOT	19S	36E	25	310*	19S	36E	25	0365	63	LEA COUNTY WATER	0.00	0.00	0					
10598	L	00029	L	00024		05	04	1935	LIC	NOT	19S	36E	25	310*	19S	36E	25	0365	63	LEA COUNTY WATER	0.00	0.00	0					
10599	L	01261				10	18	1951	PMT	NOT	19S	36E	25	412	19S	36E	25	0564	63	GULF OIL CORP	0.00	0.00	0					
10600	L	06121				03	29	1967	PMT	DOM	19S	36E	26	200	19S	36E	26	1068	63	BAUM W B	0.00	3.00	0					
10601	L	06672	L			05	04	1970	PMT	DOM	19S	36E	26	224	19S	36E	26	0771	63	COOPER JIMMIE T	0.00	3.00	0					
10602	L	01278				10	18	1951	PMT	NOT	19S	36E	26	412	19S	36E	26	0564	63	GULF OIL CORP	0.00	0.00	0					
10603	L	02423				12	01	1953	PMT	DWD	19S	36E	27	130	19S	36E	27	0764	63	CARPER DRILLING CO	0.00	0.00	0					
10604	L	02936				07	20	1955	PMT	DWD	19S	36E	27	330	19S	36E	27	0864	63	VERNA DRILLING CO	0.00	0.00	0					
10605	L	02969				07	25	1955	PMT	DOM	19S	36E	28	333	19S	36E	28	0864	63	MONUMENT CHURCH	0.00	3.00	0					
10606	L	01757	L	02715		01	07	1952	LIC	STK SHA	19S	36E	30	1211	19S	36E	30	0892	63	HUGHES LARRY BENNETT	20.00	60.00	50					

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70729

K.E.I. Consultants, Inc.

Project Name: TNMPL Monument

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Date Received in Lab: Mar 28, 1997 09:40 by CC
Date Report Faxed: Apr 2, 1997
XENCO contact: Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170729-001	170729-002	170729-003	170729-004	170729-005
	Field ID:	B7C-2	B7C-2	B7B-3	B7B-3	B7B-3
	Depth:	20-21'	47-48'	9-10'	30-31'	40-41'
Org. Content Analyzed by ASTM D2974		Date Analyzed - Analytical Results %				
				Apr 9, 1997		
Organic Content				1.3		
BTEX Analyzed by EPA 8020		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)				
		Mar 31, 1997	Mar 31, 1997	Mar 31, 1997	Mar 31, 1997	Mar 31, 1997
Benzene		< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Toluene		< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Ethylbenzene		< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
m,p-Xylenes		< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
o-Xylene		< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Total BTEX		< 0.120	< 0.120	< 0.120	< 0.120	< 0.120
TPH Analyzed by EPA 418.1		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)				
		Mar 29, 1997	Mar 29, 1997	Mar 29, 1997	Mar 29, 1997	Mar 29, 1997
Total Petroleum Hydrocarbons		42.5	74.5	16.0	< 10.0	< 10.0

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A19A59

ASTM D2974 Organic Content

Date Validated: Apr 10, 1997 10:00
Date Analyzed: Apr 9, 1997 12:10
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CG
Matrix: Solid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 170729- 003	[A] Sample Result	[B] Duplicate Result	[C] Method Detection Limit	[D] QC LIMITS Relative Difference	[E] LIMITS Relative Difference	[F] Qualifier
Parameter	%	%	%	%	%	
Organic Content	1.30	1.50	0.1	14.3	20.0	

Relative Difference [D] = 200*(B-A)/(B+A)
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 : 17A25B03

SW- 846 5030/8020 BTEX

Date Validated: Apr 1, 1997 09:00
Date Analyzed: Mar 31, 1997 16:16
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	0.1060	0.1000	0.0010	106.0	65-135	
Toluene	< 0.0010	0.1070	0.1000	0.0010	107.0	65-135	
Ethylbenzene	< 0.0010	0.1080	0.1000	0.0010	108.0	65-135	
m,p-Xylenes	< 0.0020	0.2200	0.2000	0.0020	110.0	65-135	
o-Xylene	< 0.0010	0.1070	0.1000	0.0010	107.0	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 : 17A25B03

SW- 846 5030/8020 BTEX

Date Validated: Apr 1, 1997 09:00
Date Analyzed: Mar 31, 1997 16:34
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CB
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 170728- 001	[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	2.500	2.640	2.000	0.020	25.0	5.4	125.0	132.0	65-135	
Toluene	< 0.020	2.440	2.600	2.000	0.020	25.0	6.3	122.0	130.0	65-135	
Ethylbenzene	< 0.020	2.480	2.600	2.000	0.020	25.0	4.7	124.0	130.0	65-135	
m,p-Xylenes	< 0.040	4.960	5.360	4.000	0.040	25.0	7.8	124.0	134.0	65-135	
o-Xylene	< 0.020	2.460	2.620	2.000	0.020	25.0	6.3	123.0	131.0	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 : 17A30B18

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 31, 1997 15:00
Date Analyzed: Mar 29, 1997 16:06
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] QC LIMITS 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 : 17A30B18

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Mar 31, 1997 15:00
Date Analyzed: Mar 29, 1997 16:21
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170729- 003 / 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	196	188	198	7.50	30.0	4.2	91.1	87.0	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

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL Monument

XENCO COC#: 1-70729
Date Received in Lab: Mar 28, 1997 09:40 by CC
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	B7C-1 (20-21')	170729-001	BTEX	SW-846	ppm	Standard	Mar 25, 1997 12:20		Mar 31, 1997 by CB	Mar 31, 1997 20:36 by CB
2			TPH	EPA 418.1	ppm	Standard	Mar 25, 1997 12:20		Mar 29, 1997 by HL	Mar 29, 1997 16:15 by HL
3	B7C-1 (47-48')	170729-002	BTEX	SW-846	ppm	Standard	Mar 25, 1997 14:15		Mar 31, 1997 by CB	Mar 31, 1997 20:53 by CB
4			TPH	EPA 418.1	ppm	Standard	Mar 25, 1997 14:15		Mar 29, 1997 by HL	Mar 29, 1997 16:18 by HL
5	B7B-3 (9-10')	170729-003	BTEX	SW-846	ppm	Standard	Mar 25, 1997 15:50		Mar 31, 1997 by CB	Mar 31, 1997 21:10 by CB
6			TPH	EPA 418.1	ppm	Standard	Mar 25, 1997 15:50		Mar 29, 1997 by HL	Mar 29, 1997 16:21 by HL
7			Org. Content	ASTM D2974	ppm	Standard	Mar 25, 1997 15:50	Apr 7,1997 11:30	Apr 8, 1997 by CG	Apr 9, 1997 12:05 by CG
8	B7B-3 (30-31')	170729-004	BTEX	SW-846	ppm	Standard	Mar 25, 1997 16:40		Mar 31, 1997 by CB	Mar 31, 1997 21:44 by CB
9			TPH	EPA 418.1	ppm	Standard	Mar 25, 1997 16:40		Mar 29, 1997 by HL	Mar 29, 1997 16:24 by HL
10	B7B-3 (40-41')	170729-005	BTEX	SW-846	ppm	Standard	Mar 25, 1997 17:00		Mar 31, 1997 by CB	Mar 31, 1997 22:01 by CB
11			TPH	EPA 418.1	ppm	Standard	Mar 25, 1997 17:00		Mar 29, 1997 by HL	Mar 29, 1997 16:27 by HL

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 # 170729-SA

Contractor KEI Phone (210) 680 3767

Address 5309 WURZBACH STE 100 SAN ANTONIO TX

Project Name TNMPL / Monument Project Director PAUL HARTNETT

Project Location SITE ~~TBD~~ 7 Project Manager ANN BAKER

Sampler Signature Project No. 610057-2-7

No. coolers this shipment: 1 Contractor COC # 0021

Carrier: UPS 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 (8020/8020-602)	TPH (418.1)	Please Hold	Turn-around * ASAP * 24 hrs 48 hrs Standard Remarks	LAB ONLY ID #
1	B7C-1 20-21'	3/25/97	1220	20-21'	X			X	4,8	G	X		B7C-X, 20-21'	2	X	X		Hold 8oz	1
2	B7C-1 47-48'	3/25/97	1415	47-48'	X			X	4,8	G	X		B7C-X, 47-48'	2	X	X		Hold 8oz	2
3	B7B-3 9-10'	3/25/97	1550	9-10'	X			X	4,8	G	X		B7B-3, 9-10'	2	X	X		Hold 8oz	3
4	B7B-3 30-31	3/25/97	1640	30-31'	X			X	4,8	G	X		B7B-3, 30-31'	2	X	X		Hold 8oz	4
5	B7B-3 40-41	3/25/97	1700	40-41'	X			X	4,8	G	X		B7B-3, 40-41'	2	X	X		Hold 8oz	5
6																			6
7																			7
8																			8
9																			9
10																			10

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	3/27/97	1700			
			Received For Laboratory by: Carla	3/28/97	09:40 (Via UPS)

Remarks

Pink (Contractor), Yellow & White (Lab)

* Pre-scheduling is recommended

Precision Analytical Services

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
BTEX by EPA 8020		Date Analyzed - Analytical Results								**ppm (mg/L - mg/Kg)**
		Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997
Benzene		< 0.020	< 0.020	< 0.020	< 0.10	< 0.10	< 0.020	< 0.020	< 0.10	< 0.10
Toluene		< 0.020	< 0.020	< 0.020	< 0.10	0.10	< 0.020	< 0.020	< 0.10	< 0.10
Ethylbenzene		< 0.020	< 0.020	< 0.020	< 0.10	< 0.10	< 0.020	< 0.020	< 0.10	< 0.10
m,p-Xylenes		< 0.040	< 0.040	< 0.040	< 0.20	0.26	< 0.040	< 0.040	< 0.20	< 0.20
o-Xylene		< 0.020	< 0.020	< 0.020	< 0.10	< 0.10	< 0.020	< 0.020	< 0.10	< 0.10
Total BTEX		< 0.120	< 0.120	< 0.120	< 0.60	0.36	< 0.120	< 0.120	< 0.60	< 0.60
SPLP Volatiles by 1312/8260		Date Analyzed - Analytical Results								**ppm (mg/L - mg/Kg)**
									Apr 16, 1997	
Benzene									< 0.025	
Bromobenzene									< 0.025	
Bromodichloromethane									< 0.025	
Bromoform									< 0.025	
Bromomethane									< 0.025	
n-Butylbenzene									< 0.025	
sec-Butylbenzene									< 0.025	
tert-Butylbenzene									< 0.025	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)								
									Apr 16, 1997	
Carbon Tetrachloride									< 0.025	
Chloroethane									< 0.050	
Chloroform									< 0.025	
Chloromethane									< 0.050	
2-Chlorotoluene									< 0.025	
4-Chlorotoluene									< 0.025	
1,2-Dibromo-3-chloropropane									< 0.025	
Dibromochloromethane									< 0.025	
1,2-Dibromoethane									< 0.025	
Dibromomethane									< 0.025	
1,2-Dichlorobenzene									< 0.025	
1,3-Dichlorobenzene									< 0.025	
1,4-Dichlorobenzene									< 0.025	
Dichlorodifluoromethane									< 0.025	
1,1-Dichloroethane									< 0.025	
1,2-Dichloroethane									< 0.025	
1,1-Dichloroethene									< 0.025	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
		Date Analyzed - Analytical Results								**ppm (mg/L - mg/Kg)**
									Apr 16, 1997	
cis-1,2-Dichloroethene									< 0.025	
trans-1,2-Dichloroethene									< 0.025	
1,2-Dichloropropane									< 0.025	
1,3-Dichloropropane									< 0.025	
2,2-Dichloropropane									< 0.025	
1,1-Dichloropropene									< 0.025	
Ethylbenzene									0.053	
Hexachlorobutadiene									< 0.025	
Isopropylbenzene									< 0.025	
p-Isopropyltoluene									< 0.025	
Methylene chloride									< 0.025	
Naphthalene									< 0.050	
n-Propylbenzene									< 0.025	
Styrene									< 0.025	
1,1,1,2-Tetrachloroethane									< 0.025	
1,1,2,2-Tetrachloroethane									< 0.025	
Tetrachloroethene									< 0.025	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
		Date Analyzed - Analytical Results							**ppm (mg/L - mg/Kg)**	
									Apr 16, 1997	
Toluene									< 0.025	
1,2,3-Trichlorobenzene									< 0.025	
1,2,4-Trichlorobenzene									< 0.025	
1,1,1-Trichloroethane									< 0.025	
1,1,2-Trichloroethane									< 0.025	
Trichloroethene									< 0.025	
Trichlorofluoromethane									< 0.025	
1,2,3-Trichloropropane									< 0.025	
1,2,4-Trimethylbenzene									< 0.025	
1,3,5-Trimethylbenzene									< 0.025	
Vinyl chloride									< 0.025	
o-Xylene									0.025	
m,p-Xylenes									0.051	
Bromochloromethane									< 0.025	
Chlorobenzene									< 0.025	
MTBE									< 0.050	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
SPLP Semivolatiles by 1312/8270	Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**									
									Apr 16, 1997	
Acenaphthene									< 0.025	
Acenaphthylene									< 0.025	
Anthracene									< 0.025	
Benzo(a)anthracene									< 0.025	
Benzo(a)pyrene									< 0.025	
Benzo(b)fluoranthene									< 0.025	
Benzo(g,h,i)perylene									< 0.025	
Benzo(k)fluoranthene									< 0.025	
Butyl benzyl phthalate									< 0.025	
Carbazole									< 0.025	
4-Chloroaniline									< 0.025	
bis [2-Chloroethoxy] methane									< 0.025	
bis [2-Chloroethyl] ether									< 0.025	
bis [2-Chloroisopropyl] ether									< 0.025	
2-Chloronaphthalene									< 0.025	
2-Chlorophenol									< 0.025	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Name: *TNMPL*
Project Manager: Ann Baker
Project Location: Site 7

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	Lab ID:	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)								
									Apr 16, 1997	
4-Chlorophenyl-phenyl ether									< 0.025	
Chrysene									< 0.025	
Dibenzofuran									< 0.025	
Dibenzo(a,h)anthracene									< 0.025	
1,2-Dichlorobenzene									< 0.025	
1,3-Dichlorobenzene									< 0.025	
1,4-Dichlorobenzene									< 0.025	
3,3'-Dichlorobenzidine									< 0.025	
2,4-Dichlorophenol									< 0.025	
Diethyl phthalate									< 0.025	
2,4-Dimethylphenol									< 0.025	
Dimethyl phthalate									< 0.025	
4,6-Dinitro-2-methylphenol									< 0.063	
2,4-Dinitrophenol									< 0.063	
2,4-Dinitrotoluene									< 0.025	
2,6-Dinitrotoluene									< 0.025	
Di-n-octyl phthalate									< 0.025	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
		Date Analyzed - Analytical Results								
									Apr 16, 1997	
bis [2-Ethylhexyl] phthalate									< 0.025	
Fluoranthene									< 0.025	
Fluorene									< 0.025	
Hexachlorobenzene									< 0.025	
Hexachlorobutadiene									< 0.025	
Hexachlorocyclopentadiene									< 0.025	
Hexachloroethane									< 0.025	
Indeno(1,2,3-cd)pyrene									< 0.025	
Isophorone									< 0.025	
2-Methylnaphthalene									< 0.025	
2-Methylphenol									< 0.025	
4-Methylphenol									< 0.025	
Naphthalene									< 0.025	
2-Nitroaniline									< 0.063	
3-Nitroaniline									< 0.063	
4-Nitroaniline									< 0.063	
Nitrobenzene									< 0.025	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
		Date Analyzed - Analytical Results ppm (mg/L - mg/Kg)								
									Apr 16, 1997	
2-Nitrophenol									< 0.025	
4-Nitrophenol									< 0.025	
N-Nitroso-di-n-propylamine									< 0.025	
N-Nitrosodiphenylamine									< 0.025	
Pentachlorophenol									< 0.063	
Phenanthrene									< 0.025	
Phenol									< 0.025	
Pyrene									< 0.025	
Pyridine									< 0.025	
1,2,4-Trichlorobenzene									< 0.025	
2,4,5-Trichlorophenol									< 0.063	
2,4,6-Trichlorophenol									< 0.025	
4-Bromophenyl-phenylether									< 0.025	
4-Chloro-3-Methylphenol									< 0.025	
Di-n-butyl phthalate									0.033	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-001	170813-002	170813-003	170813-004	170813-005	170813-006	170813-007	170813-008	170813-009
	Field ID:	B7B-4	B7B-4	B7B-4	B7B-2	B7B-2	B7B-6	B7B-6	B7B-1	B7B-1
	Depth:	12'	30'	50'	5'	10'	5'	10'	5'	10'
Total Petroleum Hydrocarbons by EPA 418.1		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
		Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997
Total Petroleum Hydrocarbons		12.0	< 10.0	< 10.0	< 10.0	92.5	12.5	< 10.0	6950	13.5
SPLP TPH by 1312/418.1		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
									Apr 24, 1997	
Total Petroleum Hydrocarbons									< 1.2	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-70813

K.E.I. Consultants, Inc.

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

Project Name: TNMPL

Date Received in Lab : Apr 8, 1997 12:00 by CMC
Date Report Faxed: Apr 25, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	170813-010	170813-011	170813-012	170813-013	170813-014	170813-015	170813-016		
	Field ID:	B7A-1	B7A-1	B7A-2	B7A-2	B7A-3	B7C-1	B7C-1		
	Depth:	1'	10'	5'	10'	10'	1'	15'		
Organic Content by ASTM D2974		Date Analyzed - Analytical Results %								
				Apr 18, 1997						
Organic Content				1.1						
BTEX by EPA 8020		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
		Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997		
Benzene		< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.10	< 0.020		
Toluene		< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.10	< 0.020		
Ethylbenzene		< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.10	< 0.020		
m,p-Xylenes		< 0.20	< 0.040	< 0.040	< 0.040	< 0.040	< 0.20	< 0.040		
o-Xylene		< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.10	< 0.020		
Total BTEX		< 0.60	< 0.120	< 0.120	< 0.120	< 0.120	< 0.60	< 0.120		
Total Petroleum Hydrocarbons by EPA 418.1		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
		Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 9, 1997	Apr 10, 1997	Apr 9, 1997		
Total Petroleum Hydrocarbons		1010	< 10.0	< 10.0	< 10.0	< 10.0	5310	< 10.0		

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A25B13

SW- 846 5030/8020 BTEX

Date Validated: Apr 10, 1997 09:00
Date Analyzed: Apr 9, 1997 14:42
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
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] Method 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
Benzene	< 0.0010	0.1000	0.1060	0.1000	0.0010	25.0	5.8	100.0	106.0	65-135	
Toluene	< 0.0010	0.1010	0.1040	0.1000	0.0010	25.0	2.9	101.0	104.0	65-135	
Ethylbenzene	< 0.0010	0.1030	0.1040	0.1000	0.0010	25.0	1.0	103.0	104.0	65-135	
m,p-Xylenes	< 0.0020	0.2100	0.2140	0.2000	0.0020	25.0	1.9	105.0	107.0	65-135	
o-Xylene	< 0.0010	0.1020	0.1030	0.1000	0.0010	25.0	1.0	102.0	103.0	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

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

ENCO Laboratories

Certificate Of Quality Control for Batch : 17A01B76

SW846- 8260 Volatile Organic Analysis

Date Validated: Apr 17, 1997 16:50
Date Analyzed: Apr 16, 1997 14:25
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CE
Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170813- 008 / Parameter	[A] Sample Result mg/L	[B] Matrix Spike Result mg/L	[C] Matrix Spike Duplicate Result mg/L	[D] Matrix Spike Amount mg/L	[E] Method Detection Limit mg/L	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	< 0.0050	0.2605	0.2585	0.2500	0.0050	21.0	0.8	104.2	103.4	66-142	
Chlorobenzene	< 0.0050	0.2485	0.2510	0.2500	0.0050	21.0	1.0	99.4	100.4	60-133	
1,1-Dichloroethene	< 0.0200	0.2360	0.2255	0.2500	0.0200	22.0	4.6	94.4	90.2	59-172	
Toluene	0.0165	0.2675	0.2655	0.2500	0.0050	21.0	0.8	100.4	99.6	59-139	
Trichloroethene	< 0.0150	0.2470	0.2440	0.2500	0.0150	24.0	1.2	98.8	97.6	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

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A34A73

SW846- 8270 PAHs by GC- MS

Date Validated: Apr 17, 1997 18:28
Date Analyzed: Apr 16, 1997 17:38
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: MM
Matrix: Liquid

	BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY										
Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Duplicate Result mg/L	[D] Blank Spike Amount mg/L	[E] Method Detection Limit mg/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	< 0.0040	0.0756	0.0744	0.1000	0.0040	31.0	1.6	75.6	74.4	46-118	
4-Chloro-3-Methylphenol	< 0.0020	0.0582	0.0596	0.1000	0.0020	42.0	2.4	58.2	59.6	23-97	
2-Chlorophenol	< 0.0020	0.0728	0.0744	0.1000	0.0020	40.0	2.2	72.8	74.4	27-123	
1,4-Dichlorobenzene	< 0.0020	0.0722	0.0722	0.1000	0.0020	28.0	0.0	72.2	72.2	36-97	
2,4-Dinitrotoluene	< 0.0020	0.0710	0.0714	0.1000	0.0020	38.0	0.6	71.0	71.4	24-96	
N-Nitroso-di-n-propylamine	< 0.0080	0.0772	0.0778	0.1000	0.0080	38.0	0.8	77.2	77.8	41-116	
4-Nitrophenol	< 0.0080	0.0222	0.0214	0.1000	0.0080	50.0	3.7	22.2	21.4	10-80	
Pentachlorophenol	< 0.0040	0.0764	0.0754	0.1000	0.0040	50.0	1.3	76.4	75.4	9-103	
Phenol	< 0.0020	0.0326	0.0326	0.1000	0.0020	42.0	0.0	32.6	32.6	12-89	
Pyrene	< 0.0040	0.0810	0.0802	0.1000	0.0040	31.0	1.0	81.0	80.2	26-127	
1,2,4-Trichlorobenzene	< 0.0020	0.0726	0.0732	0.1000	0.0020	28.0	0.8	72.6	73.2	39-98	

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

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A19A68

ASTM D2974 Organic Content

Date Validated: Apr 21, 1997 08:15
Date Analyzed: Apr 18, 1997 16:10
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: CG
Matrix: Solid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 170812- 006	[A] Sample Result	[B] Duplicate Result	[C] Method Detection Limit	[D] QC Relative Difference	[E] LIMITS Relative Difference	[F] Qualifier
Parameter	%	%	%	%	%	
Organic Content	0.53	0.46	0.1	14.1	20.0	

Relative Difference [D] = 200*(B-A)/(B+A)
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 : 17A30B29

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Apr 9, 1997 17:00
Date Analyzed: Apr 9, 1997 14:00
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OL
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 170813- 012	[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	%	%	%	%	%	
Total Petroleum Hydrocarbons	< 7.50	154	178	198	7.50	30.0	14.5	77.9	90.1	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 : 17A30B29

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Apr 9, 1997 17:00
Date Analyzed: Apr 9, 1997 13:57
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OL
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	152	198	7.50	76.9	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 : 17A30B28

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Apr 9, 1997 17:00
Date Analyzed: Apr 9, 1997 13:12
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OL
Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 170813- 003 / 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	8.00	180	189	198	7.50	30.0	4.9	87.0	91.6	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

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A30B28

EPA 418.1 Total Petroleum Hydrocarbons

Date Validated: Apr 9, 1997 17:00
Date Analyzed: Apr 9, 1997 13:09
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OL
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	157	198	7.50	79.5	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 : 17A07C93

EPA 1312/418.1 SPLP TPH

Date Validated: Apr 24, 1997 16:30
Date Analyzed: Apr 24, 1997 15:56
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: JS
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] Method 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	< 0.52	4.72	4.53	4.76	0.52	25.0	4.1	99.2	95.2	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

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

Laboratories

CHAIN OF CUSTODY REPORT
CHRONOLOGY OF HOLDING TIMES

K.E.I. Consultants, Inc.
Project Name: TNMPL

XENCO COC#: 1-70813
Date Received in Lab: Apr 8, 1997 12:00 by CMC
XENCO contact : Carlos Castro/Edward Yonemoto
QA/QC Level: 3

Project ID: 610057-2-7
Project Manager: Ann Baker
Project Location: Site 7

							Date & Time		Holding Time		QC Lab Codes	
	Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Sample Collected	Addition Requested	Expiration For Extraction	Expiration For Analysis	Batch ID	Method Code
1	B7B-4@12' Soil	170813-001	BTEX	SW-846	ppm	Standard	Apr 4, 1997 12:08		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
2			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 12:08		May 2, 1997	May 2, 1997	17A30B28	W4181A
3	B7B-4@30' Soil	170813-002	BTEX	SW-846	ppm	Standard	Apr 4, 1997 12:37		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
4			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 12:37		May 2, 1997	May 2, 1997	17A30B28	W4181A
5	B7B-4@50' Soil	170813-003	BTEX	SW-846	ppm	Standard	Apr 4, 1997 13:29		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
6			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 13:29		May 2, 1997	May 2, 1997	17A30B28	W4181A
7	B7B-2@5' Soil	170813-004	BTEX	SW-846	ppm	Standard	Apr 4, 1997 14:50		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
8			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 14:50		May 2, 1997	May 2, 1997	17A30B28	W4181A
9	B7B-2@10' Soil	170813-005	BTEX	SW-846	ppm	Standard	Apr 4, 1997 15:42		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
10			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 15:42		May 2, 1997	May 2, 1997	17A30B28	W4181A
11	B7B-6@5' Soil	170813-006	BTEX	SW-846	ppm	Standard	Apr 4, 1997 16:38		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
12			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 16:38		May 2, 1997	May 2, 1997	17A30B28	W4181A
13	B7B-6@10' Soil	170813-007	BTEX	SW-846	ppm	Standard	Apr 4, 1997 17:09		Apr 18, 1997	Apr 18, 1997	17A25B13	S8020K
14			TPH	EPA 418.1	ppm	Standard	Apr 4, 1997 17:09		May 2, 1997	May 2, 1997	17A30B28	W4181A
15	B7B-1@5' Soil	170813-008	BTEX	SW-846	ppm	Standard	Apr 5, 1997 09:10		Apr 19, 1997	Apr 19, 1997	17A25B13	S8020K
16			TPH	EPA 418.1	ppm	Standard	Apr 5, 1997 09:10		May 3, 1997	May 3, 1997	17A30B28	W4181A
17			TCLP Vol.	EPA 1311/8260	mg/L	Standard	Apr 5, 1997 09:10	Apr14,1997 13:30	Apr 19, 1997	Apr 19, 1997	A07B76	~~VTCLPVA~~ ✓
18			SPLP-SV(TCL)	SW846-1312/82	ug/L	Standard	Apr 5, 1997 09:10	Apr14,1997 13:30	Apr 12, 1997	May 15, 1997	17A175	S8270GS ✓
19			SPLP TPH	EPA	ppm	Standard	Apr 5, 1997 09:10	Apr14,1997 13:30	May 3, 1997	May 3, 1997	A07C93	W4181SP ✓
20	B7B-1@10' Soil	170813-009	BTEX	SW-846	ppm	Standard	Apr 5, 1997 09:50		Apr 19, 1997	Apr 19, 1997	17A25B13	S8020K
21			TPH	EPA 418.1	ppm	Standard	Apr 5, 1997 09:50		May 3, 1997	May 3, 1997	17A30B28	W4181A
22	B7A-1@1' Soil	170813-010	BTEX	SW-846	ppm	Standard	Apr 5, 1997 10:15		Apr 19, 1997	Apr 19, 1997	17A25B13	S8020K
23			TPH	EPA 418.1	ppm	Standard	Apr 5, 1997 10:15		May 3, 1997	May 3, 1997	17A30B28	W4181A
24	B7A-1@10' Soil	170813-011	BTEX	SW-846	ppm	Standard	Apr 5, 1997 11:06		Apr 19, 1997	Apr 19, 1997	17A25B13	S8020K
25			TPH	EPA 418.1	ppm	Standard	Apr 5, 1997 11:06		May 3, 1997	May 3, 1997	17A30B29	W4181A
26	B7A-2@5' Soil	170813-012	BTEX	SW-846	ppm	Standard	Apr 5, 1997 11:38		Apr 19, 1997	Apr 19, 1997	17A25B13	S8020K
27			TPH	EPA 418.1	ppm	Standard	Apr 5, 1997 11:38		May 3, 1997	May 3, 1997	17A30B29	W4181A
28			Org. Content	ASTM D2974	%	Standard	Apr 5, 1997 11:38	Apr14,1997 13:30	Apr 5, 1997	Apr 5, 1997	A19A66	AD2974A ✓

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 # 170813BA

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

Address: 5309 WURZBACH SUITE 100 SA, TX. 78023

Project Name: TRMPC | Project Director: PAUL HANCHETT

Project Location: SITE 7 | Project Manager: ANN BAKER

Sampler Signature: | Project No.: 610057-2-7

No. coolers this shipment: 1 | Contractor COC #

Carrier: UPS | Quote #:

Airbill No. | P.O. No: 7163

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

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 (602/8020-802)	TPH (418.1)	Please Hold	Remarks	LAB ONLY ID #
1	e12 B7B-4	4/4/97	1208	12'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		HOLD 8oz	1
2	e30 B7B-4	4/4/97	1237	30'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	2
3	e50 B7B-4	4/4/97	1329	50'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	3
4	e5 B7B-2	4/4/97	1450	5'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	4
5	e10 B7B-2	4/4/97	1542	10'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	5
6	e5 B7B-6	4/4/97	1638	5	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	6
7	e10 B7B-6	4/4/97	1709	10	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	7
8	B7B-1	4/5/97	0910	5'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	8
9	B7B-1	4/5/97	0950	10'	X			X	1-8oz 1-4oz	G	X		SOIL	2	X	X		" "	9
10																		" "	10

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

Relinquished By: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	4/7/97				
			Received For Laboratory by: Colleen M Cruver	4/8/97	1200

Remarks: VIA UPS

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 # 170813-84

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

Address: 5303 WURZBACH Suite 100 SA TX 78238

Project Name: TEMPC | Project Director: PAUL HARTNETT

Project Location: SITE 7 | Project Manager: ANNE BAKER

Sampler Signature: | Project No.: 610057-2-7

No. coolers this shipment: 1 | Contractor COC #

Carrier: UPS | Quote #:

Airbill No. | P.O. No.: 7163

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

	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 (602/8020-602)	TPH (418.1)	Please Hold	Remarks	LAB ONLY ID #
1	@ 1' B7A-1	4/5/97	1015	1'	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		HOLD for	1
2	@ 10' B7A-1	4/5/97	1106	10'	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		" "	2
3	@ 5 B7A-2	4/5/97	1138	5	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		" "	3
4	@ 10 B7A-2	4/5/97	1157	10	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		" "	4
5	@ 10' B7A-3	4/5/97	1302	10'	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		" "	5
6	B7A-3	4/5/97	VOID																6
7	@ 1' B7C-1	4/5/97	1420	1'	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		" "	7
8	@ 15' B7C-1	4/5/97	1555	15'	X			X	1-8oz 1-4oz	G	X		Soil	2	X	X		" "	8
9																			9
10																			10

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	4/7/97	1600			
			Received For Laboratory by: Colleen M Crinion	4/8/97	1200

Remarks: VIA UPS

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

* Pre-scheduling is recommended

Precision Analytical Services