

LRP-96  
10.24.05

# CLOSURE REPORT

**TEXAS - NEW MEXICO PIPE LINE COMPANY  
MONUMENT SITE NO. 9  
UNIT A, SECTION 30, TOWNSHIP 19 SOUTH, RANGE 37 EAST  
LEA COUNTY, NEW MEXICO**



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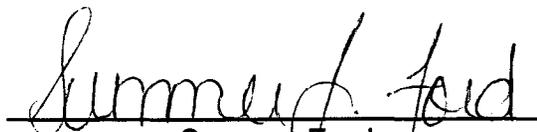
PREPARED FOR:

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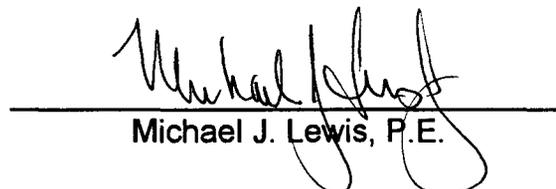
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## PURPOSE AND SCOPE

The objective of the site closure activities was to obtain closure for Monument Site No. 9 based on New Mexico Oil Conservation Division (OCD) regulations. The following activities were performed to achieve this objective:

- determination of 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

3/11/97  
5/12/1999

The Texas - New Mexico Pipe Line Company (TNMPL) alleged release site is located approximately 1.5 miles northwest of Monument, Lea County, New Mexico in Unit A, Section 30, Township 19 South, Range 37 East. A site location map is presented as FIG. 1. Site details are presented on FIG. 2.

Monument Site No. 9 is owned by the State of New Mexico and leased by Mr. Jimmy Cooper. Features observed at the site included two adjoining areas of surface staining, approximately 66 feet by 60 feet, and 30 feet by 30 feet.

Five soil borings were advanced on March 7 and 8, 1997, to approximate depths of 14 to 20 feet below the ground surface. Ground water was encountered in the soil borings at an approximate depth of 18 feet below the ground surface. Soil samples were collected for field screening and laboratory analysis. The approximate locations of the soil borings are presented in FIG. 2. Results of the investigation are presented in the KEI report dated August 20, 1997.

## CLOSURE ACTIVITIES

### WATER WELL SURVEY

A search of State of New Mexico water well registrations indicated no registered water wells within a 1/2-mile radius of the site. A copy of the well survey information is presented in 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	<u>Less than 50 Feet</u>	20 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
<b>Total Ranking Score</b>		<b>20 Points</b>

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	100 + Background

#### SOIL EXCAVATION, CHARACTERIZATION, LANDFARMING, AND CONFIRMATION

Hydrocarbon impacted soil was excavated and stockpiled on plastic. The measurements of the excavation and soils removed are summarized below:

MEASUREMENT	APPROXIMATE VALUE
Length	100 feet
Width	110 to 120 feet
Area	<u>11,500 square feet</u>
Depth	20 feet
Volume Landfarmed	5,432 cubic yards
Approximate Depth to Water (based on well records within a 1 mile radius of the site)	<u>18 feet</u>

Soils were hauled to C&C Landfarm beginning on January 26, 1999, and finishing on February 15, 1999. Disposal documentation is included in APPENDIX B. A composite sample of the stockpile was sampled for SPLP SVOC, VOC, and TPH. All constituents not listed in the table below were below laboratory detection limits (ND).

CONSTITUENT	CONCENTRATION RANGE (mg/L)
2-Methylnapthalene	0.002
1-Methylnapthalene	0.002
Di-n-butylphthalate	0.002

During the excavation activities, composite soil samples from the sides and bottom of the excavated area were collected and submitted for determination of BTEX and TPH

concentrations. The excavated area was divided into 2 sections for the purpose of obtaining soil samples: Section A and Section B. A water sample was obtained from a trench located in the center of the excavation and submitted for determination of BTEX, PAH, metals, TDS, and cation/anion concentrations. Excavation samples collected on January 7, 1999, revealed TPH concentrations below closure limits. Final concentration ranges are summarized below:

CONSTITUENT	SECTION A (mg/kg)	SECTION B (mg/kg)	WATER TRENCH (mg/kg)
BENZENE	ND	ND	ND
BTEX	ND to 0.411	ND	ND
TPH	ND	ND to 18	---

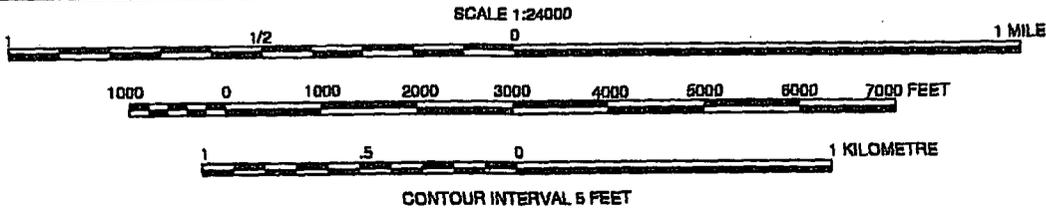
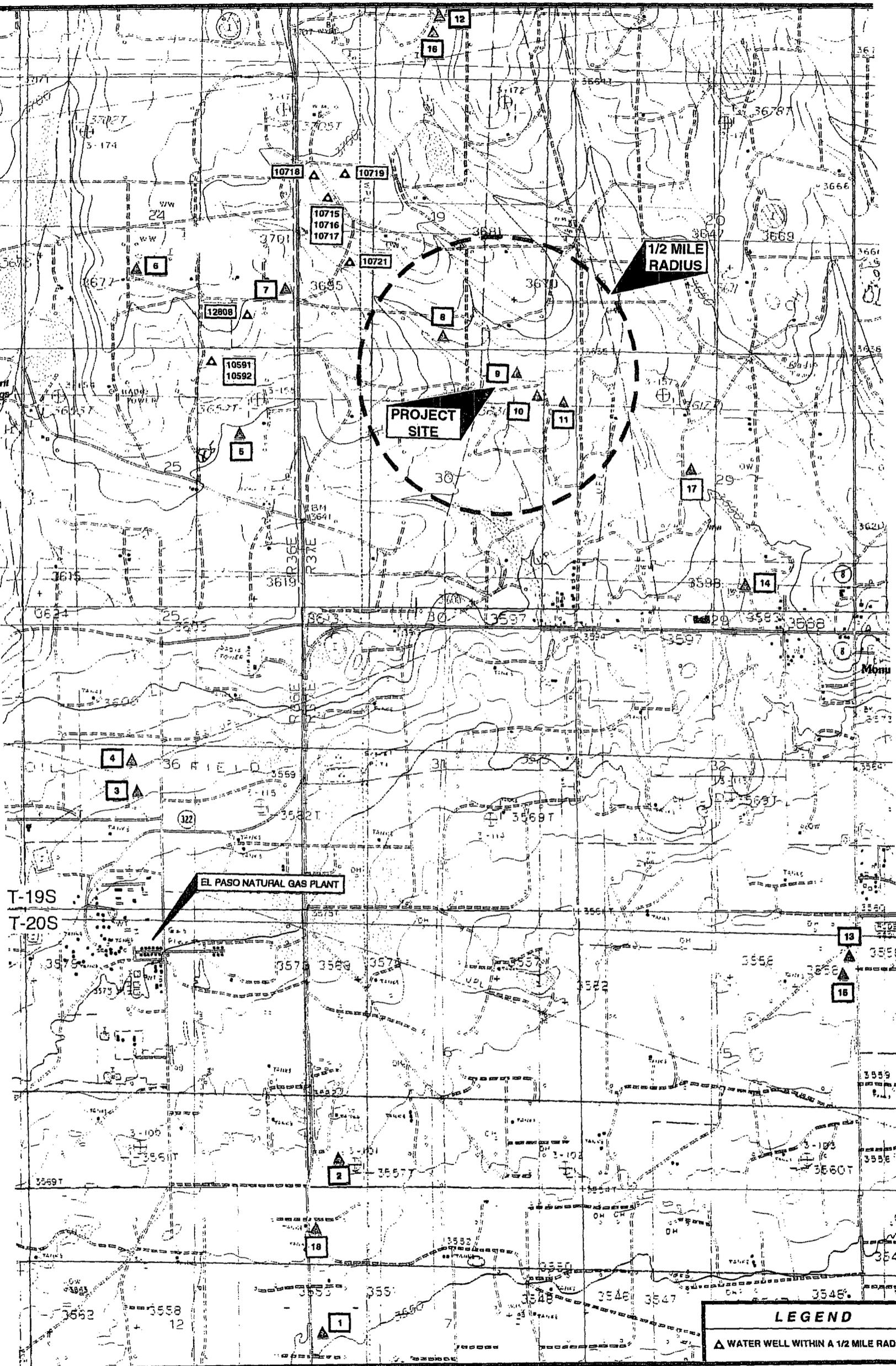
Soil analytical results are summarized in TABLES I and II. The water analytical results are summarized in TABLES III through V. All PAH and total metal concentrations for the water sample were ND and, therefore, not represented in the attached tables. The laboratory reports and chain-of-custody documentation are provided in APPENDIX C. Sampling locations are shown on FIG. 2.

## CLOSURE SUMMARY

The following can be summarized from field and laboratory data:

- stained soil in two distinct areas at the site indicated impact from an apparent crude oil pipeline release
- 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 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.

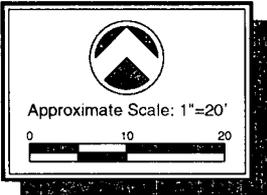


**SITE LOCATION MAP**

TEXAS - NEW MEXICO PIPE LINE CO.

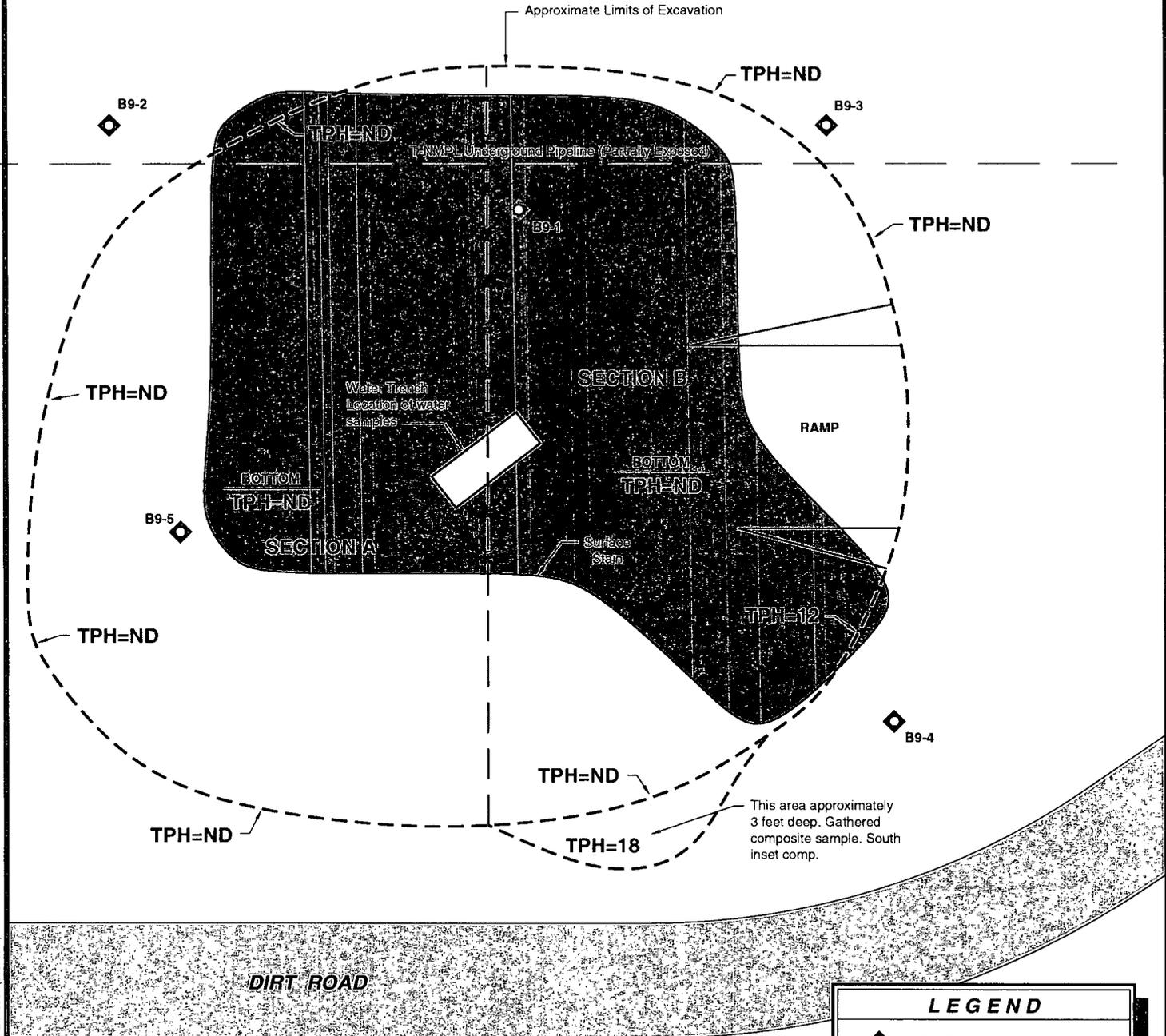
MONUMENT SITE NO. 9

LEA COUNTY, NEW MEXICO



**CLOSURE LEVEL**

**TPH=100 mg/kg**



**NOTE:**

Bottom and sidewall samples were composite samples.

<b>LEGEND</b>	
	Soil Boring Locations
	Surface Stain
	Approximate Limits of Excavation
TPH=	Total Petroleum Hydrocarbons Concentration (mg/kg)
ND=	Not Detected above detection/reporting limits.

C3/1699-RM G:\SADFT\PROJECTS\TMPL\610057\6157\TPH



<b>SITE DETAILS</b>		
TEXAS - NEW MEXICO PIPE LINE CO.	MONUMENT SITE NO. 9	LEA COUNTY, NEW MEXICO

<b>610057-2-9</b>
<b>FIG 2</b>

## GENERAL NOTES

- ND - Indicates constituent was not detected above the method detection limit.  
--- - Indicates depth not applicable (TABLE I).

### Method detection limits:

SOIL:	BTEX	- 0.100 mg/kg
	TPH	- 10 mg/kg
	SPLP SVOC	- 0.001 to 0.025 mg/l
	SPLP VOC	- 0.001 to 0.010 mg/l
	SPLP TPH	- 1 mg/l
WATER:	BTEX	- 0.001 mg/l
	PAH	- 0.001 mg/l
	Total Metals	- 0.0010 to 0.10 ppm

### Laboratory test methods:

SOIL:	BTEX	- EPA Method SW846-8021B, 5030
	TPH	- EPA Modified Method 8015-DRO
	SPLP SVOC	- EPA Method SW846-1312\8270
	SPLP VOC	- EPA Method SW846-1312\8260
	SPLP TPH	- EPA Method SW846-1312, 418.1
WATER:	BTEX	- EPA Method SW846-8021B, 5030
	PAH	- EPA Method SW846-8270, 3510
	Total Metals	- EPA Method 200.7
	Heavy Metals	- ICP-Scan
	TDS	- EPA Method 160.1
	Cations/Anions	- EPA Method 325.3, 375.4, SW846-3005, 7140, 7460, 7770, 7610

TABLE I

**SUMMARY OF SOIL RESULTS - BTEX AND TPH  
TEXAS - NEW MEXICO PIPE LINE COMPANY  
MONUMENT SITE NO. 9  
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)
B9-1	03/07/97	0 - 1.5	ND	1.63	0.61	5.12	7.36	38,900
B9-1	03/07/97	5 - 6	ND	ND	ND	ND	ND	293
B9-1	03/07/97	17 - 18	ND	ND	ND	ND	ND	ND
B9-2	03/07/97	5 - 6	0.236	0.595	ND	0.818	1.649	ND
B9-2	03/07/97	14 - 16	ND	ND	ND	ND	ND	ND
B9-3	03/07/97	5 - 6	ND	ND	ND	0.945	0.945	2,980
B9-3	03/07/97	14 - 16	ND	ND	ND	ND	ND	ND
B9-4	03/07/97	5 - 6	ND	ND	ND	ND	ND	ND
B9-4	03/07/97	16 - 17.5	ND	ND	ND	ND	ND	ND
B9-5	03/08/97	5 - 6	ND	ND	ND	ND	ND	ND
B9-5	03/08/97	13 - 14	ND	ND	ND	ND	ND	ND
Section A Bottom	01/08/99	---	ND	ND	ND	ND	ND	ND
Section B Bottom	01/08/99	---	ND	ND	ND	ND	ND	ND
North A	01/07/99	---	ND	ND	ND	ND	ND	ND
North B	01/07/99	---	ND	ND	ND	ND	ND	ND
South A	01/07/99	---	ND	ND	ND	ND	ND	ND
South B	01/07/99	---	ND	ND	ND	ND	ND	ND
East	01/07/99	---	ND	ND	ND	ND	ND	12
West A	01/07/99	---	ND	0.113	ND	0.298	0.411	ND
West B	01/07/99	---	ND	ND	ND	ND	ND	ND
Ramp Comp NE	01/07/99	---	ND	ND	ND	ND	ND	ND
South Inset Comp	01/07/99	---	ND	ND	ND	ND	ND	18

**TABLE II**  
**SUMMARY OF SOIL RESULTS - SPLP**  
**TEXAS - NEW MEXICO PIPE LINE COMPANY**  
**MONUMENT SITE NO. 9**  
**LEA COUNTY, NEW MEXICO**

CONSTITUENT	SAMPLE LOCATION	DEPTH INTERVAL	DATE SAMPLED	CONCENTRATION (mg/L)
1,2,4-Trimethylbenzene	B9-1	0 - 1.5	0307/97	0.031
m,p-Xylene	B9-1	0 - 1.5	0307/97	0.035
TPH	B9-1	0 - 1.5	0307/97	3.5
2-Methylnaphthalene	Stockpile	---	01/08/99	0.002
1-Methylnaphthalene	Stockpile	---	01/08/99	0.002
Di-n-butylphthalate	Stockpile	---	01/08/99	0.002

**NOTES:**

1. Sample B9-1 (0 to 5 feet) was sampled on 03/07/97 and analyzed for SPLP volatiles, semivolatiles, and TPH concentrations. Those constituents not listed above were ND.
2. A stockpile sample was collected on 01/08/99 and analyzed for SPLP volatiles, semivolatiles, and TPH concentrations. Those constituents not listed were ND.

**TABLE III**

**SUMMARY OF GROUND WATER RESULTS - BTEX  
TEXAS - NEW MEXICO PIPE LINE COMPANY  
MONUMENT SITE NO. 9  
LEA COUNTY, NEW MEXICO**

<b>MONITORING WELL</b>	<b>DATE SAMPLED</b>	<b>BENZENE (mg/l)</b>	<b>TOLUENE (mg/l)</b>	<b>ETHYL-BENZENE (mg/l)</b>	<b>XYLENES (mg/l)</b>	<b>BTEX (mg/l)</b>
Trench Sample	1/7/99	ND	ND	ND	ND	ND

**TABLE IV**

**SUMMARY OF GROUND WATER RESULTS - HEAVY METALS  
TEXAS - NEW MEXICO PIPE LINE COMPANY  
MONUMENT SITE NO. 9  
LEA COUNTY, NEW MEXICO**

<b>SAMPLE LOCATION</b>	Trench
<b>DATE SAMPLED</b>	1/7/99
<b>PARAMETER</b>	<b>CONCENTRATION (mg/L)</b>
Al	5
Fe	11
Mn	3.0
Sr	0.75
Ti	0.12
V	0.34
Zn	0.27
Si	20

**NOTE:** Metals not listed above were ND

**TABLE V**

**SUMMARY OF GROUND WATER RESULTS - MISCELLANEOUS  
TEXAS - NEW MEXICO PIPE LINE COMPANY  
MONUMENT SITE NO. 9  
LEA COUNTY, NEW MEXICO**

<b>SAMPLE LOCATION</b>	Trench
<b>DATE SAMPLED</b>	1/7/99
<b>PARAMETER</b>	<b>CONCENTRATION (mg/L)</b>
TDS	1860
Cl	47
SO <sub>4</sub>	76
Ca	66.5
Mg	25.5
Na	39
K	10.2

19895	L	03378			12	07	1956	PMT	NOT	195	37E	15	130	195	37E	15	0864	64	MAKIN DRG CO	0.00	0.00	0
10696	L	03525			05	06	1957	PMT	OWD	195	37E	15	320	195	37E	15	0964	64	DENVER DRG CORP	0.00	0.00	0
10697	L	03417			01	23	1957	PMT	OWD	195	37E	15	330	195	37E	15	0864	64	SHELDON DRG CO	0.00	0.00	0
10698	L	02502			08	04	1954	PMT	OWD	195	37E	16	110	195	37E	16	0764	64	OSCAR BOURG DRG CO	0.00	0.00	0
10699	L	03185			04	26	1956	PMT	OWD	195	37E	16	240	195	37E	16	0864	64	CARPER DRG CO	0.00	0.00	0
10700	L	01975			02	10	1953	PMT	OWD	195	37E	16	430	195	37E	16	0754	64	O & A DRILLING CO	0.00	0.00	0
10701	L	03208			06	20	1956	PMT	OWD	195	37E	16	440	195	37E	16	0864	64	MAKIN DRG CO	0.00	0.00	0
10702	L	06933			04	12	1972	PMT	OWD	195	37E	17	423	195	37E	17	0672	64	GULF OIL CORP	0.00	0.00	0
10703	L	10271	EXP	L	07	07	1992	PMT	EXP SH	195	37E	18	11	195	37E	18	0752	64	SNYDER RANCHES INC	0.00	0.00	0 THIS EXP WELL WILL BE U
12915	L	10271		L	07	07	1992	PMT	CCN SH	195	37E	18	11	195	37E	18	0752	64	SNYDER RANCHES INC	0.00	10.00	10 THIS WELL IS EXPLORATOR
10703	L	02903			03	02	1953	LIC	MTU	195	37E	18	1111	195	37E	18	0764	64	SNYDER RANCHES LTD	0.00	17.00	14
10704	L	01277			10	18	1951	PMT	NOT	195	37E	18	241	195	37E	18	0554	64	GULF OIL CORP	0.00	0.00	0
10705	L	02115		L	08	09	1954	LIC	PPP	195	37E	18	3120	195	37E	26	0264	64	WARREN PETRO CORP	0.00	102.97	103
10706	L	00156		L	08	09	1954	LIC	PPP	195	37E	18	3310	205	36E	01	0364	64	WARREN PETRO CORP	0.00	0.00	0
10707	L	00157		L	06	28	1945	LIC	PPP	195	37E	18	3020	205	36E	01	0226	64	WARREN PETRO CORP	0.00	13.75	14
10708	L	00081		L	04	23	1937	LIC	NOT	195	37E	18	430	195	37E	18	0364	64	TEXAS COMPANY THE	0.00	0.00	0
10709	L	00082		L	04	23	1937	LIC	NOT	195	37E	18	440	195	37E	18	0364	64	TEXAS COMPANY THE	0.00	0.00	0
10710	L	00039		L	08	26	1935	PMT	NOT	195	37E	19	110	195	37E	19	0364	64	HOLLAND L B	0.00	0.00	0
10711	L	00040		L	08	26	1935	PMT	NOT	195	37E	19	110	195	37E	19	0765	64	HOLLAND L B	0.00	0.00	0
10712	L	00041		L	08	26	1935	PMT	NOT	195	37E	19	110	195	37E	19	0765	64	HOLLAND L B	0.00	0.00	0
10713	L	04313			10	23	1957	PMT	OWD	195	37E	19	110	195	37E	19	0964	64	MCVAY & STAFFORD	0.00	0.00	0
10714	L	01259			10	18	1951	PMT	DCR	195	37E	19	121	195	37E	19	0564	64	GULF OIL CORP	0.00	3.00	0
10715	L	00042		L	08	26	1935	PMT	NOT	195	37E	19	130	195	37E	19	0364	64	HOLLAND L B	0.00	0.00	0
10716	L	00540		L	08	26	1935	PMT	NOT	195	37E	19	130	195	37E	19	0765	64	HOLLAND L B	0.00	0.00	0
10717	L	00044		L	02	26	1933	PMT	NOT	195	37E	19	130	195	37E	19	0765	64	HOLLAND L B	0.00	0.00	0
10718	L	01245			10	18	1951	PMT	NOT	195	37E	19	131	195	37E	19	0554	64	GULF OIL CORP	0.00	0.00	0
10719	L	01251			10	18	1951	PMT	OWD	195	37E	19	131	195	37E	19	0765	64	GULF OIL CORP	0.00	0.00	0
10720	L	05432			07	15	1954	CAN	NOT	195	37E	19	140	195	37E	19	0776	64	GULF OIL CORP	0.00	0.00	0
10721	L	06822			06	17	1971	CAN	NOT	195	37E	19	310	195	37E	19	0672	64	REPUBLIC FACTGAS	0.00	0.00	0
																			SNYDER RANCHES INC	0.00	3.00	
																			GULF OIL CORP	0.00	0.00	0

Monument Site  
No. 9

10750	L	04104		04	06	1959	PNT	DCN	195	37E	28	444	195	37E	28	0964	64	BYRD N A	0.50	3.00	0
10751	L	05790		10	25	1965	CAN	NOT	195	37E	29	060	195	37E	29	0566	64	MONUMENT WATER	0.00	0.00	0
10752	L	03955		08	05	1959	PNT	DCN	195	37E	29	019	195	37E	29	0964	64	SATTH DENNIS L	0.00	3.00	0
10753	L	03922		07	14	1958	PNT	DCN	195	37E	29	020	195	37E	29	0954	64	DICKERSON LEON	0.00	3.00	0
10754	L	03949		07	31	1953	PNT	DCN	195	37E	29	029	195	37E	29	0964	64	WHEELER ROY L	0.00	3.00	0
10755	L	00978		06	29	1955	PNT	DCN	195	37E	29	048	195	37E	29	0964	64	COOPER JIMMY I	0.00	3.00	0
10756	L	01251	Monument Site No. 9	10	18	1951	PNT	NOT	195	37E	29	114	195	37E	29	0564	64	GULF OIL CORP	0.00	0.00	0
10757	L	06495		03	24	1968	PNT	DCN	195	37E	29	360	195	37E	29	0567	64	GROVE O E	0.00	3.00	0
10758	L	02545		07	26	1954	PNT	DCN	195	37E	29	320	195	37E	29	0754	64	MAKIN DRILLING CO	0.00	0.00	0
10759	L	02545		01	31	1955	PNT	DCN	195	37E	29	343	195	37E	29	0355	64	HAKSHBARGER TED	0.00	3.00	0
10760	L	04897	L 05314	04	20	1962	PNT	DCN	195	37E	29	344	195	37E	29	1064	64	HOBBS MUN SCHOOLS	0.00	3.00	0
10761	L	05224	L 04887	06	19	1955	CAN	NOT	195	37E	29	344	195	37E	29	0765	64	HOBBS MUN SCHOOLS	0.00	0.00	0
11954	L	09650		02	29	1955	PNT	DCN	195	37E	29	41	195	37E	29	0285	64	ROBINETT L L	0.00	3.00	0
11955	L	09652		02	26	1955	PNT	DCN	195	37E	29	41	195	37E	29	0285	64	ROBINETT L L	0.00	3.00	0
11956	L	09651		02	25	1955	PNT	DCN	195	37E	29	41	195	37E	29	0285	64	ROBINETT L L	0.00	3.00	0
10762	L	01252		10	18	1951	PNT	NOT	195	37E	29	431	195	37E	29	0564	64	GULF OIL CORP	0.00	0.00	0
10763	L	05314	L 04887	12	27	1963	LIC	MTU	195	37E	29	431	195	37E	29	1164	64	HOBBS MUN SCHOOLS	6.10	18.30	15
10764	L	04759		02	05	1962	PNT	DCN	195	37E	29	440	195	37E	29	1064	64	WHITAKER W V	0.00	3.00	0
10765	L	05911	L 05811	04	29	1965	PNT	MUN	195	37E	29	440	195	37E	32	0765	64	MONUMENT WATER USERS CGOP	0.00	40.00	34
10766	L	05550		11	16	1964	PNT	DCN	195	37E	29	442	195	37E	29	0365	64	FIRST BAPTIST CH	0.00	3.00	0
10767	L	03905		06	30	1953	PNT	DCN	195	37E	30	440	195	37E	30	0954	64	LONGWELSER LILLIE	0.00	3.00	0
10768	L	03906		06	30	1953	PNT	DCN	195	37E	30	440	195	37E	30	0954	64	SHORT ROBERT P III	0.00	3.00	0
10769	L	03936		07	23	1958	PNT	DCN	195	37E	30	440	195	37E	30	0954	64	HEKNIGHT JOY DEE	0.00	3.00	0
10770	L	03954		08	05	1959	PNT	DCN	195	37E	30	440	195	37E	30	0954	64	LITTLE K M	0.00	3.00	0
10771	L	03955		09	15	1959	PNT	DCN	195	37E	30	440	195	37E	30	0954	64	COPELAND M E	0.00	3.00	0
10772	L	04720		09	22	1951	MON	NOT	195	37E	30	440	195	37E	30	0765	64	CLIMAX CHEMICAL CO	0.00	0.00	0
10773	L	02517		05	30	1955	PNT	DCN	195	37E	30	442	195	37E	30	0954	64	MEE J M	0.00	3.00	0
10774	L	02595		07	27	1956	PNT	DCN	195	37E	30	442	195	37E	30	1066	64	STEPHENS H L	0.00	3.00	0
10775	L	01815		02	14	1953	PNT	DCN	195	37E	31	111	195	37E	31	0964	64	BYRD M C	0.00	3.00	0
10776	L	01251		10	18	1951	PNT	NOT	195	37E	29	114	195	37E	29	0564	64	GULF OIL CORP	0.00	3.00	0

C & C LANDFARM, INC.

BOX 55

MONUMENT, NEW MEXICO 88265

PHONE: (505) 397-2045

(505) 397-2860

(505) 392-2236

1400

001743

COMPANY NAME KEL

COMPANY REPRESENTATIVE NAME Steve Shover

LEASE NAME JNM site # 9

SEC.

TOWNSHIP

RANGE

TRUCKING COMPANY NAME Alstate

DRIVERS SIGNATURE AM Donald

TYPE OF MATERIAL BEING HAULED AND QUANTITY 175 cu yds  
cont soil

COPY OF ANALYSIS ATTACHED, IF REQUIRED Norm King  
Norm King

TPHC \_\_\_\_\_

BENZENE \_\_\_\_\_

TOLUENE \_\_\_\_\_

ETHYL BENZENE \_\_\_\_\_

PARA XYLENE \_\_\_\_\_

ATTENDANT ON DUTY Jim Cooper

DATE 2-4-99

**C & C LANDFARM, INC.**  
BOX 55  
MONUMENT, NEW MEXICO 88265  
PHONE: (505) 397-2045  
(505) 397-2860  
(505) 392-2236

001749

COMPANY NAME KFI  
COMPANY REPRESENTATIVE NAME Stan Brown  
LEASE NAME Site 2

SEC. TOWNSHIP RANGE

TRUCKING COMPANY NAME State

DRIVERS SIGNATURE [Signature]

TYPE OF MATERIAL BEING HAULED AND QUANTITY 3682

cont soil

COPY OF ANALYSIS ATTACHED, IF REQUIRED Yes

- TPHC \_\_\_\_\_
- BENZENE \_\_\_\_\_
- TOLUENE \_\_\_\_\_
- ETHYL BENZENE \_\_\_\_\_
- PARA XYLENE \_\_\_\_\_

ATTENDANT ON DUTY [Signature]

DATE 3-2-99

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI  
ATTN: THERESA NIX  
5309 WURZBACH, STE. 100  
SAN ANTONIO, TEXAS 78238  
FAX: 512-364-3556  
FAX: 505-397-5125 (Randy Offield)  
FAX: 505-738-9006 (Stas Grover)

Receiving Date: 01/08/99  
Sample Type: Soil  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.

Analysis Date: 01/09 & 01/10/99  
Sampling Date: 01/07 & 01/08/99  
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE	TOLUENE	ETHYLBENZENE	m,p-XYLENE	o-XYLENE	TPH(DRO)
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	C10-C28 mg/kg
16675	Section A Bottom	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16676	Section B Bottom	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16693	North A	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16694	North B	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16695	South A	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16696	South B	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16697	East	<0.100	<0.100	<0.100	<0.100	<0.100	12
16698	West A	<0.100	0.113	<0.100	0.187	0.111	<10
16699	West B	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16700	Ramp Comp. NE	<0.100	<0.100	<0.100	<0.100	<0.100	<10
16701	South Inset Comp.	<0.100	<0.100	<0.100	<0.100	<0.100	18

% IA	87	88	90	90	92	107
% EA	94	92	92	92	93	114
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

1-11-99  
Date

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

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SAN ANTONIO, TEXAS 78238  
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FAX: 505-397-5125 (Randy Offield)  
FAX: 505-738-9006 (Stas Grover)

Receiving Date: 01/08/99  
Sample Type: Soil  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.  
ELT# 16677

Analysis Date: 01/14/99  
Sampling Date: 01/08/99  
Sample Condition: Intact/Iced  
Extraction Date: 01/12/99

8270 COMPOUNDS SPLP	REPORTING LIMIT	SP-Stock Pile Concentration mg/L	QC	RPD	% EA	% IA
N-Nitrosodimethylamine	0.001	ND				
2-Picoline	0.001	ND				
Methyl methanesulfonate	0.001	ND				
Ethyl methanesulfonate	0.001	ND				
Phenol	0.001	ND	80	0	24	100
Aniline	0.005	ND				
bis(2-Chloroethyl)ether	0.005	ND				
2-Chlorophenol	0.005	ND		0	72	
1,3-Dichlorobenzene	0.001	ND				
1,4-Dichlorobenzene	0.001	ND	78	5	73	98
Benzyl alcohol	0.005	ND				
1,2-Dichlorobenzene	0.001	ND				
2-Methylphenol	0.001	ND				
bis(2-Chloroisopropyl)ether	0.005	ND				
4-Methylphenol/3-Methylphenol	0.001	ND				
Acetophenone	0.005	ND				
n-Nitrosodi-n-propylamine	0.001	ND		1	87	
Hexachloroethane	0.001	ND				
Nitrobenzene	0.001	ND				
N-Nitrosopiperidine	0.005	ND				
Isophorone	0.005	ND				
2-Nitrophenol	0.005	ND	81			101
2,4-Dimethylphenol	0.005	ND				
bis(2-Chloroethoxy)methane	0.001	ND				
Benzoic acid	0.01	ND				
2,4-Dichlorophenol	0.005	ND	81			101
1,2,4-Trichlorobenzene	0.001	ND		2	80	
a,a Dimethylphenethylamine	0.01	ND				
Naphthalene	0.001	ND				
4-Chloroaniline	0.005	ND				
2,6-Dichlorophenol	0.005	ND				
Hexachlorobutadiene	0.001	ND	76			95
N-Nitroso-di-n-butylamine	0.005	ND				
4-Chloro-3-methylphenol	0.005	ND	82	6	82	103

ELT# 16677

SP-Stock File

8270 COMPOUNDS SPLP	Reporting Limits	Concentration mg/L	QC	RPD	%EA	%IA
2-Methylnaphthalene/1-Methylnaphth	0.001	0.002/0.002				
1,2,4,5-Tetrachlorobenzene	0.001	ND				
Hexachlorocyclopentadiene	0.005	ND				
2,4,6-Trichlorophenol	0.005	ND	79			99
2,4,5-Trichlorophenol	0.005	ND				
2-Chloronaphthalene	0.001	ND				
1-Chloronaphthalene	0.001	ND				
2-Nitroaniline	0.005	ND				
Dimethylphthalate	0.001	ND				
Acenaphthylene	0.001	ND				
2,6-Dinitrotoluene	0.001	ND				
3-Nitroaniline	0.005	ND				
Acenaphthene	0.001	ND	79	0	88	99
2,4-Dinitrophenol	0.025	ND				
Dibenzofuran	0.005	ND				
Pentachlorobenzene	0.001	ND				
4-Nitrophenol	0.005	ND		0	12	
1-Naphthylamine	0.005	ND				
2,4-Dinitrotoluene	0.001	ND		2	73	
2-Naphthylamine	0.005	ND				
2,3,4,6-Tetrachlorophenol	0.005	ND				
Fluorene	0.001	ND				
Diethylphthalate	0.001	ND				
4-Chlorophenyl-phenylether	0.001	ND				
4-Nitroaniline	0.005	ND				
4,6-Dinitro-2-methylphenol	0.005	ND				
n-Nitrosodipenlamine & Diphenylam	0.001	ND	79			99
Diphenylhydrazine	0.005	ND				
4-Bromophenyl-phenylether	0.001	ND				
Phenacetin	0.005	ND				
Hexachlorobenzene	0.001	ND				
4-Aminobiphenyl	0.005	ND				
Pentachlorophenol	0.005	ND	78	8	71	98
Pentachloronitrobenzene	0.005	ND				
Pronamide	0.001	ND				
Phenanthrene	0.001	ND				
Anthracene	0.001	ND				
Di-n-butylphthalate	0.001	0.002				
Fluoranthene	0.001	ND	80			100
Benzidine	0.01	ND				
Pyrene	0.001	ND		1	91	
p-Dimethylaminoazobenzene	0.001	ND				
Butylbenzylphthalate	0.001	ND				
Benzo [a]anthracene	0.001	ND				
3,3-Dichlorobenzidine	0.001	ND				
Chrysene	0.001	ND				
bis (2-Ethylhexyl)phthalate	0.005	ND				

ELT# 16677

SP-Stock Pile

8270 COMPOUNDS SPLP	Reporting Limits	Concentration mg/L	QC	RPD	%EA	%IA
Di-n- octipthalate	0.001	ND	75			94
Benzo[b]fluoranthene	0.001	ND				
7,12-Dimethylbenz(a)anthracene	0.001	ND				
Benzo[k]fluoranthene	0.001	ND				
Benzo [a] pyrene	0.001	ND	80			100
3-Methylcholanthrene	0.001	ND				
Dibenzo (a,j) acridine	0.001	ND				
Indeno [1,2,3-cd] pyrene	0.001	ND				
Dibenz [a,h] anthracene	0.001	ND				
Benzo [g,h,i] perylene	0.001	ND				

METHOD: EPA SW 846-8270C, 3510C, 1312  
 SURROGATES

% RECOVERY

2-Fluorophenol SURR	35
Phenol-d6 SURR	23
Nitrobenzene-d5 SURR	67
2-Fluorobiphenyl SURR	67
2,4,6-Tribromophenol SURR	84
Terphenyl-d14 SURR	92

Raland K Tuttle  
 Raland K. Tuttle

1-19-99  
 Date

# ENVIRONMENTAL

# LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI  
ATTN: THERESA NIX  
5309 WURZBACH, STE. 100  
SAN ANTONIO, TEXAS 78238  
FAX: 512-364-3556

Page 1 of 2

Receiving Date: 01/08/99  
Reporting Date: 01/19/99  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.  
Field Code: SP - Stock File

Analysis Date: 01/19/99  
Sampling Date: 01/08/99  
Sample Type: Soil  
Sample Condition: Intact/Iced

Volatiles EPA SW 846-8260, (mg/l)  
Compounds SPLP

ELT#  
16677

PQL

%Dev

Method  
Blank

% EA

Compounds SPLP	ELT#	PQL	%Dev	Method	% EA
Chloromethane	ND	0.001	22.8	ND	
Vinyl chloride	ND	0.001	3.9	ND	
Bromomethane	ND	0.001	-10.5	ND	
Chloroethane	ND	0.001	-11.7	ND	
Trichlorofluoromethane	ND	0.001	16.8	ND	
Acetone	ND	0.010	-0.9	ND	
1,1-Dichloroethene	ND	0.001	7.1	ND	94
Iodomethane	ND	0.010	-7.6	ND	
Vinyl Acetate	ND	0.010	-15.3	ND	
Carbon Disulfide	ND	0.001	6.6	ND	
Methylene Chloride	ND	0.001	-3.2	ND	
trans-1,2-Dichloroethene	ND	0.001	7.6	ND	
1,1-Dichloroethane	ND	0.001	5.7	ND	
2-Butanone	ND	0.010	-5.3	ND	
cis-1,2-dichloroethene	ND	0.001	3.1	ND	
Bromochloromethane	ND	0.001	-1.1	ND	
Chloroform	ND	0.001	8.5	ND	
1,1,1-Trichloroethane	ND	0.001	10.1	ND	
Carbon Tetrachloride	ND	0.001	11.0	ND	
Benzene	ND	0.001	7.8	ND	92
1,2 Dichloroethane	ND	0.001	4.6	ND	
Trichloroethene	ND	0.001	3.9	ND	95
1,2-Dichloropropane	ND	0.001	5.1	ND	
Dibromomethane	ND	0.001	7.2	ND	
Bromodichloromethane	ND	0.001	9.5	ND	
2-Hexanone	ND	0.010	2.6	ND	
2-Chloroethyl Vinyl ether	ND	0.010	8.0	ND	
4-Methyl 2-Pentanone	ND	0.010	0.8	ND	
cis 1,3 Dichloropropene	ND	0.001	4.0	ND	
Toluene	ND	0.001	8.2	ND	95
trans 1,3-Dichloropropene	ND	0.001	6.2	ND	
1,1,2-Trichloroethane	ND	0.001	3.8	ND	
Dibromochloromethane	ND	0.001	4.1	ND	

KEI  
 ATTN: THERESA NIX  
 5309 WURZBACH, STE. 100  
 SAN ANTONIO, TEXAS 78238  
 FAX: 512-364-3556

Receiving Date: 01/08/99  
 Reporting Date: 01/19/99  
 Project #: 610057-2-9-0  
 Project Name: Site 9  
 Project Location: Monument, N.M. Lea Co.  
 Field Code: SP - Stock Pile

Analysis Date: 01/19/99  
 Sampling Date: 01/08/99  
 Sample Type: Soil  
 Sample Condition: Intact/Iced

Volatiles EPA SW 846-8260, (mg/l) Compounds SPLP	ELT# 16677	PQL	%Dev	Method Blank	% EA
Tetrachloroethene	ND	0.001	4.0	ND	
Chlorobenzene	ND	0.001	6.5	ND	91
1,1,1,2-Tetrachloroethane	ND	0.001	3.5	ND	
Ethylbenzene	ND	0.001	9.2	ND	
m&p Xylene	ND	0.001	11.3	ND	
o-Xylene	ND	0.001	9.6	ND	
Styrene	ND	0.001	10.1	ND	
Bromoform	ND	0.001	-4.4	ND	
1,1,2,2-Tetrachloroethane	ND	0.001	0.4	ND	
1,2,3-Trichloropropane	ND	0.001	0.2	ND	
1,4-Dichlorobenzene	ND	0.001	10.0	ND	
1,2-Dichlorobenzene	ND	0.001	11.8	ND	
1,2-Dibromo-3-Chloropropane	ND	0.001	-2.8	ND	

SYSTEM MONITORING COMPOUNDS                      % RECOVERY

Dibromofluoromethane	92
Toluene-d8	104
4-Bromofluorobenzene	104

ND=<PQL

Methods: SW846-1312, 8260

Raland K Tuttle  
 Raland K. Tuttle

1-19-99  
 Date

# ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

KEI  
ATTN: THERESA NIX  
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SAN ANTONIO, TEXAS 78238  
FAX: 512-364-3556  
FAX: 505-397-5125 (Randy Offield)  
FAX: 505-738-9006(Stas Grover)

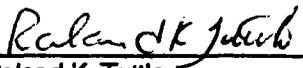
RECEIVING DATE: 01/08/99  
SAMPLE TYPE: Soil  
PROJECT #: 610057-2-9-0  
PROJECT NAME: Site 9  
PROJECT LOCATION: Monument, N.M. Lea Co.

ANALYSIS DATE: 01/14/99  
SAMPLING DATE: 01/08/99  
SAMPLE CONDITION: Intact/Iced

ELT#	FIELD CODE	SPLP TPH (mg/L)
16677	SP - Stock Pile	<1

QUALITY CONTROL	500
TRUE VALUE	515
% PRECISION	97
BLANK	<1

Methods: SW846-1312, EPA 418.1

  
Raland K. Tuttle

1-19-99  
Date

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FAX: 505-397-5125 (Randy Offield)  
FAX: 505-738-9006 (Stas Grover)

Receiving Date: 01/08/99  
Sample Type: Water  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.

Analysis Date: 01/08/99  
Sampling Date: 01/07/99  
Sample Condition: Intact/Iced/HCl

ELT#	FIELD CODE	BENZENE mg/L	TOLUENE mg/L	ETHYLBENZENE mg/L	m,p-XYLENE mg/L	o-XYLENE mg/L
16674	Trench Sample	<0.001	<0.001	<0.001	<0.001	<0.001

% IA	86	85	87	85	87
% EA	90	90	89	88	90
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8021B, 5030

Roland K Tuttle  
Roland K. Tuttle

1-11-99  
Date

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SAN ANTONIO, TEXAS 78238  
FAX: 512-364-3556  
FAX: 505-397-5125 (Randy Offield)  
FAX: 505-738-9006(Stas Grover)

Receiving Date: 01/08/99  
Sample Type: Water  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.  
Field Code: Trench Sample

Analysis Date: 01/14/99  
Sampling Date: 01/07/99  
Sample Condition: Intact/Iced

EPA SW846 8270 (mg/l)	REPORT LIMIT	ELT# 16674	QC	RPD	%EA	%IA
Naphthalene	0.001	ND	81	4	75	101
Acenaphthylene	0.001	ND	80	3	89	100
Acenaphthene	0.001	ND	79	4	84	99
Fluorene	0.001	ND	80	2	86	100
Phenanthrene	0.001	ND	80	0	83	100
Anthracene	0.001	ND	80	0	85	100
Fluoranthene	0.001	ND	80	1	83	100
Pyrene	0.001	ND	77	4	84	96
Benzo[a]anthracene	0.001	ND	80	1	82	100
Chrysene	0.001	ND	80	3	99	100
Benzo[b]fluoranthene	0.001	ND	77	3	74	96
Benzo[k]fluoranthene	0.001	ND	79	5	85	99
Benzo [a]pyrene	0.001	ND	81	2	85	101
Indeno[1,2,3-cd]pyrene	0.001	ND	81	5	83	101
Dibenz[a,h]anthracene	0.001	ND	81	4	84	101
Benzo[g,h,i]perylene	0.001	ND	79	5	80	99

**% RECOVERY**

Nitrobenzene-d5 SURR 78  
2-Fluorobiphenyl SURR 77  
Terphenyl-d14 SURR 60

ND= NOT DETECTED

Method: EPA SW 846 8270, 3510

Raland K Tuttle  
Raland K. Tuttle

1-19-99  
Date

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5309 WURZBACH, STE. 100  
SAN ANTONIO, TEXAS 78238  
FAX: 512-364-3556  
FAX: 505-397-5125(Randy Offield)

Receiving Date: 01/08/99  
Sample Type: Water  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.

Analysis Date: 01/14 & 01/15/99  
Sampling Date: 01/07/99  
Sample Condition: Intact/Iced

### TOTAL METALS (ppm)

ELT#	Field Code	Ag	As	Ba	Cd	Cr	Hg	Pb	Se
16674	Trench Sample	<0.05	<0.10	0.73	<0.02	<0.05	<0.0010	<0.10	<0.10
REPORTING LIMIT		0.05	0.10	0.10	0.02	0.05	0.0010	0.10	0.10
% IA		100	100	99	98	98	102	96	100
% EA		98	105	100	95	95	80*	90	105

\*NOTE: LCS & LCSD were used for RPD & EA purpose due to insufficient sample for MS & MSD.

METHODS: EPA 200.7

Raland K Tuttle  
Raland K. Tuttle

1-19-99  
Date

# 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: 505-397-5125 (Randy Offield)  
FAX: 505-738-9006(Stas Grover)

Receiving Date: 01/08/99  
Sample Type: Water  
Project #: 610057-2-9-0  
Project Name: Site 9.  
Project Location: Monument, N.M. Lea Co.

Analysis Date: 01/18/99  
Sampling Date: 01/07/99  
Sample Condition: Intact/Iced

ELT#	FIELD CODE	ELEMENT	ICP-Scan
			Est. Concentration mg/L*
16674	Trench Sample	Al	5
		Be	ND
		Co	ND
		Cu	ND
		Fe	11
		Mn	3.0
		Mo	ND
		Ni	ND
		Sb	ND
		Sn	ND
		Sr	0.75
		Ti	0.12
		Tl	ND
		V	0.34
		Zn	0.27
		B	ND
		Si	20

\*NOTE: Estimated concentration based on single-point standard.

  
Roland K. Tuttle

1-19-99  
Date

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FAX: 505-397-5125(Randy Offield)

Receiving Date: 01/08/99  
Sample Type: Water  
Project #: 610057-2-9-0  
Project Name: Site 9  
Project Location: Monument, N.M. Lea Co.

Analysis Date: 01/14 & 01/15/99  
Sampling Date: 01/07/99  
Sample Condition: Intact/Iced

ELT#	Field Code	TDS mg/L	Cl mg/L	SO4 mg/L	Ca mg/L	Mg mg/L	Na mg/L	K mg/L
16674	Trench Sample	1860	47	76	66.5	25.5	39	10.2
	% IA	*	102	96	100	104	104	105
	% EA	*	*	*	89	96	94	106

METHODS: EPA 160.1, 325.3, 375.4, SW846-3005, 7140, 7460, 7770, 7610

Raland K Tuttle  
Raland K. Tuttle

1-19-99  
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**

Project Manager:  
 Theresa Nix

Phone #: 512-364-3440  
 FAX #: 512-364-3556

**ANALYSIS REQUEST**

Company Name & Address:

K.e.i Consultants 5309 Wurzbach, Ste 100 SAN Antonio, TX 78238

Project #: 610057-2-9-0

Project Name:  
 Site 9

Project Location: Monument, N.M.  
 Lea County

Sampler Signature:  

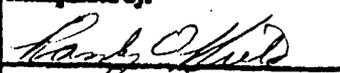

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					SAMPLING		BTEX 8120/5030	TPH 4110/5030	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE	TIME								
16693	North - A Comp. Sample	1	4oz	/	/	/	/	/	/	/	01/08/99	14:26	/	/	/	/	/	/	/	/	/	/	
16694	North - B											14:36											
16695	South - A											14:56											
16696	South - B											15:06											
16697	East											14:46											
16698	West - A											15:16											
16699	West - B											15:26											
16700	Ramp Comp. NE											15:36											
16701	South Inset Comp.	↓	↓	↓								15:46	↓										

Relinquished by:  


Date:  
 01/08/99

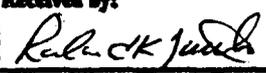
Time:  
 9:15 1/8/99

Received by:  


Relinquished by:  


Date:  
 01/8/99

Time:  
 1800

Received by:  


Relinquished by:

Date:

Time:

Received by Laboratory:

REMARKS  
 • Please Fax Analytical Results to:  
 Randy O'Field - 1-505-397-5125  
 Theresa Nix - 512-364-3556  
 Stas Grover - 505-738-9006  
 • IF you have any questions please call Stas @  
 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 Environmental Lab of Texas, Inc. in Odessa, Texas for determination of the following constituents:

- BTEX concentrations by EPA Method SW846-8021B, 5030
- TPH concentrations by EPA Modified Method 8015-DRO
- SPLP SVOC concentrations by EPA Method SW846-8270\1312
- SPLP VOC concentrations by EPA Method SW846-8260\1312
- SPLP TPH concentrations by EPA Method SW846-1312, 418.1

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

### **TRENCH SAMPLING**

Ground water samples collected for BTEX analyses were placed in two 40 ml glass VOA vials equipped with Teflon-lined caps. The containers were preserved with hydrochloric acid and were provided by the analytical laboratory. The vials were filled to a positive meniscus, sealed, and visually checked for the presence of air bubbles.

Ground water samples collected for PAH analysis were filled to capacity in sterile, 1 liter glass containers equipped with Teflon-lined caps. The containers were preserved with hydrochloric acid and were provided by the analytical laboratory. The containers were provided by the analytical laboratory.

Ground water samples collected for metals were filled to capacity in 1 liter plastic containers equipped with Teflon-lined caps. The containers were preserved with nitric acid and were provided by the analytical laboratory.

Ground water samples collected for TDS and Cations/Anions were filled to capacity in 500 ml plastic containers equipped with Teflon-lined caps.

The filled containers were labeled and placed on ice in an insulated cooler. The cooler was sealed for shipment to Environmental Lab of Texas, Inc. in Odessa, Texas for determination of the following constituents:

- BTEX concentrations by EPA Method SW846-8021B, 5030
- PAH concentrations by EPA Method SW846-8270, 3510
- Total Metal concentrations by EPA Method 200.7
- Heavy Metal concentrations by ICP-Scan
- TDS concentrations by EPA Method 160.1
- Cation/Anion concentrations by EPA Method 325.3, 375.4, SW846-3005, 7140, 7460, 7770, 7610

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.