AP - 009

STAGE 1 & 2 REPORTS

DATE:

Aug. 31, 1998

SUBSURFACE INVESTIGATION REPORT

MONITORING WELLS MW-1 THROUGH MW-5
SOIL BORINGS SB-1 THROUGH SB-6 AND SB-9

TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
SECTION 6, TOWNSHIP 20 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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

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TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
SECTION 6, TOWNSHIP 20 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

PREPARED FOR:

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

Mr. Tony Savoie

PREPARED BY:

KEI

Daryl Stacey
Project Manager

Theresa Nix
Project Manager

Pat Bullinger, P.E.

KEI Job No. 810005-1-0

August 31, 1998

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PURPOSE AND SCOPE

The purpose of the subsurface investigation was to determine the horizontal and vertical extent of hydrocarbon impact within the stained area. The scope consisted of installing monitoring wells and soil borings at selected locations. The site is located in Section 6, Township 20 South, Range 37 East in Lea County, New Mexico. A site location map is provided as FIG. 1.

SOIL INVESTIGATION

During the subsurface investigation, 5 monitoring wells (designated MW-1 through MW-5) and 7 soil borings (designated SB-1 through SB-6, and SB-9) were installed utilizing air rotary drilling. Soil borings SB-7 and SB-8 were converted to monitoring wells MW-2 and MW-3, respectively. Soil samples were collected at selected intervals from the ground surface to the bottom of each boring. The soils were classified in the field, soil samples were field screened, and selected samples were prepared and shipped to the laboratory for analysis.

Upon advancement to total depth and collection of soil samples, a monitoring well consisting of 2-inch perforated PVC and blank riser was placed in the open hole of selected borings. Upon completion of sampling activities, each soil boring not designated as a monitoring well was backfilled to the ground surface with a cement/bentonite grout.

The monitoring well locations were surveyed by a Professional Land Surveyor registered in the State of New Mexico. The locations of the monitoring wells and soil borings installed are presented on FIG. 2.

SOIL DESCRIPTION

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

Soil Type I
This soil type consisted of brown to grey sand encountered at the surface of all soil boring and monitoring well locations. The sand was slightly silty, fine to very fine-grained, slightly cemented in some places, with caliche gravel and calcareous nodules, and was moist to dry. The observed thickness of this soil type varied from 3.5 to 46 feet. Head-space readings from samples of this soil type ranged from below instrument detection limits (ND) to 229 ppm.

Soil Type II
This soil type consisted of a red to brown clay and was encountered at boring SB-3 and monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5. The clay was sandy, firm, and moist. This soil type varied in thickness from approximately 2 feet in SB-3 to 14 feet in MW-4. Head-space readings from samples of this soil type varied from ND to 224 ppm.

Logs indicating the typical subsurface soil profile, depths at which soil samples were obtained, head-space results, laboratory results, and generalized geologic profiles are presented on FIGs. 3 through 10.

SOIL SAMPLING AND ANALYTICAL RESULTS

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

- the sample collected from 0 to 2 feet below ground surface
- the sample collected from 5 to 7 feet below ground surface
- the sample collected from 10 to 12 feet below ground surface
- the sample collected from 15 to 17 or 20 to 22 feet below ground surface
- the sample directly above the groundwater level measured at the time of drilling or at the bottom of the hole

Soil samples selected for analytical testing consisted of the following:

- Fifteen soil samples from the monitoring wells and 21 samples from the soil borings were tested for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons diesel range organics (TPH-DRO).
- One soil sample from soil boring SB-4 exhibiting the highest concentration of TPH was tested for SPLP volatile organic compounds (VOCs), SPLP semi-volatile organic compounds (SVOCs), and SPLP TPH.
- Three soil samples from monitoring well MW-1 and 3 soil samples from monitoring well MW-3 were tested for chlorides.
- One undisturbed soil sample from monitoring well MW-4 (39 to 40 feet) was analyzed for moisture content and fraction of organic carbon (FOC).
- Laboratory results for the selected samples indicated the following concentration ranges:

CONSTITUENT	CONCENTRATIONS (mg/kg)
Benzene	ND to 16.34
BTEX	ND to 279.14
TPH	13.7 to 10,100
SPLP SVOC	
2,4-Dimethylphenol	0.020
2-Methylnaphthalene	0.033
Naphthalene	0.044
SPLP VOC	
Benzene	0.22
Ethylbenzene	1.33
Naphthalene	0.16
Toluene	2.14

CONSTITUENT	CONCENTRATIONS (mg/kg)
1,2,4-Trimethylbenzene	0.25
m,p-Xylenes	1.24
o-Xylenes	0.61
SPLP TPH	2.9
Chloride	ND to 6,050
FOC	0.3%
Moisture Content	12.4%

SPLP VOC and SPLP SVOC constituents not listed above were ND. Soil laboratory results are summarized in TABLES I through IV. Soil analytical laboratory reports and chain-of-custody documentation are presented in APPENDIX A.

GROUND WATER SAMPLING AND ANALYTICAL RESULTS

Upon completion of drilling, each well was gauged to determine the depth to ground water and checked for the presence of phase-separate hydrocarbons (PSH). The depth to ground water measured in the monitoring wells on April 7, 1998, ranged from 42.55 to 45.21 feet below ground surface. No PSH was observed in any of the monitoring wells. Ground water elevations indicate an approximate gradient of 0.001 ft/ft towards the southeast. Ground water contours are presented on FIG. 11. Ground water measurements are summarized in TABLE V.

Monitoring wells MW-1 through MW-4 were sampled on March 3, 1998. A sample could not be retrieved from monitoring well MW-5 during the first sampling event. Monitoring well MW-5 was later repaired and then sampled on April 8, 1998. Each monitoring well was purged of approximately 3 well volumes of water and ground water samples were collected from each monitoring well. Purged water collected during the event was stored in steel drums pending disposal. A windmill located approximately 1/4 mile southeast of the site was sampled on March 3, 1998.

Water samples selected for analytical testing consisted of the following:

- Ground water samples collected from monitoring wells MW-1 through MW-5 and the windmill were tested for BTEX.
- Ground water samples collected from monitoring wells MW-1 through MW-5 were also tested for polycyclic aromatic hydrocarbon (PAH), ICP heavy metals, major cations/anions, and total dissolved solids (TDS). The windmill sample was also tested for chlorides.

- Laboratory results indicated the following concentration ranges:

CONSTITUENT	CONCENTRATIONS (mg/L)
Benzene	ND to 1.362
BTEX	ND to 4.751
Naphthalene	ND to 0.017
Aluminum	ND to 2.15
Barium	0.14 to 0.82
Boron	ND to 3.45
Calcium	188 to 1010
Iron	ND to 5.51
Manganese	0.12 to 0.47
Magnesium	25.7 to 117
Nickel	ND to 0.55
Potassium	3.38 to 31.41
Silicon	30.0 to 45.0
Sodium	68.1 to 1460
Strontium	3.25 to 6.92
Tin	ND to 1.96
Bicarbonate	181 to 1190
TDS	458 to 4890
Sulfate	34.82 to 164
Chloride	17.11 to 1820

Constituents not listed above were ND. Ground water laboratory results are summarized in TABLES V through VII. Water analytical laboratory reports and chain-of-custody documentation are presented in APPENDIX B.

HOBBS SW QUADRANGLE

NEW MEXICO - LEA CO.

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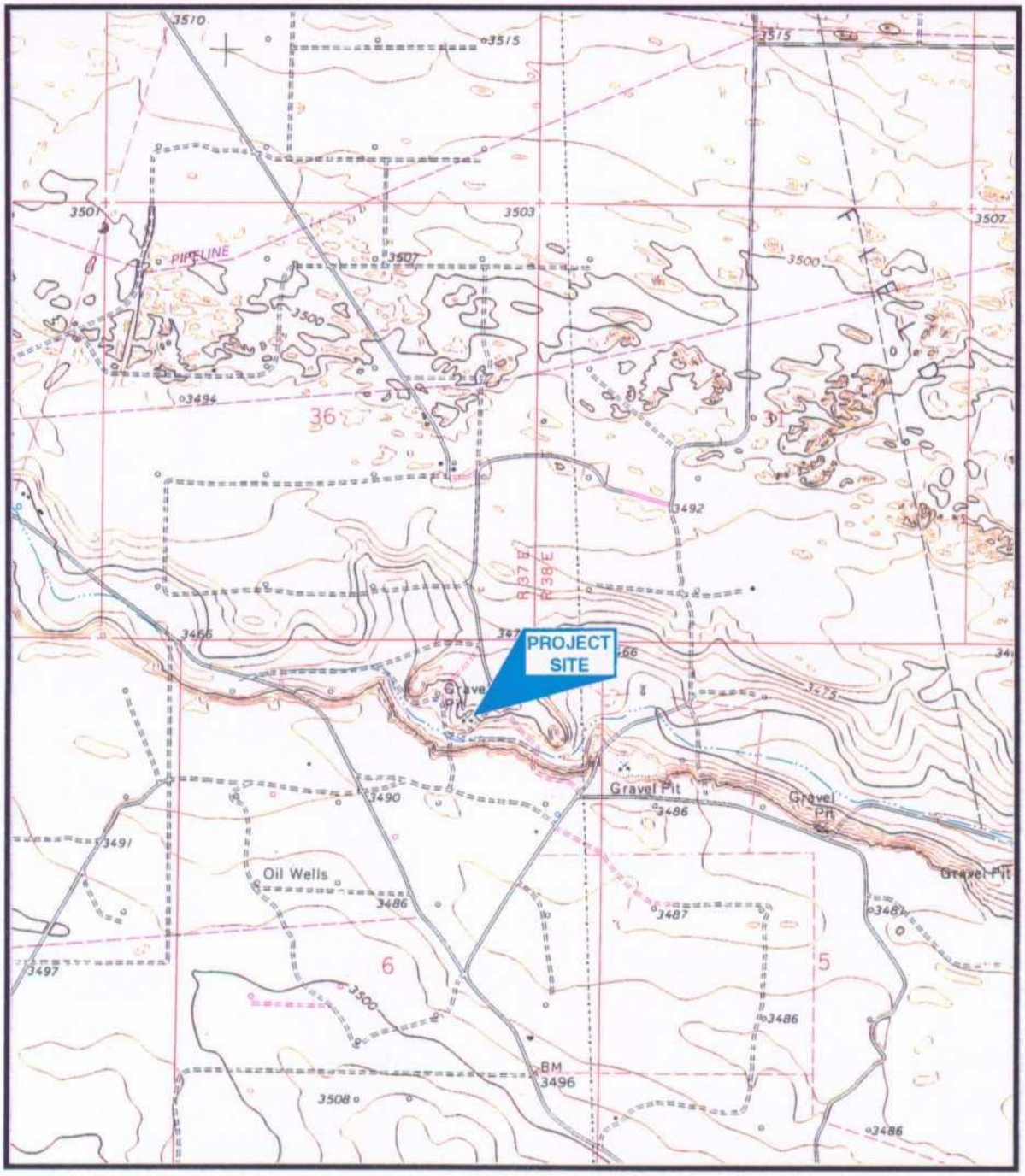


SCALE 1:24000

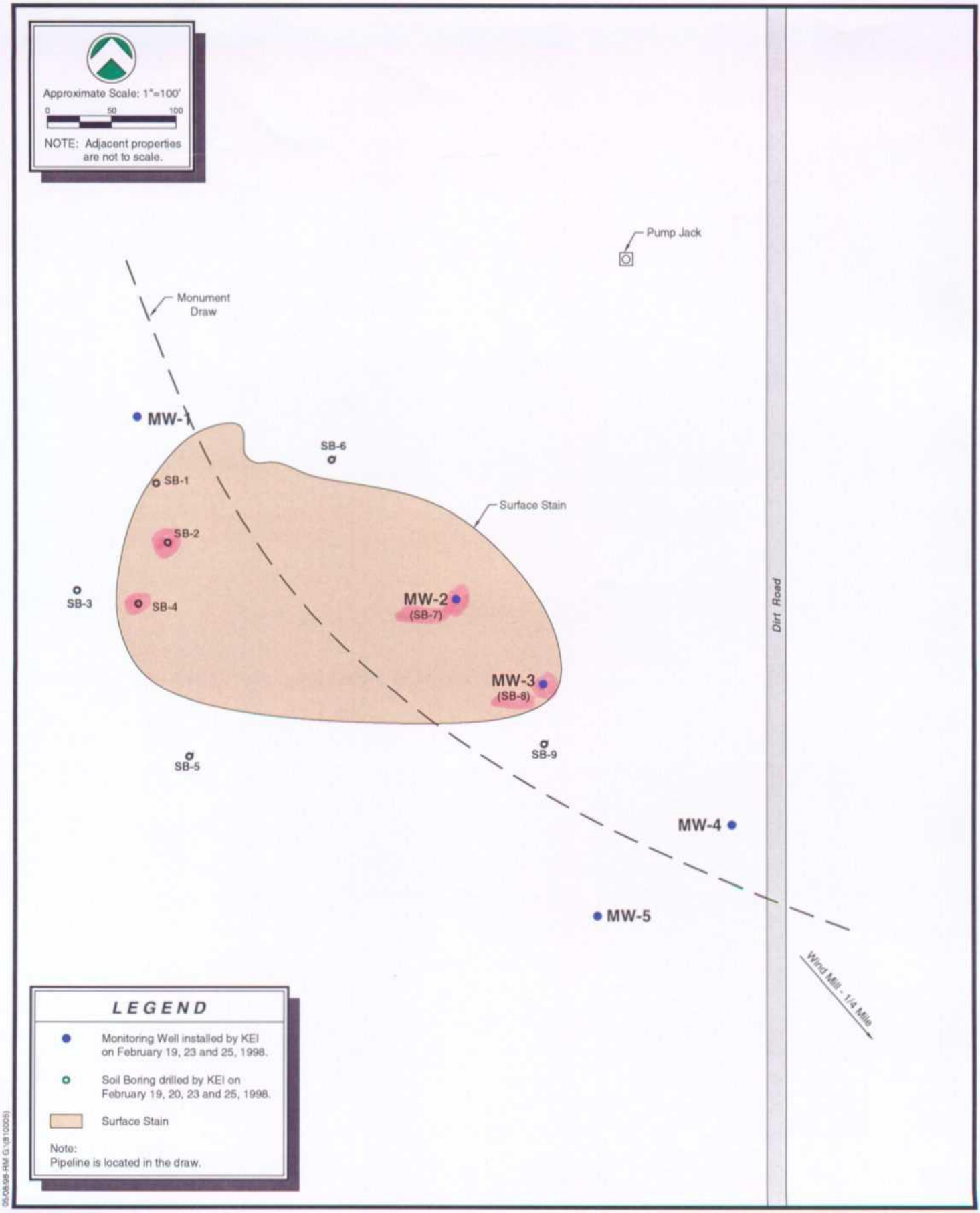
1 0 1/2 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET

k·e·i	*SITE LOCATION MAP*	810005
	TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO	FIG 1



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k·e·i	*SITE PLAN*	810005
	TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO	FIG 2

LEGEND

Sand (SM), slightly silty, fine to very fine-grained, slightly cemented, contains some gravel and calcareous nodules, brown to grey, moist to dry.

Clay (CL), sandy, slightly firm, red to brown, moist.

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

Indicates sample selected for laboratory analysis.

B = Benzene Concentration (mg/kg)
BTEX = Total Benzene, Toluene, Ethylbenzene, and Xylenes Concentration (mg/kg)
TPH = Total Petroleum Hydrocarbon Concentration (mg/kg)

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

ND = Indicates the concentration was not detected or below laboratory reporting limits.

NOTES:

1. The soil borings were advanced utilizing an air rotary rig on February 20, 23 and 25, 1998.
2. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
3. The depths indicated are referenced from the ground surface unless otherwise indicated.
4. The soil borings were backfilled with a cement/bentonite grout and capped at the surface with concrete.

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k·e·i	*LEGEND AND NOTES FOR SOIL BORINGS*	810005
	TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO	FIG 3

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LOG AND DETAILS OF SOIL BORINGS SB-1 THRU SB-4

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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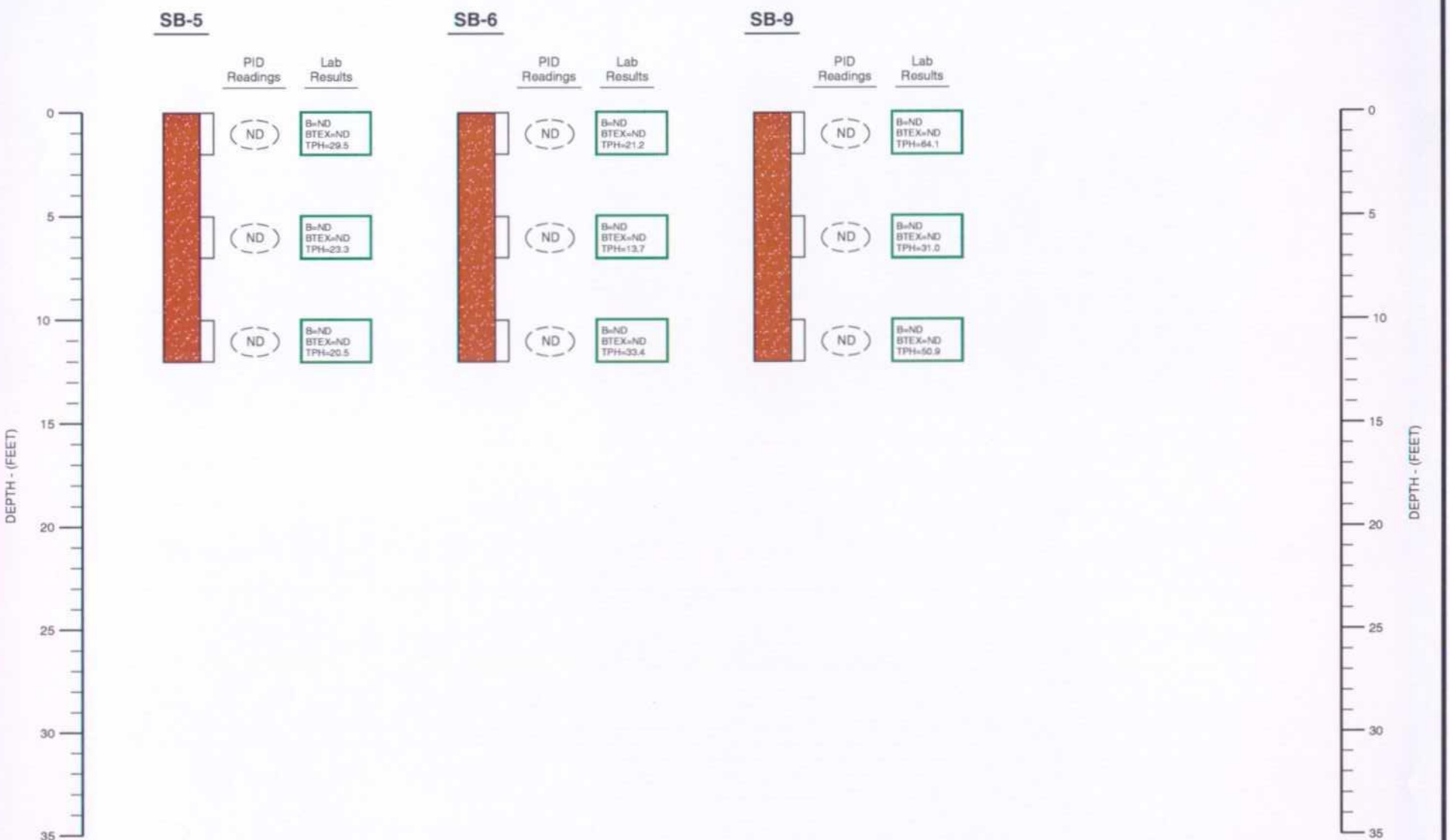
FIG 4



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LOG AND DETAILS OF SOIL BORINGS SB-5, SB6 AND SB-9

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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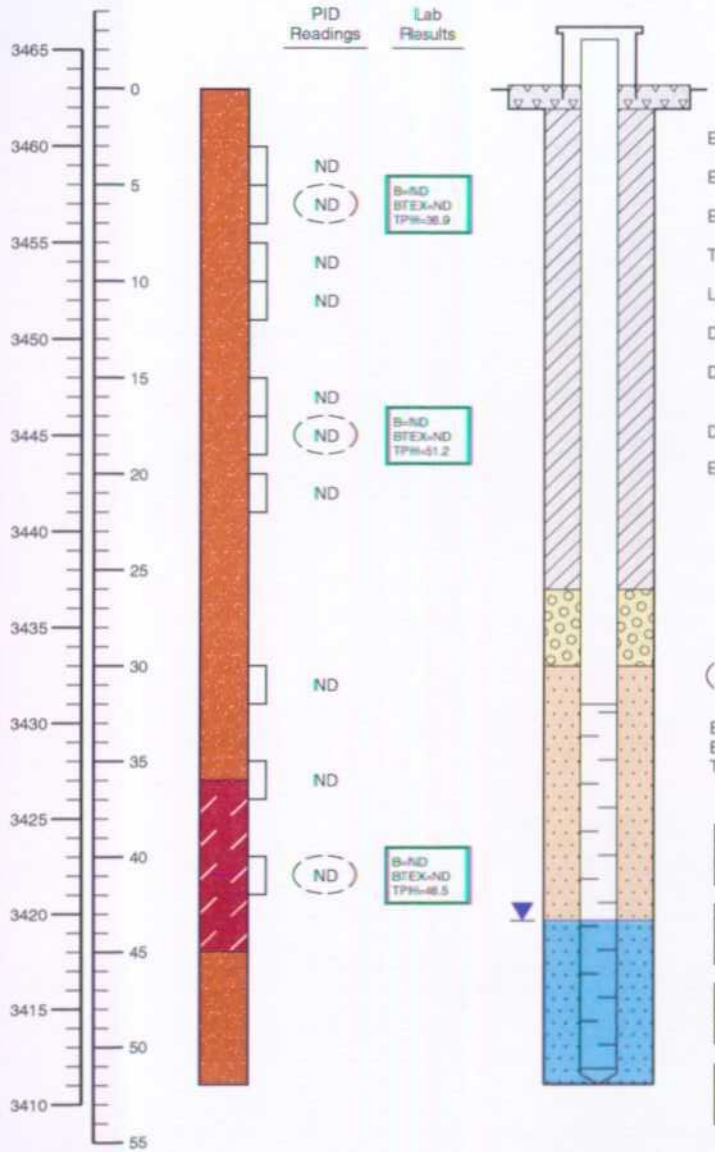
FIG 5

05/08/98-RM (810005W1)

MONITORING WELL MW-1



Monitoring Well Details (MW-1)

Elev of Concrete Pad	3463.23 ft
Elev of Ground Surface	3463.01 ft
Elev Top of PVC Well	3465.61 ft
Thickness of Bentonite Seal	4.0 ft
Length of PVC Well Screen	20.0 ft
Depth of PVC Well	52.0 ft
Depth of Exploratory Hole	52.0 ft
Depth to Ground Water	43.40 ft
Elev of Ground Water	3419.61 ft

Indicates sample selected for laboratory analysis.

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

Concrete Pad

Cement / Bentonite Grout

Bentonite Pellet Seal

Sand Pack

LEGEND

Sand (SM), slightly silty, fine to very fine-grained, slightly cemented, contains some gravel and calcareous nodules, brown to grey, moist to dry.

Clay (CL), sandy, slightly firm, red to brown, moist.

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

Indicates the ground water level measured on April 7, 1998.

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

ND Indicates the constituent was not detected or was below laboratory reporting limits.

NOTES

1. The monitoring well was installed on February 19, 1998 using an air rotary rig.
2. The well was constructed with 2 inch ID, 0.010 inch factory slotted, threaded joint, Schedule 40 PVC pipe.
5. The well is protected with a stick up steel cover and a locked compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

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LOG AND DETAILS OF MONITORING WELL MW-1

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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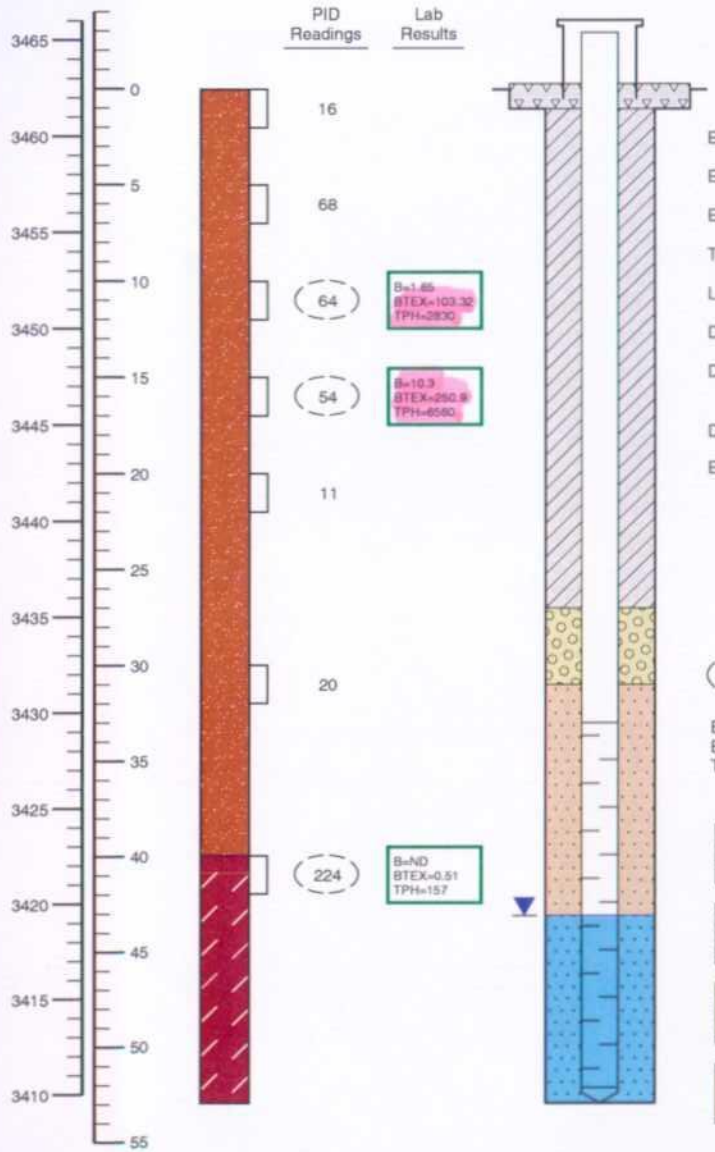
FIG 6

MONITORING WELL MW-2 (SB-7)



Monitoring Well Details (MW-2)

Elev of Concrete Pad	3462.77 ft
Elev of Ground Surface	3462.48 ft
Elev Top of PVC Well	3465.44 ft
Thickness of Bentonite Seal	4.0 ft
Length of PVC Well Screen	20.0 ft
Depth of PVC Well	53.0 ft
Depth of Exploratory Hole	53.0 ft
Depth to Ground Water	43.12 ft
Elev of Ground Water	3419.36 ft

Indicates sample selected for laboratory analysis.

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

Concrete Pad

Cement / Bentonite Grout

Bentonite Pellet Seal

Sand Pack

LEGEND

Sand (SM), slightly silty, fine to very fine-grained, slightly cemented, contains some gravel and calcareous nodules, brown to grey, moist to dry.

Clay (CL), sandy, slightly firm, red to brown, moist.

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

Indicates the ground water level measured on April 7, 1998.

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

ND Indicates the constituent was not detected or was below laboratory reporting limits.

NOTES

1. The monitoring well was installed on February 23, 1998 using an air rotary rig.
2. The well was constructed with 2 inch ID, 0.010 inch factory slotted, threaded joint, Schedule 40 PVC pipe.
5. The well is protected with a stick up steel cover and a locked compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

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LOG AND DETAILS OF MONITORING WELL MW-2

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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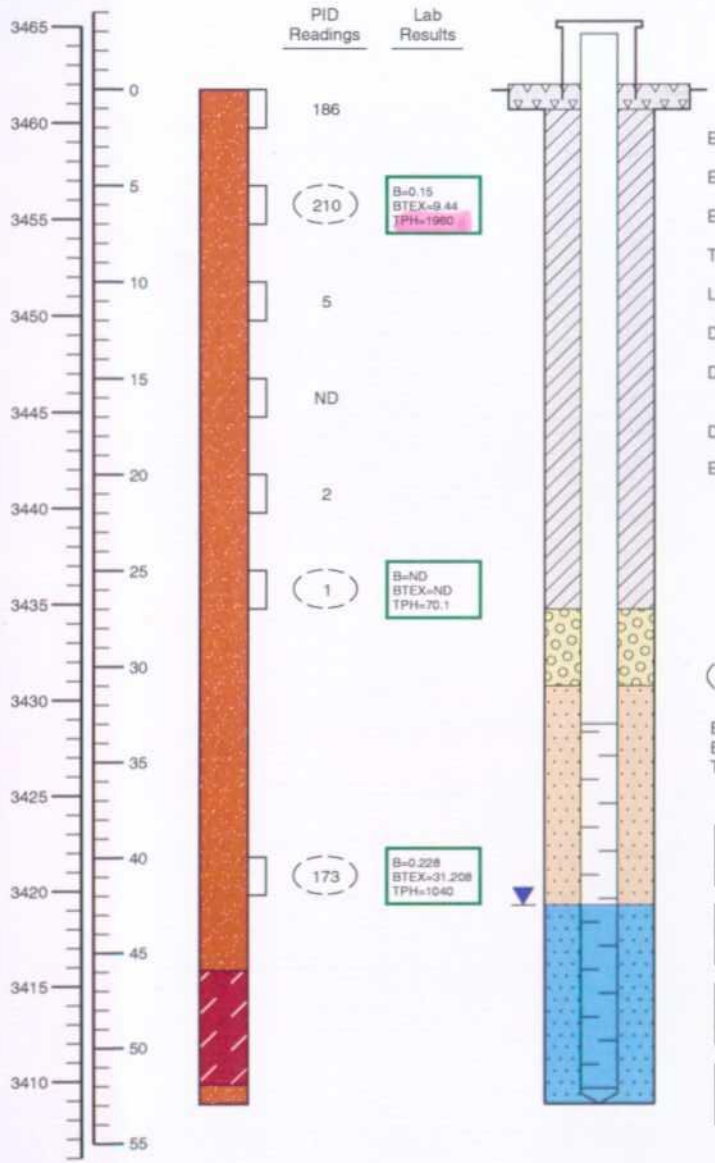
FIG 7

05/08/98-RM (810005W3)

MONITORING WELL MW-3



Monitoring Well Details (MW-3)

Elev of Concrete Pad	3462.04 ft
Elev of Ground Surface	3461.75 ft
Elev Top of PVC Well	3464.68 ft
Thickness of Bentonite Seal	4.0 ft
Length of PVC Well Screen	20.0 ft
Depth of PVC Well	53.0 ft
Depth of Exploratory Hole	53.0 ft
Depth to Ground Water	42.55 ft
Elev of Ground Water	3419.20 ft

Indicates sample selected for laboratory analysis.

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

Concrete Pad

Cement / Bentonite Grout

Bentonite Pellet Seal

Sand Pack

LEGEND

Sand (SM), slightly silty, fine to very fine-grained, slightly cemented, contains some gravel and calcareous nodules, brown to grey, moist to dry.

Clay (CL), sandy, slightly firm, red to brown, moist.

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

Indicates the ground water level measured on April 7, 1998.

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

ND Indicates the constituent was not detected or was below laboratory reporting limits.

NOTES

1. The monitoring well was installed on February 23, 1998 using an air rotary rig.
2. The well was constructed with 2 inch ID, 0.010 inch factory slotted, threaded joint, Schedule 40 PVC pipe.
5. The well is protected with a stick up steel cover and a locked compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

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LOG AND DETAILS OF MONITORING WELL MW-3

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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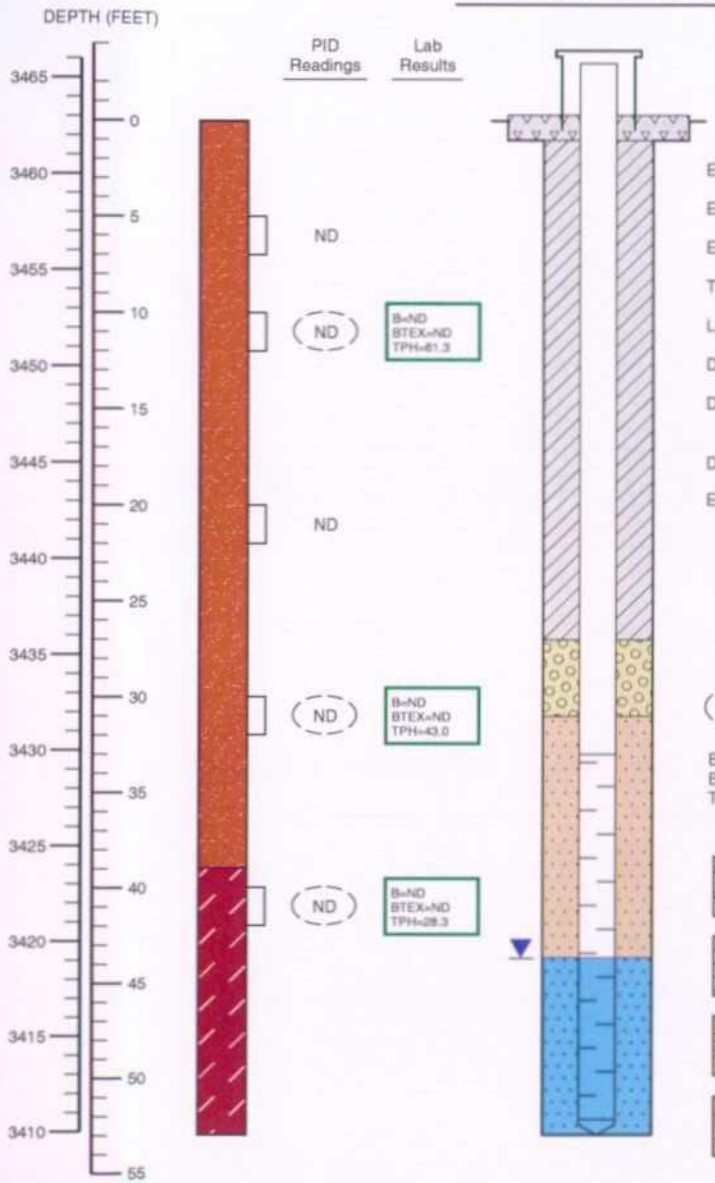
FIG 8

05/08/98-RM (810005W4)

MONITORING WELL MW-4



Monitoring Well Details (MW-4)

Elev of Concrete Pad	3463.06 ft
Elev of Ground Surface	3462.77 ft
Elev Top of PVC Well	3465.76 ft
Thickness of Bentonite Seal	4.0 ft
Length of PVC Well Screen	20.0 ft
Depth of PVC Well	53.0 ft
Depth of Exploratory Hole	53.0 ft
Depth to Ground Water	43.70 ft
Elev of Ground Water	3419.07 ft

Indicates sample selected for laboratory analysis.

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

Concrete Pad

Cement / Bentonite Grout

Bentonite Pellet Seal

Sand Pack

LEGEND

Sand (SM), slightly silty, fine to very fine-grained, slightly cemented, contains some gravel and calcareous nodules, brown to grey, moist to dry.

Clay (CL), sandy, slightly firm, red to brown, moist.

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

Indicates the ground water level measured on April 7, 1998.

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

ND — Indicates the constituent was not detected or was below laboratory reporting limits.

NOTES

1. The monitoring well was installed on February 25, 1998 using an air rotary rig.
2. The well was constructed with 2 inch ID, 0.010 inch factory slotted, threaded joint, Schedule 40 PVC pipe.
5. The well is protected with a stick up steel cover and a locked compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

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LOG AND DETAILS OF MONITORING WELL MW-4

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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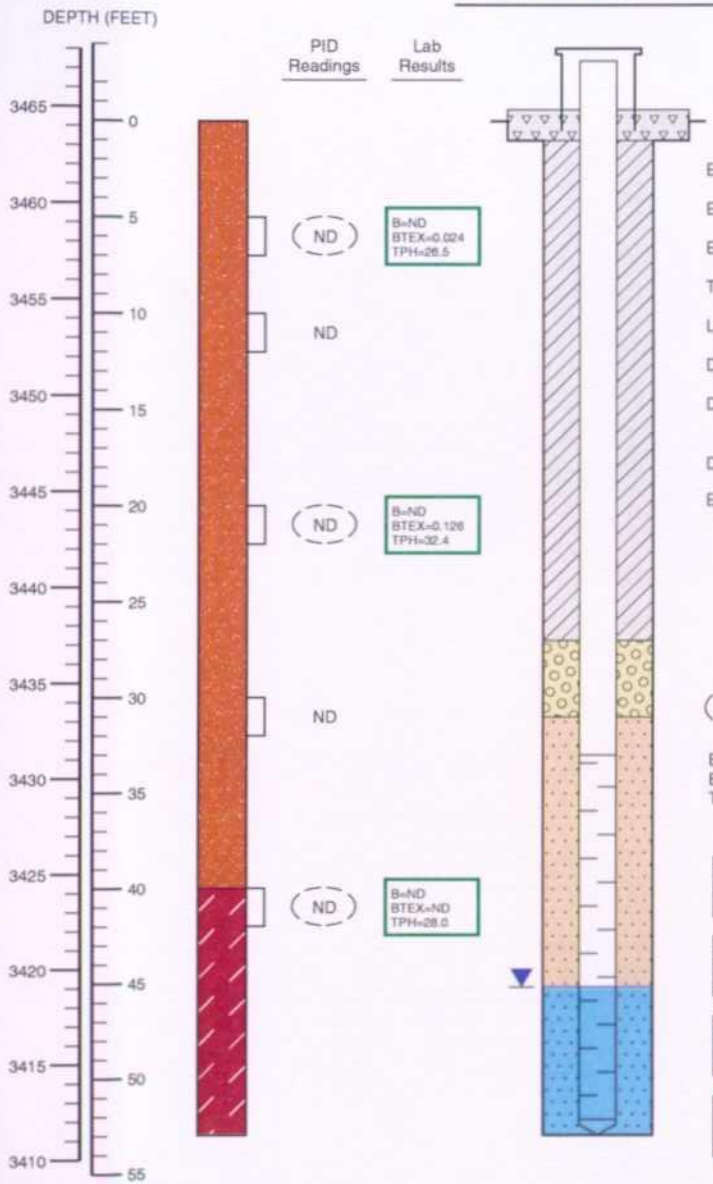
FIG 9

05/08/98-RM (810005W5)

MONITORING WELL MW-5



Monitoring Well Details (MW-5)

Elev of Concrete Pad	3464.84 ft
Elev of Ground Surface	3464.26 ft
Elev Top of PVC Well	3467.40 ft
Thickness of Bentonite Seal	4.0 ft
Length of PVC Well Screen	20.0 ft
Depth of PVC Well	53.0 ft
Depth of Exploratory Hole	53.0 ft
Depth to Ground Water	45.21 ft
Elev of Ground Water	3419.05 ft

Indicates sample selected for laboratory analysis.

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

Concrete Pad

Cement / Bentonite Grout

Bentonite Pellet Seal

Sand Pack

LEGEND

Sand (SM), slightly silty, fine to very fine-grained, slightly cemented, contains some gravel and calcareous nodules, brown to grey, moist to dry.

Clay (CL), sandy, slightly firm, red to brown, moist.

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

Indicates the ground water level measured on April 7, 1998.

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

ND Indicates the constituent was not detected or was below laboratory reporting limits.

NOTES

1. The monitoring well was installed on February 25, 1998 using an air rotary rig.
2. The well was constructed with 2 inch ID, 0.010 inch factory slotted, threaded joint, Schedule 40 PVC pipe.
5. The well is protected with a stick up steel cover and a locked compression cap.
4. The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
5. The depths indicated are referenced from the ground surface.

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LOG AND DETAILS OF MONITORING WELL MW-5

TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO

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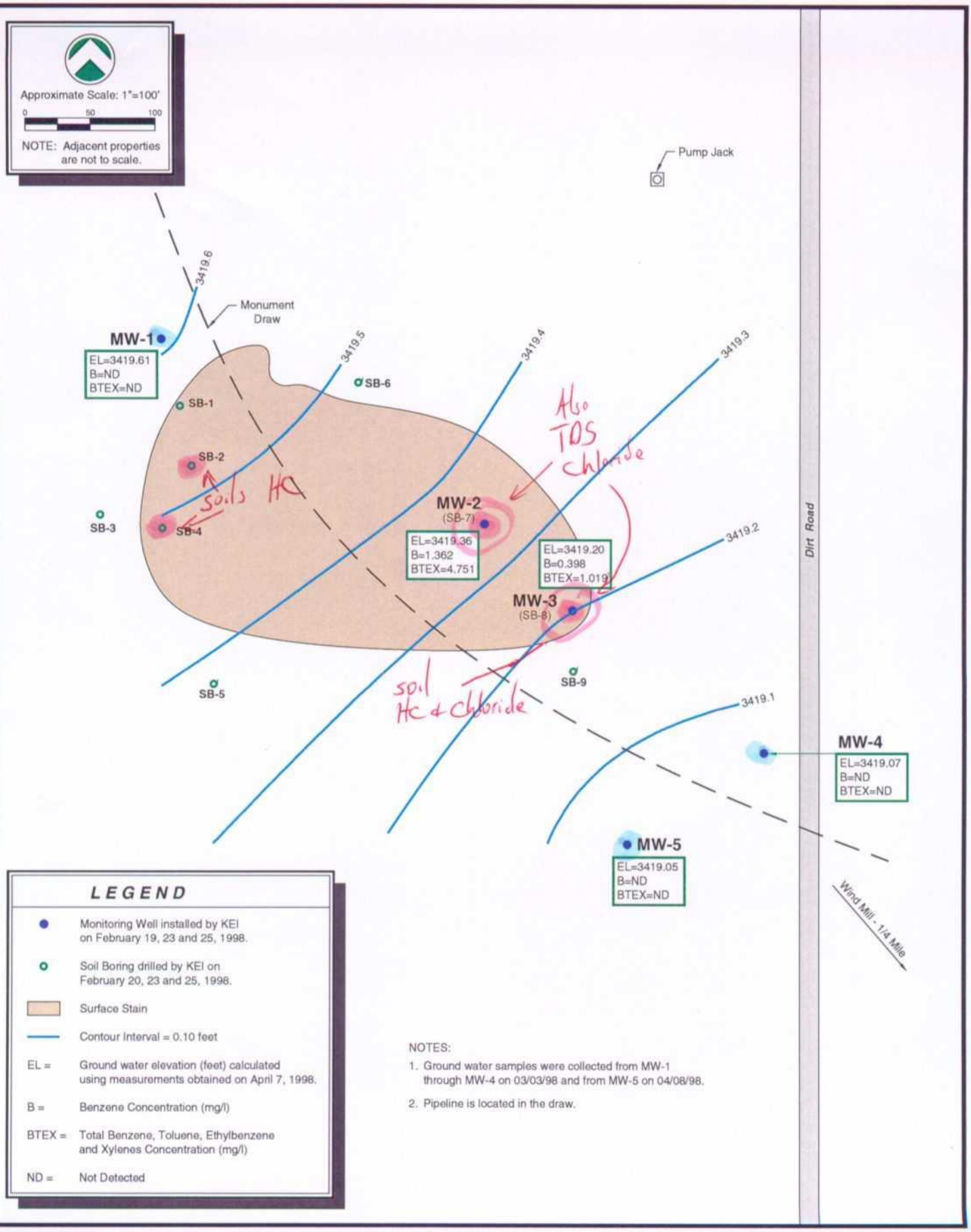
FIG 10



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GROUND WATER CONTOURS / CONCENTRATION MAP - APRIL 1998	810005
TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO	FIG 11

GENERAL NOTES

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

--- - Indicates constituent was not analyzed (TABLE VII).

Method detection or reporting limits:

Soil:	BTEX	- 0.020 to 0.40 mg/kg
	TPH	- 10.0 to 1000 mg/kg
	SPLP VOCs	- 0.10 to 0.20 mg/l
	SPLP SVOCs	- 0.017 to 0.042 mg/l
	SPLP TPH	- 1.1 mg/kg
	Chloride	- 1.00 to 40.00 mg/kg
	Moisture Content	- 0.1%
	Organic Content	- 0.1%
Water:	BTEX	- 0.001 to 0.009 mg/l
	Metals	- 0.010 to 2.2 mg/l
	PAH	- 0.002 mg/l

Laboratory test methods:

BTEX	- EPA Method SW846-8020
TPH	- Modified EPA Method 8015 Diesel Range Organics
SPLP VOCs	- EPA Method 1312/8260
SPLP SVOC	- EPA Method 1312/8270
SPLP TPH	- EPA Method 1312/418.1
Anions	- EPA Method 300.0
Moisture Content	- ASTM 2216-71
Organic Content	- ASTM D2974
Metals	- EPA ICP Method 6010
Total Mercury	- EPA Method 7470
Bicarbonate	- SM4500CO2D
Carbonate	- SM4500CO2D
TDS	- EPA Method 160.1
PAH	- EPA Method 8270

TABLE I

SUMMARY OF SOIL RESULTS - BTEX AND TPH
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
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)
MW-1	2/19/98	5 - 7	ND	ND	ND	ND	ND	36.9
MW-1	2/19/98	17 - 19	ND	ND	ND	ND	ND	51.2
MW-1	2/19/98	40 - 42	ND	ND	ND	ND	ND	46.5
MW-2	2/23/98	10 - 12	1.65	1.47	46.40	53.80	103.32	2,830
MW-2	2/23/98	15 - 17	10.30	34.60	83.40	122.60	250.90	6,560
MW-2	2/23/98	40 - 42	ND	ND	0.18	0.33	0.51	157
MW-3	2/23/98	5 - 7	0.15	0.11	7.24	1.94	9.44	1,960
MW-3	2/23/98	25 - 27	ND	ND	ND	ND	ND	70.1
MW-3	2/23/98	40 - 42	0.228	4.880	10.980	15.120	31.208	1,040
MW-4	2/25/98	10 - 12	ND	ND	ND	ND	ND	61.3
MW-4	2/25/98	30 - 32	ND	ND	ND	ND	ND	43.0
MW-4	2/25/98	40 - 42	ND	ND	ND	ND	ND	28.3
MW-5	2/25/98	5 - 7	ND	ND	0.024	ND	0.024	26.5
MW-5	2/25/98	20 - 22	ND	ND	0.049	0.077	0.126	32.4
MW-5	2/25/98	40 - 42	ND	ND	ND	ND	ND	28.0
SB-1	2/20/98	0 - 1.5	ND	ND	ND	ND	ND	71.2
SB-1	2/20/98	5 - 7	ND	ND	ND	ND	ND	24.8
SB-1	2/20/98	10 - 11.5	ND	ND	ND	ND	ND	30.2
SB-2	2/20/98	5 - 7	0.97	14.80	20.20	51.60	87.57	3,230
SB-2	2/20/98	10 - 12	4.84	46.50	52.80	94.30	198.44	6,210
SB-2	2/20/98	30 - 32	ND	ND	ND	ND	ND	28.1
SB-3	2/20/98	0 - 2	ND	ND	ND	ND	ND	29.0
SB-3	2/20/98	5 - 7	ND	ND	ND	ND	ND	38.1
SB-3	2/20/98	10 - 12	ND	ND	ND	ND	ND	23.2

TABLE I
(continued)

SUMMARY OF SOIL RESULTS - BTEX AND TPH
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	DEPTH (feet)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	TPH (mg/kg)
SB-4	2/20/98	0 - 2	16.34	77.00	73.80	112.00	279.14	10,100
SB-4	2/20/98	15 - 17	ND	ND	ND	ND	ND	75.6
SB-4	2/20/98	30 - 32	ND	ND	ND	ND	ND	51.5
SB-5	2/20/98	0 - 2	ND	ND	ND	ND	ND	29.5
SB-5	2/20/98	5 - 7	ND	ND	ND	ND	ND	23.3
SB-5	2/20/98	10 - 12	ND	ND	ND	ND	ND	20.5
SB-6	2/23/98	0 - 2	ND	ND	ND	ND	ND	21.2
SB-6	2/23/98	5 - 6.5	ND	ND	ND	ND	ND	13.7
SB-6	2/23/98	10 - 12	ND	ND	ND	ND	ND	33.4
SB-9	2/25/98	0 - 1	ND	ND	ND	ND	ND	64.1
SB-9	2/25/98	5 - 6.5	ND	ND	ND	ND	ND	31.0
SB-9	2/25/98	10 - 12	ND	ND	ND	ND	ND	50.9

TABLE II

SUMMARY OF SOIL RESULTS - SPLP
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

PARAMETER	CONCENTRATION (mg/kg)
SVOC	
2,4-Dimethylphenol	0.020
2-Methylnaphthalene	0.033
Naphthalene	0.044
VOC	
Benzene	0.22
Ethylbenzene	1.33
Naphthalene	0.16
Toluene	2.14
1,2,4-Trimethylbenzene	0.25
m,p-Xylenes	1.24
o-Xylenes	0.61
TPH	2.9

NOTES:

1. Sample was collected from soil boring SB-4 at 0 to 2 feet on 2/20/98.
2. Those constituents not listed above were ND.

TABLE III

SUMMARY OF SOIL RESULTS - CHLORIDE
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	DEPTH (feet)	CHLORIDE (mg/kg)
MW-1	2/19/98	5 - 7	ND
MW-1	2/19/98	17 - 19	16.91
MW-1	2/19/98	40 - 42	16.91
MW-3	2/23/98	5 - 7	6050
MW-3	2/23/98	25 - 27	936
MW-3	2/23/98	40 - 42	728

TABLE IV

SUMMARY OF GEOTECHNICAL PARAMETER RESULTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

PARAMETER	RESULT (%)
Fraction Organic Carbon (FOC)	0.3
Moisture Content	12.4

NOTE:

1. The sample was collected from MW-4 at 39 to 40 feet on 2/25/98

TABLE V

SUMMARY OF GROUND WATER RESULTS - BTEX
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

MONITORING WELL	DATE SAMPLED OR MEASURED	DEPTH TO WATER FROM PVC (feet)	DEPTH TO WATER BGS (feet)	GROUND WATER ELEVATION (feet)	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYL-BENZENE (mg/l)	XYLENES (mg/l)	BTEX (mg/l)
MW-1	03/03/98	45.99	43.39	3419.62	ND	ND	ND	ND	ND
MW-1	04/07/98	46.00	43.40	3419.61	---	---	---	---	---
MW-2	03/03/98	46.06	43.10	3419.38	1.362	1.863	0.773	0.753	4.751
MW-2	04/07/98	46.08	43.12	3419.36	---	---	---	---	---
MW-3	03/03/98	45.46	42.53	3419.22	0.398	0.124	0.452	0.045	1.019
MW-3	04/07/98	45.48	42.55	3419.20	---	---	---	---	---
MW-4	03/03/98	46.66	43.67	3419.10	ND	ND	ND	ND	ND
MW-4	04/07/98	46.69	43.70	3419.07	---	---	---	---	---
MW-5	04/07/98	48.35	45.21	3419.05	---	---	---	---	---
MW-5	04/08/98	48.34	45.20	3419.06	ND	ND	ND	ND	ND
Windmill	03/03/98	---	---	---	ND	ND	ND	ND	ND

TABLE VI

SUMMARY OF GROUND WATER RESULTS - METALS AND PAH
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	MW-1	MW-2	MW-3	MW-4	MW-5
SAMPLE DATE	3/3/98	3/3/98	3/3/98	3/3/98	4/8/98
CONSTITUENT	CONCENTRATION (mg/l)				
Metals by ICP					
Aluminum	0.8	ND	2.15	ND	ND
Barium	0.14	0.82	0.55	0.19	0.15
Boron	0.36	0.37	3.45	ND	0.38
Calcium	1010	762	472	590	188
Iron	0.32	0.76	5.51	ND	ND
Magnesium	25.7	49.2	117	30.8	39.2
Manganese	0.18	0.47	0.42	0.2	0.12
Nickel	ND	ND	0.55	ND	ND
Potassium	3.38	6.37	31.41	7.31	4.30
Silicon	41.1	36.3	30	33.5	45
Sodium	76.4	327	1460	68.1	94.3
Strontium	3.34	6.92	4.82	3.25	4.47
Tin	ND	0.24	1.96	ND	ND
PAH:					
Naphthalene	ND	0.017	0.010	ND	ND

NOTE:

1. The constituents not listed above were ND.

TABLE VII

SUMMARY OF GROUND WATER RESULTS - MISCELLANEOUS
TEXAS - NEW MEXICO PIPE LINE COMPANY
HDO-90-23
LEA COUNTY, NEW MEXICO

MONITORING WELL NO.	DATE SAMPLED	BICARBONATE (mg/l)	CARBONATE (mg/l)	TDS (mg/l)	SULFATE (mg/l)	CHLORIDE (mg/l)
MW-1	3/3/98	225	ND	458	63.59	17.11
MW-2	3/3/98	460	ND	1400	34.82	394
MW-3	3/3/98	1190	ND	4890	164	1820
MW-4	3/3/98	181	ND	470	51.05	65.79
MW-5	4/8/98	291	ND	485	75.5	113
Windmill	3/3/98	---	---	---	---	55.04

ANALYTICAL REPORT 1-80767

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: Historical Eunice Site

Project Id: 810005

March 24, 1998

HOUSTON - DALLAS - SAN ANTONIO

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

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

March 24, 1998

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

Reference: **XENCO Report No.: 1-80767**
Project Name: Historical Eunice Site
Project ID: 810005

Dear Theresa Nix:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with XENCO Chain of Custody Number 1-80767. All results being reported to you apply only to the samples analyzed, properly identified with a Laboratory ID number. This letter documents the official transmission of the contents of the report and validates the information contained within.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 3 years in our archives and after that time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 1-80767 will be filed for 60 days, and after that time they will be properly disposed of without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

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

Sincerely,

Eddie Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80767

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix

Project Name: Historical Eunice Site

Date Received in Lab : Feb 27, 1998 09:38
Date Report Faxed: Mar 24, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 001	180767 002	180767 003	180767 004	180767 005	180767 006
	Field ID:	MW-1	MW-1	MW-1	SB-1	SB-1	SB-1
	Depth:	5-7	17-19	40-42	0-1.5	5-7	10-11.5
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/19/98	02/19/98	02/19/98	02/20/98	02/20/98	02/20/98
TPH-DRO (Diesel) **EPA 8015 M**	*Analyzed:*	03/04/98	03/04/98	03/04/98	03/04/98	03/05/98	03/05/98
	Units:	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.
Total Petroleum Hydrocarbons		36.9 (10.0)	51.2 (10.0)	46.5 (10.0)	71.2 (10.0)	24.8 (10.0)	30.2 (10.0)
BTEX **EPA 8020**	*Analyzed:*	03/02/98	03/02/98	03/02/98	03/02/98	03/02/98	03/02/98
	Units:	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.
Benzene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Toluene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Ethylbenzene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
m,p-Xylenes		< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)
o-Xylene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Total BTEX		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Anions by Ion Chromatography **EPA 300.0**	*Analyzed:*	03/05/98	03/05/98	03/05/98			
	Units:	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.			
Chloride		< 1.00 (1.00)	16.91 (1.00)	16.91 (1.00)			

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80767

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix

Project Name: Historical Eunice Site

Date Received in Lab : Feb 27, 1998 09:38
Date Report Faxed: Mar 24, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 007	180767 008	180767 009	180767 010	180767 011	180767 012
	Field ID:	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3
	Depth:	5-7	10-12	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
TPH-DRO (Diesel) **EPA 8015 M**	*Analyzed:*	03/05/98	03/05/98	03/05/98	03/05/98	03/05/98	03/05/98
	Units:	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.
Total Petroleum Hydrocarbons		3230 (250)	6210 (250)	28.1 (10.0)	29.0 (10.0)	38.1 (10.0)	23.2 (10.0)
BTEX **EPA 8020**	*Analyzed:*	03/02/98	03/02/98	03/02/98	03/02/98	03/02/98	03/02/98
	Units:	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.
Benzene		0.97 (0.10)	4.84 (0.10)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Toluene		14.80 (0.10)	46.50 (0.10)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Ethylbenzene		20.20 (0.10)	52.80 (0.10)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
m,p-Xylenes		34.70 (0.20)	65.60 (0.20)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)
o-Xylene		16.90 (0.10)	28.70 (0.10)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Total BTEX		87.57	198.44	N.D.	N.D.	N.D.	N.D.

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

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K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix

Project Name: Historical Eunice Site

Date Received in Lab : Feb 27, 1998 09:38
Date Report Faxed: Mar 24, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 013	180767 014	180767 015	180767 016	180767 017	180767 018
	Field ID:	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Depth:	0-2	15-17	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
TPH-DRO (Diesel) **EPA 8015 M**	*Analyzed:*	03/05/98	03/05/98	03/05/98	03/05/98	03/05/98	03/05/98
	Units:	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.
Total Petroleum Hydrocarbons		10100 (1000)	75.6 (10.0)	51.5 (10.0)	29.5 (10.0)	23.3 (10.0)	20.5 (10.0)
BTEX **EPA 8020**	*Analyzed:*	03/02/98	03/02/98	03/02/98	03/02/98	03/02/98	03/02/98
	Units:	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.
Benzene		16.34 (0.20)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Toluene		77.00 (0.20)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Ethylbenzene		73.80 (0 20)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
m,p-Xylenes		78.60 (0.40)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)
o-Xylene		33.40 (0.20)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Total BTEX		279.14	N.D.	N.D.	N.D.	N.D.	N.D.
SPLP-Semivolatiles **EPA1312/8270**	*Analyzed:*	03/10/98					
	Units:	mg/L R.L.					
Acenaphthene		< 0.017 (0.017)					
Acenaphthylene		< 0.017 (0.017)					
Anthracene		< 0.017 (0.017)					
Benzo(a)anthracene		< 0.017 (0.017)					
Benzo(a)pyrene		< 0.017 (0.017)					
Benzo(b)fluoranthene		< 0.017 (0.017)					
Benzo(g,h,i)perylene		< 0.017 (0.017)					
Benzo(k)fluoranthene		< 0.017 (0.017)					
4-Bromophenyl-phenylether		< 0.017 (0.017)					
Butyl benzyl phthalate		< 0.017 (0.017)					
Carbazole		< 0.017 (0.017)					
4-Chloro-3-Methylphenol		< 0.017 (0.017)					

Edward H. Yonemoto, Ph.D.
Technical Director

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CERTIFICATE OF ANALYSIS SUMMARY 1-80767

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Date Received in Lab : Feb 27, 1998 09:38
Project Manager: Theresa Nix
Date Report Faxed: Mar 24, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 013	180767 014	180767 015	180767 016	180767 017	180767 018
	Field ID:	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Depth:	0-2	15-17	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
EPA1312/8270	*Analyzed:*	03/10/98					
	Units:	mg/L R.L.					
4-Chloroaniline		< 0.017 (0.017)					
2-Chloronaphthalene		< 0.017 (0.017)					
2-Chlorophenol		< 0.017 (0.017)					
4-Chlorophenyl-phenyl ether		< 0.017 (0.017)					
Chrysene		< 0.017 (0.017)					
Di-n-butyl phthalate		< 0.017 (0.017)					
Di-n-octyl phthalate		< 0.017 (0.017)					
Dibenzo(a,h)anthracene		< 0.017 (0.017)					
Dibenzofuran		< 0.017 (0.017)					
1,2-Dichlorobenzene		< 0.017 (0.017)					
1,3-Dichlorobenzene		< 0.017 (0.017)					
1,4-Dichlorobenzene		< 0.017 (0.017)					
3,3'-Dichlorobenzidine		< 0.017 (0.017)					
2,4-Dichlorophenol		< 0.017 (0.017)					
Diethyl phthalate		< 0.017 (0.017)					
2,4-Dimethylphenol		0.020 (0.017)					
Dimethyl phthalate		< 0.017 (0.017)					
4,6-Dinitro-2-methylphenol		< 0.042 (0.042)					
2,4-Dinitrophenol		< 0.042 (0.042)					
2,4-Dinitrotoluene		< 0.017 (0.017)					
2,6-Dinitrotoluene		< 0.017 (0.017)					
Fluoranthene		< 0.017 (0.017)					
Fluorene		< 0.017 (0.017)					
Hexachlorobenzene		< 0.017 (0.017)					

Edward H. Yonemoto, Ph.D.
Technical Director

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Analysis Requested	*Lab ID:*	180767 013	180767 014	180767 015	180767 016	180767 017	180767 018
	Field ID:	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Depth:	0-2	15-17	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
	Analyzed:	03/10/98					
EPA1312/8270	*Units:*	mg/L R.L.					
Hexachlorobutadiene		< 0.017 (0.017)					
Hexachlorocyclopentadiene		< 0.017 (0.017)					
Hexachloroethane		< 0.017 (0.017)					
Indeno(1,2,3-cd)pyrene		< 0.017 (0.017)					
Isophorone		< 0.017 (0.017)					
2-Methylnaphthalene		0.033 (0.017)					
2-Methylphenol		< 0.017 (0.017)					
4-Methylphenol		< 0.017 (0.017)					
N-Nitroso-di-n-propylamine		< 0.017 (0.017)					
N-Nitrosodiphenylamine		< 0.017 (0.017)					
Naphthalene		0.044 (0.017)					
2-Nitroaniline		< 0.042 (0.042)					
3-Nitroaniline		< 0.042 (0.042)					
4-Nitroaniline		< 0.042 (0.042)					
Nitrobenzene		< 0.017 (0.017)					
2-Nitrophenol		< 0.017 (0.017)					
4-Nitrophenol		< 0.017 (0.017)					
Pentachlorophenol		< 0.042 (0.042)					
Phenanthrene		< 0.017 (0.017)					
Phenol		< 0.017 (0.017)					
Pyrene		< 0.017 (0.017)					
1,2,4-Trichlorobenzene		< 0.017 (0.017)					
2,4,5-Trichlorophenol		< 0.042 (0.042)					
2,4,6-Trichlorophenol		< 0.017 (0.017)					

Edward L. Yonemoto, Ph.D.
Technical Director

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Analysis Requested	*Lab ID:*	180767 013	180767 014	180767 015	180767 016	180767 017	180767 018
	Field ID:	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Depth:	0-2	15-17	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
EPA1312/8270	*Analyzed:*	03/10/98					
	Units:	mg/L R.L.					
bis [2-Chloroethoxy] methane		< 0.017 (0.017)					
bis [2-Chloroethyl] ether		< 0.017 (0.017)					
bis [2-Chloroisopropyl] ether		< 0.017 (0.017)					
bis [2-Ethylhexyl] phthalate		< 0.017 (0.017)					
SPLP Volatiles EPA 8260	*Analyzed:*	03/13/98					
	Units:	mg/L R.L.					
Benzene		0.22 (0.10)					
Bromobenzene		< 0.10 (0.10)					
Bromochloromethane		< 0.10 (0.10)					
Bromodichloromethane		< 0.10 (0.10)					
Bromoform		< 0.10 (0.10)					
Bromomethane		< 0.10 (0.10)					
Carbon Tetrachloride		< 0.10 (0.10)					
Chlorobenzene		< 0.10 (0.10)					
Chloroethane		< 0.20 (0.20)					
Chloroform		< 0.10 (0.10)					
Chloromethane		< 0.20 (0.20)					
2-Chlorotoluene		< 0.10 (0.10)					
4-Chlorotoluene		< 0.10 (0.10)					
1,2-Dibromo-3-chloropropane		< 0.10 (0.10)					
Dibromochloromethane		< 0.10 (0.10)					
1,2-Dibromoethane		< 0.10 (0.10)					
Dibromomethane		< 0.10 (0.10)					

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80767

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix

Project Name: Historical Eunice Site

Date Received in Lab : Feb 27, 1998 09:38
Date Report Faxed: Mar 24, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 013	180767 014	180767 015	180767 016	180767 017	180767 018
	Field ID:	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Depth:	0-2	15-17	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
EPA 8260	*Analyzed:*	03/13/98					
	Units:	mg/L R.L.					
1,2-Dichlorobenzene		< 0.10 (0.10)					
1,3-Dichlorobenzene		< 0.10 (0.10)					
1,4-Dichlorobenzene		< 0.10 (0.10)					
Dichlorodifluoromethane		< 0.10 (0.10)					
1,1-Dichloroethane		< 0.10 (0.10)					
1,2-Dichloroethane		< 0.10 (0.10)					
1,1-Dichloroethene		< 0.10 (0.10)					
1,2-Dichloropropane		< 0.10 (0.10)					
1,3-Dichloropropane		< 0.10 (0.10)					
2,2-Dichloropropane		< 0.10 (0.10)					
1,1-Dichloropropene		< 0.10 (0.10)					
Ethylbenzene		1.33 (0.10)					
Hexachlorobutadiene		< 0.10 (0.10)					
Isopropylbenzene		< 0.10 (0.10)					
MTBE		< 0.20 (0.20)					
Methylene chloride		< 0.20 (0.20)					
Naphthalene		0.16 (0.10)					
Styrene		< 0.10 (0.10)					
1,1,1,2-Tetrachloroethane		< 0.10 (0.10)					
1,1,2,2-Tetrachloroethane		< 0.10 (0.10)					
Tetrachloroethene		< 0.10 (0.10)					
Toluene		2.14 (0.10)					
1,2,3-Trichlorobenzene		< 0.10 (0.10)					
1,2,4-Trichlorobenzene		< 0.10 (0.10)					

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XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 013	180767 014	180767 015	180767 016	180767 017	180767 018
	Field ID:	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5
	Depth:	0-2	15-17	30-32	0-2	5-7	10-12
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98	02/20/98
EPA 8260	*Analyzed:*	03/13/98					
	Units:	mg/L R.L.					
1,1,1-Trichloroethane		< 0.10 (0.10)					
1,1,2-Trichloroethane		< 0.10 (0.10)					
Trichloroethene		< 0.10 (0.10)					
Trichlorofluoromethane		< 0.10 (0.10)					
1,2,3-Trichloropropane		< 0.10 (0.10)					
1,2,4-Trimethylbenzene		0.25 (0.10)					
1,3,5-Trimethylbenzene		< 0.10 (0.10)					
Vinyl chloride		< 0.10 (0.10)					
cis-1,2-Dichloroethene		< 0.10 (0.10)					
cis-1,3-Dichloropropene		< 0.10 (0.10)					
m,p-Xylenes		1.24 (0.10)					
n-Butylbenzene		< 0.10 (0.10)					
n-Propylbenzene		< 0.10 (0.10)					
o-Xylene		0.61 (0.10)					
p-Isopropyltoluene		< 0.10 (0.10)					
sec-Butylbenzene		< 0.10 (0.10)					
tert-Butylbenzene		< 0.10 (0.10)					
trans-1,2-Dichloroethene		< 0.10 (0.10)					
trans-1,3-Dichloropropene		< 0.10 (0.10)					
SPLP TPH 1312/418.1	*Analyzed:*	03/09/98					
	Units:	ppm R.L.					
Total Petroleum Hydrocarbons		2.9 (1.1)					

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Technical Director

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Project Name: Historical Eunice Site
Date Received in Lab : Feb 27, 1998 09:38
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XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180767 019	180767 020	180767 021	180767 022	180767 023	180767 024
	Field ID:	SB-6	SB-6	SB-6	SB-7-MW-2	SB-7-MW-2	SB-7-MW-2
	Depth:	0-2	5-6.5	10-12	10-12	15-17	40-42
	Matrix:	Solid	Solid	Solid	Solid	Solid	Solid
	Sampled:	02/23/98	02/23/98	02/23/98	02/23/98	02/23/98	02/23/98
TPH-DRO (Diesel)	*Analyzed:*	03/05/98	03/05/98	03/05/98	03/05/98	03/05/98	03/05/98
EPA 8015 M	*Units:*	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.	mg/kg R.L.
Total Petroleum Hydrocarbons		21.2 (10.0)	13.7 (10.0)	33.4 (10.0)	2830 (250)	6560 (500)	157 (10.0)
BTEX	*Analyzed:*	03/02/98	03/02/98	03/04/98	03/04/98	03/04/98	03/04/98
EPA 8020	*Units:*	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.
Benzene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	1.65 (0.20)	10.30 (0.20)	< 0.10 (0.10)
Toluene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	1.47 (0.20)	34.60 (0.20)	< 0.10 (0.10)
Ethylbenzene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	46.40 (0.20)	83.40 (0.20)	0.18 (0.10)
m,p-Xylenes		< 0.040 (0.040)	< 0.040 (0.040)	< 0.040 (0.040)	47.20 (0.40)	87.00 (0.40)	0.21 (0.20)
o-Xylene		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)	6.60 (0.20)	35.60 (0.20)	0.12 (0.10)
Total BTEX		N.D.	N.D.	N.D.	103.32	250.90	0.51

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Project Name: Historical Eunice Site

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Analysis Requested	*Lab ID:*	180767 025		180767 026		180767 027		180767 028		180767 029		180767 030	
	Field ID:	SB-8-MW-3		SB-8-MW-3		SB-8-MW-3		SB-9		SB-9		SB-9	
	Depth:	5-7		25-27		40-42		0-1		5-6.5		10-12	
	Matrix:	Solid		Solid		Solid		Solid		Solid		Solid	
	Sampled:	02/23/98		02/23/98		02/23/98		02/25/98		02/25/98		02/25/98	
TPH-DRO (Diesel)	*Analyzed:*	03/04/98		03/05/98		03/05/98		03/05/98		03/05/98		03/05/98	
EPA 8015 M	*Units:*	mg/kg	R.L.	mg/kg	R.L.	mg/kg	R.L.	mg/kg	R.L.	mg/kg	R.L.	mg/kg	R.L.
Total Petroleum Hydrocarbons		1960	(50.0)	70.1	(10.0)	1040	(50.0)	64.1	(10.0)	31.0	(10.0)	50.9	(10.0)
BTEX	*Analyzed:*	03/04/98		03/04/98		03/04/98		03/05/98		03/05/98		03/05/98	
EPA 8020	*Units:*	ppm	R.L.	ppm	R.L.	ppm	R.L.	ppm	R.L.	ppm	R.L.	ppm	R.L.
Benzene		0.15	(0.10)	< 0.020	(0.020)	0.228	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)
Toluene		0.11	(0.10)	< 0.020	(0.020)	4.880	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)
Ethylbenzene		7.24	(0.10)	< 0.020	(0.020)	10.980	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)
m,p-Xylenes		1.64	(0.20)	< 0.040	(0.040)	9.560	(0.040)	< 0.040	(0.040)	< 0.040	(0.040)	< 0.040	(0.040)
o-Xylene		0.30	(0.10)	< 0.020	(0.020)	5.560	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)
Total BTEX		9.44		N.D.		31.208		N.D.		N.D.		N.D.	
Anions by Ion Chromatography	*Analyzed:*	03/05/98		03/05/98		03/05/98							
EPA 300.0	*Units:*	mg/kg	R.L.	mg/kg	R.L.	mg/kg	R.L.						
Chloride		6050	(40.00)	936	(10.00)	728	(10.00)						

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Technical Director

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Project ID: 810005
Project Manager: Theresa Nix

Project Name: Historical Eunice Site

Date Received in Lab : Feb 27, 1998 09:38
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XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180767 031 MW-4 10-12 Solid 02/25/98	180767 032 MW-4 30-32 Solid 02/25/98	180767 033 MW-4 39-40 Solid 02/25/98	180767 034 MW-4 40-42 Solid 02/25/98	180767 035 MW-5 5-7 Solid 02/25/98	180767 036 MW-5 20-22 Solid 02/25/98
Moisture Content **ASTM 2216-71**	*Analyzed:* / *Units:*			03/02/98 % R.L.			
Moisture Content				12.4 (0.1)			
Organic Content **ASTM D2974**	*Analyzed:* / *Units:*			03/03/98 % R.L.			
Organic Content				0.3 (0.1)			
TPH-DRO (Diesel) **EPA 8015 M**	*Analyzed:* / *Units:*	03/03/98 mg/kg R.L.	03/05/98 mg/kg R.L.		03/05/98 mg/kg R.L.	03/05/98 mg/kg R.L.	03/05/98 mg/kg R.L.
Total Petroleum Hydrocarbons		61.3 (10.0)	43.0 (10.0)		28.3 (10.0)	26.5 (10.0)	32.4 (10.0)
BTEX **EPA 8020**	*Analyzed:* / *Units:*	03/05/98 ppm R.L.	03/05/98 ppm R.L.		03/05/98 ppm R.L.	03/05/98 ppm R.L.	03/05/98 ppm R.L.
Benzene		< 0.020 (0.020)	< 0.020 (0.020)		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Toluene		< 0.020 (0.020)	< 0.020 (0.020)		< 0.020 (0.020)	< 0.020 (0.020)	< 0.020 (0.020)
Ethylbenzene		< 0.020 (0.020)	< 0.020 (0.020)		< 0.020 (0.020)	0.024 (0.020)	0.049 (0.020)
m,p-Xylenes		< 0.040 (0.040)	< 0.040 (0.040)		< 0.040 (0.040)	< 0.040 (0.040)	0.056 (0.040)
o-Xylene		< 0.020 (0.020)	< 0.020 (0.020)		< 0.020 (0.020)	< 0.020 (0.020)	0.021 (0.020)
Total BTEX		N.D.	N.D.		N.D.	0.024	0.126

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80767

K.E.I. Consultants, Inc.

Project ID: 810005
Project Name: Historical Eunice Site
Date Received in Lab : Feb 27, 1998 09:38
Project Manager: Theresa Nix
Date Report Faxed: Mar 24, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180767 037 / MW-5 / 40-42 / Solid / 02/25/98					
TPH-DRO (Diesel) **EPA 8015 M**	*Analyzed:* / *Units:*	03/05/98 / mg/kg	R.L.				
Total Petroleum Hydrocarbons		28.0	(10.0)				
BTEX **EPA 8020**	*Analyzed:* / *Units:*	03/05/98 / ppm	R.L.				
Benzene		< 0.020	(0.020)				
Toluene		< 0.020	(0.020)				
Ethylbenzene		< 0.020	(0.020)				
m,p-Xylenes		< 0.040	(0.040)				
o-Xylene		< 0.020	(0.020)				
Total BTEX		N.D.					

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18Z99A58

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Mar 5, 1998 12:45
Date Analyzed: Mar 4, 1998 21:19
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/kg	[B] Blank Spike Result mg/kg	[C] Blank Spike Amount mg/kg	[D] Method Detection Limit mg/kg	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Total Petroleum Hydrocarbons	< 10.00	175	200	10.00	87.5	65-135	

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

Edward E. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18Z99A58

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Mar 5, 1998 12:45
Date Analyzed: Mar 4, 1998 22:14
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 180767- 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	%	
Total Petroleum Hydrocarbons	36.93	177	175	200	10.00	30.0	1.1	70.0	69.0	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. Hamamoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18Z99A61

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Mar 6, 1998 12:10
Date Analyzed: Mar 5, 1998 09:14
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/kg	[B] Blank Spike Result mg/kg	[C] Blank Spike Amount mg/kg	[D] Method Detection Limit mg/kg	[E] QC LIMITS Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Total Petroleum Hydrocarbons	< 10.00	232	200	10.00	116.0	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 S. Tonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18Z99A61

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Mar 6, 1998 12:10
Date Analyzed: Mar 5, 1998 18:00
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
Matrix: Solid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 180767- 021 / Parameter	[A] Sample Result mg/kg	[B] Matrix Spike Result mg/kg	[C] Matrix Spike Duplicate Result mg/kg	[D] Matrix Spike Amount mg/kg	[E] Method Detection Limit mg/kg	Matrix Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Matrix Spike Recovery %	[H] QC M.S.D. Recovery %	[I] Matrix Spike Recovery Range %	[J] Qualifier
Total Petroleum Hydrocarbons	33.40	205	204	200	10.00	30.0	0.5	85.8	85.3	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. Tonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A77

SW- 846 5030/8020 BTEX

Date Validated: Mar 5, 1998 08:00
Date Analyzed: Mar 4, 1998 20:36
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.0888	0.1000	0.0010	88.8	65-135	
Toluene	< 0.0010	0.0986	0.1000	0.0010	98.6	65-135	
Ethylbenzene	< 0.0010	0.1010	0.1000	0.0010	101.0	65-135	
m,p-Xylenes	< 0.0020	0.2030	0.2000	0.0020	101.5	65-135	
o-Xylene	< 0.0010	0.1010	0.1000	0.0010	101.0	65-135	

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

Edward T. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A77

SW- 846 5030/8020 BTEX

Date Validated: Mar 5, 1998 08:00
Date Analyzed: Mar 4, 1998 21:33
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 180767- 021 / **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
Benzene	< 0.020	1.802	1.788	2.000	0.020	25.0	0.8	90.1	89.4	65-135	
Toluene	< 0.020	1.898	1.878	2.000	0.020	25.0	1.1	94.9	93.9	65-135	
Ethylbenzene	< 0.020	1.968	1.938	2.000	0.020	25.0	1.5	98.4	96.9	65-135	
m,p-Xylenes	< 0.040	3.940	3.880	4.000	0.040	25.0	1.5	98.5	97.0	65-135	
o-Xylene	< 0.020	1.980	1.938	2.000	0.020	25.0	2.1	99.0	96.9	65-135	

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

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A75

SW- 846 5030/8020 BTEX

Date Validated: Mar 4, 1998 15:00
Date Analyzed: Mar 2, 1998 01:14
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Solid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Method Detection Limit ppm	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.0898	0.1000	0.0010	89.8	65-135	
Toluene	< 0.0010	0.0909	0.1000	0.0010	90.9	65-135	
Ethylbenzene	< 0.0010	0.0931	0.1000	0.0010	93.1	65-135	
m,p-Xylenes	< 0.0020	0.1850	0.2000	0.0020	92.5	65-135	
o-Xylene	< 0.0010	0.0904	0.1000	0.0010	90.4	65-135	

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

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A75

SW- 846 5030/8020 BTEX

Date Validated: Mar 4, 1998 15:00
Date Analyzed: Mar 2, 1998 01:52
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 180767- 001 / **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
Benzene	< 0.020	1.824	1.846	2.000	0.020	25.0	1.2	91.2	92.3	65-135	
Toluene	< 0.020	1.824	1.852	2.000	0.020	25.0	1.5	91.2	92.6	65-135	
Ethylbenzene	< 0.020	1.874	1.906	2.000	0.020	25.0	1.7	93.7	95.3	65-135	
m,p-Xylenes	< 0.040	3.740	3.780	4.000	0.040	25.0	1.1	93.5	94.5	65-135	
o-Xylene	< 0.020	1.844	1.876	2.000	0.020	25.0	1.7	92.2	93.8	65-135	

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

Edward T. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A01A90

EPA1312/8260 SPLP Volatiles

Date Validated: Mar 16, 1998 13:15
Date Analyzed: Mar 13, 1998 20:46
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CE
Matrix: Solid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 180767- 013 / **Parameter**	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] Detection Limit	Matrix Limit Relative Difference	[F] QC Spike Relative Difference	[G] QC Matrix Spike Recovery	[H] QC M.S.D. Recovery	[I] Matrix Spike Recovery Range	[J] Qualifier
	mg/L	mg/L	mg/L	mg/L	mg/L	%	%	%	%	%	
Benzene	0.222	1.304	1.244	1.000	0.020	20.0	4.7	108.2	102.2	66-142	
Chlorobenzene	< 0.020	1.000	0.984	1.000	0.020	20.0	1.6	100.0	98.4	60-133	
1,1-Dichloroethene	< 0.080	0.922	0.856	1.000	0.080	25.0	7.4	92.2	85.6	59-172	
Toluene	2.140	3.068	2.902	1.000	0.020	20.0	5.6	92.8	76.2	59-139	
Trichloroethene	< 0.060	1.002	0.950	1.000	0.060	20.0	5.3	100.2	95.0	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A34B14

SW846-8270 Semivolatiles (SVOCs TCL)

Date Validated: Mar 10, 1998 12:50
Date Analyzed: Mar 9, 1998 23:48
QA/QC Manager: Sunil Ajai, M.S.

Analyst: LC
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	< 0.0050	0.0650	0.0828	0.1000	0.0050	31.0	24.1	65.0	82.8	46-118	
4-Chloro-3-Methylphenol	< 0.0076	0.0602	0.0700	0.1000	0.0076	42.0	15.1	60.2	70.0	23-97	
2-Chlorophenol	< 0.0100	0.0576	0.0700	0.1000	0.0100	40.0	19.4	57.6	70.0	27-123	
1,4-Dichlorobenzene	< 0.0084	0.0674	0.0826	0.1000	0.0084	28.0	20.3	67.4	82.6	36-97	
2,4-Dinitrotoluene	< 0.0100	0.0694	0.0768	0.1000	0.0100	38.0	10.1	69.4	76.8	24-96	
N-Nitroso-di-n-propylamine	< 0.0080	0.0662	0.0790	0.1000	0.0080	38.0	17.6	66.2	79.0	41-116	
4-Nitrophenol	< 0.0080	0.0206	0.0222	0.1000	0.0080	50.0	7.5	20.6	22.2	10-80	
Pentachlorophenol	< 0.0172	0.0760	0.0828	0.1000	0.0172	50.0	8.6	76.0	82.8	9-103	
Phenol	< 0.0074	0.0256	0.0322	0.1000	0.0074	42.0	22.8	25.6	32.2	12-89	
Pyrene	< 0.0040	0.0982	0.0978	0.1000	0.0040	31.0	0.4	98.2	97.8	26-127	
1,2,4-Trichlorobenzene	< 0.0108	0.0738	0.0914	0.1000	0.0108	28.0	21.3	73.8	91.4	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A10A37

EPA 300.0 Anions by Ion Chromatography

Date Validated: Mar 6, 1998 09:42
Date Analyzed: Mar 5, 1998 19:48
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
Matrix: Solid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 180767- 027	[A] Sample Result	[B] Duplicate Result	[C] Method Detection Limit	[D] QC LIMITS Relative Difference	[E] LIMITS Relative Difference	[F] Qualifier
Parameter	mg/kg	mg/kg	mg/kg	%	%	
Chloride	728	710	0.050	2.5	30.0	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A10A37

EPA 300.0 Anions by Ion Chromatography

Date Validated: Mar 6, 1998 09:42
Date Analyzed: Mar 5, 1998 15:36
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
Matrix: Solid

	BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY										
Parameter	[A] Blank Result mg/kg	[B] Blank Spike Result mg/kg	[C] Blank Spike Duplicate Result mg/kg	[D] Blank Spike Amount mg/kg	[E] Method Detection Limit mg/kg	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
Chloride	< 0.050	5.287	5.166	5.000	0.050	30.0	2.3	105.7	103.3	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A07C08

EPA 1312/418.1 SPLP TPH

Date Validated: Mar 9, 1998 17:39
Date Analyzed: Mar 9, 1998 13:21
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OG
Matrix: Solid

	BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY										
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Duplicate Result ppm	[D] Blank Spike Amount ppm	[E] Detection Limit ppm	Blank Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Blank Spike Recovery %	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	[J] Qualifier
Total Petroleum Hydrocarbons	< 0.50	6.95	6.91	6.93	0.50	20.0	0.6	100.3	99.7	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A19A81

ASTM 2216- 71 Moisture Content

Date Validated: Mar 3, 1998 08:25
Date Analyzed: Mar 2, 1998 14:47
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OG
Matrix: Solid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 180801- 001	[A] Sample Result	[B] Duplicate Result	[C] Method Detection Limit	[D] QC Relative Difference	[E] LIMITS Relative Difference	[F] Qualifier
Parameter	%	%	%	%	%	
Moisture Content	16.97	15.66	0.1	8.0	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A19A87

ASTM D2974 Organic Content

Date Validated: Mar 4, 1998 15:08
Date Analyzed: Mar 3, 1998 14:50
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Solid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 130766- 009	[A] Sample Result	[B] Duplicate Result	[C] Method Detection Limit	[D] QC Relative Difference	[E] LIMITS Relative Difference	[F] Qualifier
Parameter	%	%	%	%	%	
Organic Content	0.57	0.56	0.1	1.8	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.
Technical Director

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix
Project Location:

Project Name: Historical Eunice Site

XENCO COC#: 1-80767
Date Received in Lab: Feb 27, 1998 09:38 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	MW-1 (5-7)	180767-001	BTEX	SW-846	ppm	Standard	Feb 19, 1998		Mar 2, 1998 by HL	Mar 2, 1998 01:52 by HL
2			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 19, 1998		Mar 3, 1998 by ML	Mar 4, 1998 22:14 by OR
3			Anions	EPA 300.0	mg/kg	Standard	Feb 19, 1998		Mar 5, 1998 by OR	Mar 5, 1998 18:29 by OR
4	MW-1 (17-19)	180767-002	BTEX	SW-846	ppm	Standard	Feb 19, 1998		Mar 2, 1998 by HL	Mar 2, 1998 02:49 by HL
5			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 19, 1998		Mar 3, 1998 by ML	Mar 4, 1998 22:41 by OR
6			Anions	EPA 300.0	mg/kg	Standard	Feb 19, 1998		Mar 5, 1998 by OR	Mar 5, 1998 18:35 by OR
7	MW-1 (40-42)	180767-003	BTEX	SW-846	ppm	Standard	Feb 19, 1998		Mar 2, 1998 by HL	Mar 2, 1998 03:08 by HL
8			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 19, 1998		Mar 3, 1998 by ML	Mar 4, 1998 23:09 by OR
9			Anions	EPA 300.0	mg/kg	Standard	Feb 19, 1998		Mar 5, 1998 by OR	Mar 5, 1998 18:40 by OR
10	SB-1 (0-1.5)	180767-004	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 03:27 by HL
11			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 4, 1998 23:36 by OR
12	SB-1 (5-7)	180767-005	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 03:46 by HL
13			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 00:04 by OR
14	SB-1 (10-11.5)	180767-006	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 04:05 by HL
15			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 00:31 by OR
16	SB-2 (5-7)	180767-007	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 05:01 by HL
17			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 00:59 by OR
18	SB-2 (10-12)	180767-008	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 05:20 by HL
19			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 01:26 by OR
20	SB-2 (30-32)	180767-009	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 04:24 by HL
21			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 01:54 by OR
22	SB-3 (0-2)	180767-010	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 04:43 by HL
23			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 02:21 by OR
24	SB-3 (5-7)	180767-011	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 06:17 by HL
25			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 03:16 by OR
26	SB-3 (10-12)	180767-012	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 06:36 by HL
27			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 03:44 by OR
28	SB-4 (0-2)	180767-013	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 05:58 by HL

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix
Project Location:

Project Name: Historical Eunice Site

XENCO COC#: 1-80767
Date Received in Lab: Feb 27, 1998 09:38 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
29			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 04:11 by OR
30			SPLP TPH	EPA	ppm	7 days	Feb 20, 1998	Mar 6,1998 14:00	Mar 9, 1998 by OG	Mar 9, 1998 17:30 by OG
31			VOA (8260)	EPA1312/8260	mg/kg	7 days	Feb 20, 1998	Mar 6,1998 14:00	Mar 13, 1998 by CE	Mar 13, 1998 20:07 by CE
32			SPLP-SV(TCL)	SW846-1312/82	ug/L	7 days	Feb 20, 1998	Mar 6,1998 14:00	Mar 9, 1998 by RK	Mar 10, 1998 02:05 by LC
33	SB-4 (15-17)	180767-014	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 06:55 by HL
34			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 04:39 by OR
35	SB-4 (30-32)	180767-015	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 07:13 by HL
36			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 05:06 by OR
37	SB-5 (0-2)	180767-016	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 07:32 by HL
38			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 05:34 by OR
39	SB-5 (5-7)	180767-017	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 07:51 by HL
40			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 06:01 by OR
41	SB-5 (10-12)	180767-018	BTEX	SW-846	ppm	Standard	Feb 20, 1998		Mar 2, 1998 by HL	Mar 2, 1998 08:10 by HL
42			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 20, 1998		Mar 3, 1998 by ML	Mar 5, 1998 06:29 by OR
43	SB-6 (0-2)	180767-019	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 2, 1998 by HL	Mar 2, 1998 08:28 by HL
44			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 06:56 by OR
45	SB-6 (5-6.5)	180767-020	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 2, 1998 by HL	Mar 2, 1998 08:47 by HL
46			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 07:24 by OR
47	SB-6 (10-12)	180767-021	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 21:14 by HL
48			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 10:16 by OR
49	SB-7-MW-2 (10-12)	180767-022	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 22:12 by HL
50			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 10:43 by OR
51	SB-7-MW-2 (15-17)	180767-023	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 22:31 by HL
52			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 11:11 by OR
53	SB-7-MW-2 (40-42)	180767-024	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 22:50 by HL
54			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 11:38 by OR
55	SB-8-MW-3 (5-7)	180767-025	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 23:09 by HL
56			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 4, 1998 12:05 by OR

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix
Project Location:

Project Name: Historical Eunice Site

XENCO COC#: 1-80767
Date Received in Lab: Feb 27, 1998 09:38 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
57			Anions	EPA 300.0	mg/kg	Standard	Feb 23, 1998		Mar 5, 1998 by OR	Mar 5, 1998 19:14 by OR
58	SB-8-MW-3 (25-27)	180767-026	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 23:28 by HL
59			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 12:32 by OR
60			Anions	EPA 300.0	mg/kg	Standard	Feb 23, 1998		Mar 5, 1998 by OR	Mar 5, 1998 19:30 by OR
61	SB-8-MW-3 (40-42)	180767-027	BTEX	SW-846	ppm	Standard	Feb 23, 1998		Mar 4, 1998 by HL	Mar 4, 1998 23:47 by HL
62			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 23, 1998		Mar 3, 1998 by ML	Mar 5, 1998 13:00 by OR
63			Anions	EPA 300.0	mg/kg	Standard	Feb 23, 1998		Mar 5, 1998 by OR	Mar 5, 1998 19:39 by OR
64	SB-9 (0-1)	180767-028	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 4, 1998 by HL	Mar 5, 1998 00:07 by HL
65			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 13:27 by OR
66	SB-9 (5-6.5)	180767-029	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 4, 1998 by HL	Mar 5, 1998 00:26 by HL
67			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 13:54 by OR
68	SB-9 (10-12)	180767-030	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 4, 1998 by HL	Mar 5, 1998 00:45 by HL
69			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 14:21 by OR
70	MW-4 (10-12)	180767-031	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 5, 1998 by HL	Mar 5, 1998 02:20 by HL
71			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 3, 1998 15:16 by OR
72	MW-4 (30-32)	180767-032	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 5, 1998 by HL	Mar 5, 1998 02:39 by HL
73			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 15:43 by OR
74	MW-4 (39-40)	180767-033	Moisture	ASTM 2216-71	%	Standard	Feb 25, 1998		Mar 2, 1998 by OG	Mar 2, 1998 14:48 by OG
75			Org. Content	ASTM D2974	%	Standard	Feb 25, 1998		Mar 3, 1998 by IF	Mar 3, 1998 15:00 by IF
76	MW-4 (40-42)	180767-034	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 5, 1998 by HL	Mar 5, 1998 02:59 by HL
77			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 16:11 by OR
78	MW-5 (5-7)	180767-035	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 5, 1998 by HL	Mar 5, 1998 03:18 by HL
79			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 16:38 by OR
80	MW-5 (20-22)	180767-036	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 5, 1998 by HL	Mar 5, 1998 03:37 by HL
81			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 17:05 by OR
82	MW-5 (40-42)	180767-037	BTEX	SW-846	ppm	Standard	Feb 25, 1998		Mar 5, 1998 by HL	Mar 5, 1998 03:56 by HL
83			TPH8015M-D	SW-846 8015 M	mg/kg	Standard	Feb 25, 1998		Mar 3, 1998 by ML	Mar 5, 1998 17:33 by OR

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 # 180767-SA

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

Address: 5309 Wurzbach Suite 100 SA, Tx 78238

Project Name: Historical Eunice Site — Project Director: Mike Hawthorne

Project Location — Project Manager: Theresa Nix

Sampler Signature — Project No.: 810005

No. coolers this shipment: 1 — Contractor COC #

Carrier: UPS — Quote #:

Airbill No. — P.O. No.:

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No of Containers Total	BTEX (8030/8020-602)	TPH (8015) DRO	SPLP TPH	SPLP SVOC	SPLP VOC	Chlorides	Please Hold	LAB ONLY ID #
1	MW-1	2-19-98		5-7	/		/		90z	G	/			1	/	/	/	/	/	/		1
2	MW-1	2-19-98		17-19	/		/				/			1	/	/	/	/	/	/		2
3	MW-1	2-19-98		40-42	/		/				/			1	/	/	/	/	/	/		3
4	SB-1	2-20-98		0-1.5	/		/				/			1	/	/	/	/	/	/		4
5	SB-1	2-20-98		5-7	/		/				/			1	/	/	/	/	/	/		5
6	SB-1	2-20-98		10-11.5	/		/				/			1	/	/	/	/	/	/		6
7	SB 2	2-20-98		5-7	/		/				/			1	/	/	/	/	/	/		7
8	SB 2	2-20-98		10-12	/		/				/			1	/	/	/	/	/	/		8
9	SB 2	2-20-98		30-32	/		/				/			1	/	/	/	/	/	/		9
10															/							10

SAMPLE CHARACTERIZATION: Soil / Water / Comp / Grab

Preservative: Ice / Other

Unl Dies Ker Unknown

Waste Oil

PIT No: Tank No:

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

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	2-26-98	0930			
			Received For Laboratory by:	2/27/98	09:32

Remarks: Highest TPH DRO NA SPLP TPH SPLP VOC SPLP SVOC (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 # 180767-SA

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

Address: 5309 Wurzbach Suite 100 SA, Tx 78238

Project Name: Historical Eunice Site — Project Director: Mike HawThorne

Project Location — Project Manager: Theresa Nix

Sampler Signature — Project No. 810004

No. coolers this shipment: — Contractor COC #

Carrier: — Quote #:

Airbill No. — P.O. No:

	Field ID	Date	Time	DEPTH	SOIL	WATER	COMP	GRAB	Container Size	Container Type P, G	Preservative Ice	Preservative Other	No of CONTAINERS Total	BTEX (8020/8020-602)	TPH (418.1) DRO 8015	SPLP TPH	SPLP VOC	SPLP SVOC	Chlorides	Please Hold	LAB ONLY ID #
1	SB 3	2-20-98		0-2					9oz	G			1								1
2	SB 3	2-20-98		5-7									1								2
3	SB 3	2-20-98		10-12									1								3
4	SB 4	2-20-98		0-2									1								4
5	SB 4	2-20-98		15-17									1								5
6	SB 4	2-20-98		30-32									1								6
7	SB 5	2-20-98		0-2									1								7
8	SB 5	2-20-98		5-7									1								8
9	SB 5	2-20-98		10-12									1								9
10																					10

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

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	2-20-98	0930			
			Received For Laboratory by	2/27/98	09:38

Remarks: Highest TPH DRO n/a SPLP TPH SPLP VOC SPLP SVOC (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 # 180767-SA

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

Address: 5309 Wurzbach Suite 100 SA, Tx 78238

Project Name: Historical Eunice Site | Project Director: Mike Hawthorne

Project Location: | Project Manager: Theresa Nix

Sampler Signature: | Project No.: 810004

No. coolers this shipment: | Contractor COC #

Carrier: | Quote #:

Airbill No. | P.O. No.:

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative: Ice	Preservative: Other	Sample Description	No of Containers Total	BTEX (5030/8020-602)	TPH (418.1) DRO 8015	SPLP TPH	SPLP VOC	SPLP SVOC	Chlorides	Please Hold	LAB ONLY ID #
1	SB-6	2-23-98		0-2	/		/		9oz	G	/			1	/	/	/	/	/			1
2	SB-6	2-23-98		5-6.5	/		/				/			1	/	/	/	/	/			2
3	SB-6	2-23-98		10-12	/		/				/			1	/	/	/	/	/			3
4	SB 1 (MW-2)	2-23-98		10-12	/		/				/			1	/	/	/	/	/			4
5	SB 1 (MW-2)	2-23-98		15-17	/		/				/			1	/	/	/	/	/			5
6	SB 1 (MW-2)	2-23-98		40-42	/		/				/			1	/	/	/	/	/			6
7	SB-5 (MW-3)	2-23-98		5-7	/		/				/			1	/	/	/	/	/			7
8	SB-5 (MW-3)	2-23-98		25-27	/		/				/			1	/	/	/	/	/			8
9	SB-5 (MW-3)	2-23-98		40-42	/		/		↓	↓	/			1	/	/	/	/	/			9
10																						10

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

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	2-26-98	0930			
			Received For Laboratory by:	2/27/98	09:38

Remarks: Highest TPH DRO
NA SPLP TPH
SPLP VOC
SPLP SVOC
(UPS)

Pink (Contractor), Yellow & White (Lab)

* Pre-scheduling is recommended

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Lab. Batch # 180767-SA

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

Address: 5309 Wurzbach Suite 100 SA, TX 78238

Project Name: Historical Enrico Site — Project Director: Mike Hawthorne

Project Location — Project Manager: Theresa Nix

Sampler Signature — Project No.: 810004

No. coolers this shipment: — Contractor COC #

Carrier: — Quote #:

Airbill No. — P.O. No.:

	Field ID	Date	Time	DEPTH	SOIL	WATER	COMP	GRAB	Container Size	Container Type P, G	Preservative Ice	Preservative Other	No of CONTAINERS Total	BTEX (5030/8020-602)	TPH (418.1) DRO 8015	SPLP TPH	SPLP VOC	SPLP SVOC	Moisture Content / FOC	Please Hold	LAB ONLY ID #
1	SB-4	2-25-98		0-1	X		X		9oz	G	X		1	X	X	X	X	X	X		1
2	SB-4	2-25-98		5-6.5	X		X				X		1	X	X	X	X	X			2
3	SB-4	2-25-98		10-12	X		X				X		1	X	X	X	X	X	X		3
4	MW-4	2-25-98		10-12	X		X				X		1	X	X	X	X	X	X		4
5	MW-4	2-25-98		30-32	X		X				X		1	X	X	X	X	X	X		5
6	MW-4	2-25-98		34-40	X		X				X		1								6
7	MW-4	2-25-98		40-42	X		X				X		1	X	X	X	X	X	X		7
8	MW-5	2-25-98		5-7	X		X				X		1	X	X	X	X	X	X		8
9	MW-5	2-25-98		20-22	X		X				X		1	X	X	X	X	X	X		9
10	MW-5	2-25-98		40-42	X		X				X		1	X	X	X	X	X	X		10

Waste Oil — PIT No: — Tank No:

Sample Description

Unl Dies Ker Unknown

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

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
	2-26-98	0930			
			Received For Laboratory by	2/27/98	09:38

Remarks: Highest TPH DRO in SPLP SVOC VOC TPH (UPS)

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

* Pre-scheduling is recommended

Precision Analytical Services

ANALYTICAL REPORT 1-80827

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: TNMPL

Project Id: 810005

April 7, 1998

HOUSTON - DALLAS - SAN ANTONIO

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

XENCO Laboratories

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

April 7, 1998

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

Reference: **XENCO Report No.: 1-80827**
Project Name: TNMPL
Project ID: 810005
Project Address: Monument Draw (Eunice)

Dear Theresa Nix:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with XENCO Chain of Custody Number 1-80827. All results being reported to you apply only to the samples analyzed, properly identified with a Laboratory ID number. This letter documents the official transmission of the contents of the report and validates the information contained within.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 3 years in our archives and after that time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 1-80827 will be filed for 60 days, and after that time they will be properly disposed of without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

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

Sincerely,

Eddie Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80827

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Monument Draw (Eunice)

Project Name: TNMPL

Date Received in Lab : Mar 4, 1998 11:00
Date Report Faxed: Apr 7, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180827 001		180827 002		180827 003		180827 004		180827 005	
	Field ID:	MW-1		MW-2		MW-3		MW-4		Wind Mill	
	Depth:										
	Matrix:	Liquid		Liquid		Liquid		Liquid		Liquid	
	Sampled:	03/03/98 12:35		03/03/98 13:00		03/03/98 13:20		03/03/98 13:40		03/03/98 14:13	
Metals by ICP	*Analyzed:*	03/19/98		03/19/98		03/19/98		03/19/98			
EPA 6010	*Units:*	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.		
Aluminum		0.80	(0.56)	< 0.56	(0.56)	2.15	(0.56)	< 0.56	(0.56)		
Barium		0.14	(0.09)	0.82	(0.09)	0.55	(0.09)	0.19	(0.09)		
Beryllium		< 0.022	(0.022)	< 0.022	(0.022)	< 0.022	(0.022)	< 0.022	(0.022)		
Boron		0.36	(0.22)	0.37	(0.22)	3.45	(0.22)	< 0.22	(0.22)		
Calcium		1010	(2.2)	762	(2.2)	472	(2.2)	590	(2.2)		
Chromium		< 0.05	(0.05)	< 0.05	(0.05)	< 0.05	(0.05)	< 0.05	(0.05)		
Cobalt		< 0.05	(0.05)	< 0.05	(0.05)	< 0.05	(0.05)	< 0.05	(0.05)		
Copper		< 0.11	(0.11)	< 0.11	(0.11)	< 0.11	(0.11)	< 0.11	(0.11)		
Iron		0.32	(0.22)	0.76	(0.22)	5.51	(0.22)	< 0.22	(0.22)		
Magnesium		25.7	(0.2)	49.2	(0.2)	117	(0.2)	30.8	(0.2)		
Manganese		0.18	(0.06)	0.47	(0.06)	0.42	(0.06)	0.20	(0.06)		
Molybdenum		< 0.56	(0.56)	< 0.56	(0.56)	< 0.56	(0.56)	< 0.56	(0.56)		
Nickel		< 0.11	(0.11)	< 0.11	(0.11)	0.55	(0.11)	< 0.11	(0.11)		
Potassium		3.38	(1.11)	6.37	(1.11)	31.41	(1.11)	7.31	(1.11)		
Silicon		41.1	(0.6)	36.3	(0.6)	30.0	(0.6)	33.5	(0.6)		
Silver		< 0.05	(0.05)	< 0.05	(0.05)	< 0.05	(0.05)	< 0.05	(0.05)		
Sodium		76.4	(2.2)	327	(2.2)	1460	(2.2)	68.1	(2.2)		
Strontium		3.34	(0.22)	6.92	(0.22)	4.82	(0.22)	3.25	(0.22)		
Tin		< 0.22	(0.22)	0.24	(0.22)	1.96	(0.22)	< 0.22	(0.22)		
Vanadium		< 0.11	(0.11)	< 0.11	(0.11)	< 0.11	(0.11)	< 0.11	(0.11)		
Zinc		< 1.11	(1.11)	< 1.11	(1.11)	< 1.11	(1.11)	< 1.11	(1.11)		

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80827

K.E.I. Consultants, Inc.

Project ID: 810005
Project Name: TNMPL
Date Received in Lab : Mar 4, 1998 11:00

Project Manager: Theresa Nix
Date Report Faxed: Apr 7, 1998

Project Location: Monument Draw (Eunice)
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180827 001 MW-1 Liquid 03/03/98 12:35	180827 002 MW-2 Liquid 03/03/98 13:00	180827 003 MW-3 Liquid 03/03/98 13:20	180827 004 MW-4 Liquid 03/03/98 13:40	180827 005 Wind Mill Liquid 03/03/98 14:13
RCRA Metals **EPA 6010**	*Analyzed:* / *Units:*	03/18/98 mg/L R.L.	03/18/98 mg/L R.L.	03/18/98 mg/L R.L.	03/18/98 mg/L R.L.	
Arsenic		< 0.22 (0.22)	< 0.22 (0.22)	< 0.22 (0.22)	< 0.22 (0.22)	
Cadmium		< 0.022 (0.022)	< 0.022 (0.022)	< 0.022 (0.022)	< 0.022 (0.022)	
Lead		< 0.11 (0.11)	< 0.11 (0.11)	< 0.11 (0.11)	< 0.11 (0.11)	
Selenium		< 0.22 (0.22)	< 0.22 (0.22)	< 0.22 (0.22)	< 0.22 (0.22)	
Total Mercury **EPA 7470**	*Analyzed:* / *Units:*	03/16/98 mg/L R.L.	03/16/98 mg/L R.L.	03/16/98 mg/L R.L.	03/16/98 mg/L R.L.	
Mercury		< 0.0011 (0.0011)	< 0.0011 (0.0011)	< 0.0011 (0.0011)	< 0.0011 (0.0011)	
BTEX **EPA 8020**	*Analyzed:* / *Units:*	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.
Benzene		< 0.001 (0.001)	1.362 (0.005)	0.398 (0.004)	< 0.004 (0.004)	< 0.004 (0.004)
Toluene		< 0.001 (0.001)	1.863 (0.005)	0.124 (0.004)	< 0.004 (0.004)	< 0.004 (0.004)
Ethylbenzene		< 0.001 (0.001)	0.773 (0.005)	0.452 (0.004)	< 0.004 (0.004)	< 0.004 (0.004)
m,p-Xylenes		< 0.002 (0.002)	0.511 (0.009)	0.027 (0.008)	< 0.008 (0.008)	< 0.008 (0.008)
o-Xylene		< 0.001 (0.001)	0.242 (0.005)	0.018 (0.004)	< 0.004 (0.004)	< 0.004 (0.004)
Total BTEX		N.D.	4.751	1.019	N.D.	N.D.
PAHs by GC-MS (610 List) **EPA 8270**	*Analyzed:* / *Units:*	03/11/98 mg/L R.L.	03/11/98 mg/L R.L.	03/11/98 mg/L R.L.	03/11/98 mg/L R.L.	
Acenaphthene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	
Acenaphthylene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	
Anthracene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	
Benzo(a)anthracene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	
Benzo(a)pyrene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80827

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Monument Draw (Eunice)

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

Date Received in Lab : Mar 4, 1998 11:00
Date Report Faxed: Apr 7, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180827 001 MW-1 Liquid 03/03/98 12:35	180827 002 MW-2 Liquid 03/03/98 13:00	180827 003 MW-3 Liquid 03/03/98 13:20	180827 004 MW-4 Liquid 03/03/98 13:40	180827 005 Wind Mill Liquid 03/03/98 14:13	
EPA 8270	*Analyzed:* / *Units:*	03/11/98 mg/L R.L.	03/11/98 mg/L R.L.	03/11/98 mg/L R.L.	03/11/98 mg/L R.L.		
Benzo(b)fluoranthene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Benzo(g,h,i)perylene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Benzo(k)fluoranthene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Chrysene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Dibenzo(a,h)anthracene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Fluoranthene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Fluorene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Indeno(1,2,3-cd)pyrene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Naphthalene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Phenanthrene		< 0.002 (0.002)	0.017 (0.002)	0.010 (0.002)	< 0.002 (0.002)		
Pyrene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)		
Bicarbonate **SM 4500CO2D**	*Analyzed:* / *Units:*	03/09/98 mg/L R.L.	03/09/98 mg/L R.L.	03/09/98 mg/L R.L.	03/09/98 mg/L R.L.		
Bicarbonate		225 (1.0)	460 (1.0)	1190 (1.0)	181 (1.0)		
Carbonate **SM4500CO2D**	*Analyzed:* / *Units:*	03/09/98 mg/L R.L.	03/09/98 mg/L R.L.	03/09/98 mg/L R.L.	03/09/98 mg/L R.L.		
Carbonate		< 1.0 (1.0)	< 1.0 (1.0)	< 1.0 (1.0)	< 1.0 (1.0)		
Total Dissolved Solids **EPA 160.1**	*Analyzed:* / *Units:*	03/10/98 mg/L R.L.	03/10/98 mg/L R.L.	03/10/98 mg/L R.L.	03/10/98 mg/L R.L.		
Total Dissolved Solids		458 (4.0)	1400 (4.0)	4890 (4.0)	470 (4.0)		

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80827

K.E.I. Consultants, Inc.

Project ID: 810005
Project Name: TNMPL
Date Received in Lab : Mar 4, 1998 11:00

Project Manager: Theresa Nix
Date Report Faxed: Apr 7, 1998

Project Location: Monument Draw (Eunice)
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180827 001	180827 002	180827 003	180827 004	180827 005	
	Field ID:	MW-1	MW-2	MW-3	MW-4	Wind Mill	
	Depth:						
	Matrix:	Liquid	Liquid	Liquid	Liquid	Liquid	
	Sampled:	03/03/98 12:35	03/03/98 13:00	03/03/98 13:20	03/03/98 13:40	03/03/98 14:13	
Anions by Ion Chromatography	*Analyzed:*	03/13/98	03/13/98	03/13/98	03/13/98	03/13/98	
EPA 300.0	*Units:*	mg/L R.L.	mg/L R.L.	mg/L R.L.	mg/L R.L.	mg/L R.L.	
Chloride		17.11 (1.00)	394 (2.00)	1820 (8.00)	65.79 (1.00)	55.04 (1.00)	
Sulfate		63.59 (1.00)	34.82 (2.00)	164 (8.00)	51.05 (1.00)		

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18B93

EPA 6010 Metals by ICP

Date Validated: Mar 23, 1998 09:57
Date Analyzed: Mar 19, 1998 11:23
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CG
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 180826- 001	[A] Sample Result	[B] Duplicate Result	[C] Detection Limit	[D] QC LIMITS Relative Difference	[E] Relative Difference	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC Matrix Spike Recovery	[I] LIMITS Recovery Range	[G] Qualifier
Parameter	mg/L	mg/L	mg/L	%	%	mg/L	mg/L	%	%	
Aluminum	5.10	5.05	0.22	1.0	25.0	6.13	2.2	46.4	70-125	A,B
Barium	0.409	0.402	0.022	1.7	25.0	1.462	1.11	94.8	70-125	
Beryllium	< 0.0222	< 0.0222	0.0222	N.C	25.0	0.4344	0.444	97.7	70-125	
Calcium	871	869	0.06	0.2	25.0	833	4.4	855.9	70-125	A,B
Chromium	< 0.111	< 0.111	0.111	N.C	25.0	1.094	1.11	98.5	70-125	
Cobalt	0.033	< 0.022	0.022	N.C	25.0	1.044	1.11	91.0	70-125	
Copper	< 0.033	< 0.033	0.033	N.C	25.0	1.078	1.11	97.0	70-125	
Iron	7.267	4.483	0.028	47.4	25.0	3.707	2.22	160.2	70-125	C,B
Magnesium	34.32	34.45	0.06	0.4	25.0	37.23	4.4	65.5	70-125	A,B
Manganese	0.448	0.454	0.028	1.3	25.0	0.419	2.22	1.3	70-125	B
Nickel	< 0.111	< 0.111	0.111	N.C	25.0	1.006	1.11	90.5	70-125	
Potassium	5.711	5.827	0.111	2.0	25.0	10.224	4.44	101.6	70-125	
Silicon	166	140	0.22	17.0	25.0	188	2.2	990.0	70-125	A,B

(A) High analyte concentration affects spike recovery.

(B) Post-digestion spike within acceptance limits.

(C) Variability in duplicate measurement attributed to sample non-homogeneity.

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

Matrix Spike Recovery [H] = 100*(F-A)/[G]

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18B93

EPA 6010 Metals by ICP

Date Validated: Mar 23, 1998 09:57
Date Analyzed: Mar 19, 1998 11:23
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CG
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 180826- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC	[I] LIMITS	[G]
Parameter			Detection Limit	Relative Difference	Relative Difference			Matrix Spike Recovery	Recovery Range	Qualifier
	mg/L	mg/L	mg/L	%	%	mg/L	mg/L	%	%	
Silver	< 0.044	< 0.044	0.044	N.C	25.0	< 0.044	0.89	N.C.	70-125	B
Sodium	79.68	82.73	0.11	3.8	25.0	84.85	4.4	116.4	70-125	
Strontium	2.442	2.502	0.111	2.4	25.0	4.308	2.22	84.0	70-125	
Vanadium	0.046	0.049	0.033	6.3	25.0	1.071	1.11	92.3	70-125	
Zinc	< 0.033	< 0.033	0.033	N.C	25.0	1.428	1.11	128.5	70-125	B

(A) High analyte concentration affects spike recovery.
(B) Post-digestion spike within acceptance limits.
(C) Variability in duplicate measurement attributed to sample non-homogeneity.
Relative Difference [D] = 200*(B-A)/(B+A)
Matrix Spike Recovery [H] = 100*(F-A)/[G]
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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18C04

SW846/6010 RCRA Metals

Date Validated: Mar 23, 1998 17:45
Date Analyzed: Mar 18, 1998 14:37
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CG
Matrix: Liquid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Amount mg/L	[D] Detection Limit mg/L	[E] QC LIMITS Blank Spike Recovery %	[F] Recovery Range %	[G] Qualifier
Arsenic	< 0.222	2.032	2.222	0.222	91.4	70-125	
Cadmium	< 0.0222	0.4300	0.4444	0.0222	96.8	70-125	
Lead	< 0.111	2.140	2.222	0.111	96.3	75-125	
Selenium	< 0.222	2.147	2.222	0.222	96.6	70-125	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18C04

SW846/6010 RCRA Metals

Date Validated: Mar 23, 1998 17:45
Date Analyzed: Mar 18, 1998 15:01
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CG
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 180826- 002	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC	[I] LIMITS	[G]
Parameter			Detection Limit	Relative Difference	Relative Difference			Matrix Spike Recovery	Recovery Range	Qualifier
	mg/L	mg/L	mg/L	%	%	mg/L	mg/L	%	%	
Arsenic	< 0.222	< 0.222	0.222	N.C	25.0	2.141	2.22	96.3	70-125	
Cadmium	< 0.0222	< 0.0222	0.0222	N.C	25.0	0.4500	0.444	101.3	70-125	
Lead	< 0.111	< 0.111	0.111	N.C	25.0	2.043	2.22	91.9	75-125	
Selenium	< 0.222	< 0.222	0.222	N.C	25.0	2.167	2.22	97.5	70-125	

Relative Difference [D] = 200*(B-A)/(B+A)
Matrix Spike Recovery [H] = 100*(F-A)/[G]
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

Sunil S. Ajai
Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A05A79

SW846- 7470 Total Mercury

Date Validated: Mar 18, 1998 09:23
Date Analyzed: Mar 16, 1998 15:30
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CG
Matrix: Liquid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Amount mg/L	[D] Detection Limit mg/L	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Mercury	< 0.0011	0.0028	0.0028	0.0011	100.0	70-125	

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

Sunil S. Ajai
Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A05A79

SW846- 7470 Total Mercury

Date Validated: Mar 18, 1998 09:23
Date Analyzed: Mar 16, 1998 15:33
QA/QC Manager: Sunil Ajai, M.S.

Analyst: CG
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 180826- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC	[I] LIMITS	[G] Qualifier
Parameter			Detection Limit	Relative Difference	Relative Difference			Matrix Spike Recovery	Recovery Range	
	mg/L	mg/L	mg/L	%	%	mg/L	mg/L	%	%	
Mercury	< 0.0011	< 0.0011	0.0011	N.C	20.0	0.0019	0.0028	67.9	70-125	A

(A) Post-digestion spike within acceptance limits.
Relative Difference [D] = 200*(B-A)/(B+A)
Matrix Spike Recovery [H] = 100*(F-A)/[G]
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

Sunil S. Ajai
Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A80

SW- 846 5030/8020 BTEX

Date Validated: Mar 9, 1998 11:00
Date Analyzed: Mar 6, 1998 09:32
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Liquid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Amount ppm	[D] Detection Limit ppm	[E] QC LIMITS Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Benzene	< 0.0010	0.1080	0.1000	0.0010	108.0	65-135	
Toluene	< 0.0010	0.1010	0.1000	0.0010	101.0	65-135	
Ethylbenzene	< 0.0010	0.1050	0.1000	0.0010	105.0	65-135	
m,p-Xylenes	< 0.0020	0.2110	0.2000	0.0020	105.5	65-135	
o-Xylene	< 0.0010	0.1050	0.1000	0.0010	105.0	65-135	

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

Edward H. Tonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A34B23

SW846-8270 PAHs by GC-MS (610 List)

Date Validated: Mar 12, 1998 12:40
Date Analyzed: Mar 12, 1998 08:28
QA/QC Manager: Sunil Ajai, M.S.

Analyst: LC
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] 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	0.0996	0.0996	0.1000	0.0040	31.0	0.0	99.6	99.6	46-118	
4-Chloro-3-Methylphenol	< 0.0040	0.0890	0.0828	0.1000	0.0040	42.0	7.2	89.0	82.8	23-97	
2-Chlorophenol	< 0.0040	0.0868	0.0834	0.1000	0.0040	40.0	4.0	86.8	83.4	27-123	
1,4-Dichlorobenzene	< 0.0040	0.0938	0.0920	0.1000	0.0040	28.0	1.9	93.8	92.0	36-97	
2,4-Dinitrotoluene	< 0.0040	0.0796	0.0780	0.1000	0.0040	38.0	2.0	79.6	78.0	24-96	
N-Nitroso-di-n-propylamine	< 0.0080	0.0808	0.0760	0.1000	0.0080	38.0	6.1	80.8	76.0	41-116	
4-Nitrophenol	< 0.0080	0.0298	0.0236	0.1000	0.0080	50.5	23.2	29.8	23.6	10-80	
Pentachlorophenol	< 0.0020	0.0582	0.0586	0.1000	0.0020	50.0	0.7	58.2	58.6	9-103	
Phenol	< 0.0020	0.0408	0.0384	0.1000	0.0020	42.0	6.1	40.8	38.4	12-89	
Pyrene	< 0.0040	0.1012	0.1002	0.1000	0.0040	31.0	1.0	101.2	100.2	26-127	
1,2,4-Trichlorobenzene	< 0.0020	0.0900	0.0922	0.1000	0.0020	28.0	2.4	90.0	92.2	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 T. Fonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A20A31

SM 4500CO2D Bicarbonate

Date Validated: Mar 10, 1998 09:38
Date Analyzed: Mar 9, 1998 14:00
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Amount mg/L	[D] Detection Limit mg/L	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Bicarbonate	< 1.00	270	250	1.00	108.0	70-125	

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. Tonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A20A31

SM 4500CO2D Bicarbonate

Date Validated: Mar 10, 1998 09:38
Date Analyzed: Mar 9, 1998 14:30
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 180826- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Bicarbonate	494	496	1.00	0.4	25.0	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A20A32

SM4500CO2D Carbonate

Date Validated: Mar 10, 1998 09:38
Date Analyzed: Mar 9, 1998 14:30
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 180826- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	ppm	ppm	ppm	%	%	
Carbonate	< 1.00	< 1.00	1.00	N.C	25.0	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A19A89

EPA 160.1 Total Dissolved Solids

Date Validated: Mar 10, 1998 13:39
Date Analyzed: Mar 10, 1998 13:25
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 180827- 004	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Total Dissolved Solids	470	470	4.00	0.0	25.0	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A10A49

EPA 300.0 Anions by Ion Chromatography

Date Validated: Mar 23, 1998 -10:16
Date Analyzed: Mar 13, 1998 15:38
QA/QC Manager: Sunil Ajai, M.S.

Analyst: OR
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] 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
Chloride	< 0.050	9.116	8.453	10.000	0.050	20.0	7.5	91.2	84.5	70-125	
Sulfate	< 0.100	8.546	8.025	10.000	0.100	20.0	6.3	85.5	80.3	70-125	

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.
Technical Director

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810005
Project Name: TNMPL
XENCO COC#: 1-80827
Project Manager: Theresa Nix
Date Received in Lab: Mar 4, 1998 11:00 by LY
Project Location: Monument Draw (Eunice)
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	MW-1	180827-001	BTEX	SW-846	ppm	Standard	Mar 3, 1998 12:35		Mar 6, 1998 by HL	Mar 6, 1998 11:27 by HL
2			PAHs	SW846-8270	mg/L	Standard	Mar 3, 1998 12:35		Mar 10, 1998 by RK	Mar 11, 1998 21:34 by LC
3			Anions	EPA 300.0	mg/L	Standard	Mar 3, 1998 12:35		Mar 13, 1998 by OR	Mar 13, 1998 17:38 by OR
4			Carbonate	SM4500CO2D	mg/L	Standard	Mar 3, 1998 12:35		Mar 9, 1998 by IF	Mar 9, 1998 15:10 by IF
5			Bicarbonate	SM 4500CO2D	mg/L	Standard	Mar 3, 1998 12:35		Mar 9, 1998 by IF	Mar 9, 1998 15:10 by IF
6			TDS	EPA 160.1	mg/L	Standard	Mar 3, 1998 12:35		Mar 9, 1998 by IF	Mar 10, 1998 13:35 by IF
7			Metals (ICP)	EPA 6010	mg/L	Standard	Mar 3, 1998 12:35		Mar 16, 1998 by AO	Mar 19, 1998 11:39 by CG
8			Mercury, Tot	SW846-7470	mg/L	Standard	Mar 3, 1998 12:35		Mar 16, 1998 by CG	Mar 16, 1998 16:04 by CG
9			RCRA Metals	SW846/6010	mg/L	Standard	Mar 3, 1998 12:35		Mar 16, 1998 by CG	Mar 18, 1998 15:13 by CG
10	MW-2	180827-002	BTEX	SW-846	ppm	Standard	Mar 3, 1998 13:00		Mar 6, 1998 by HL	Mar 6, 1998 13:03 by HL
11			PAHs	SW846-8270	mg/L	Standard	Mar 3, 1998 13:00		Mar 10, 1998 by RK	Mar 11, 1998 22:21 by LC
12			Anions	EPA 300.0	mg/L	Standard	Mar 3, 1998 13:00		Mar 13, 1998 by OR	Mar 13, 1998 17:54 by OR
13			Carbonate	SM4500CO2D	mg/L	Standard	Mar 3, 1998 13:00		Mar 9, 1998 by IF	Mar 9, 1998 15:20 by IF
14			Bicarbonate	SM 4500CO2D	mg/L	Standard	Mar 3, 1998 13:00		Mar 9, 1998 by IF	Mar 9, 1998 15:20 by IF
15			TDS	EPA 160.1	mg/L	Standard	Mar 3, 1998 13:00		Mar 9, 1998 by IF	Mar 10, 1998 13:40 by IF
16			Metals (ICP)	EPA 6010	mg/L	Standard	Mar 3, 1998 13:00		Mar 16, 1998 by AO	Mar 19, 1998 11:54 by CG
17			Mercury, Tot	SW846-7470	mg/L	Standard	Mar 3, 1998 13:00		Mar 16, 1998 by CG	Mar 16, 1998 16:05 by CG
18			RCRA Metals	SW846/6010	mg/L	Standard	Mar 3, 1998 13:00		Mar 16, 1998 by CG	Mar 18, 1998 15:26 by CG
19	MW-3	180827-003	BTEX	SW-846	ppm	Standard	Mar 3, 1998 13:20		Mar 6, 1998 by HL	Mar 6, 1998 13:22 by HL
20			PAHs	SW846-8270	mg/L	Standard	Mar 3, 1998 13:20		Mar 10, 1998 by RK	Mar 11, 1998 23:07 by LC
21			Anions	EPA 300.0	mg/L	Standard	Mar 3, 1998 13:20		Mar 13, 1998 by OR	Mar 13, 1998 18:12 by OR
22			Carbonate	SM4500CO2D	mg/L	Standard	Mar 3, 1998 13:20		Mar 9, 1998 by IF	Mar 9, 1998 15:30 by IF
23			Bicarbonate	SM 4500CO2D	mg/L	Standard	Mar 3, 1998 13:20		Mar 9, 1998 by IF	Mar 9, 1998 15:30 by IF
24			TDS	EPA 160.1	mg/L	Standard	Mar 3, 1998 13:20		Mar 9, 1998 by IF	Mar 10, 1998 13:45 by IF
25			Metals (ICP)	EPA 6010	mg/L	Standard	Mar 3, 1998 13:20		Mar 16, 1998 by AO	Mar 19, 1998 11:57 by CG
26			Mercury, Tot	SW846-7470	mg/L	Standard	Mar 3, 1998 13:20		Mar 16, 1998 by CG	Mar 16, 1998 16:06 by CG
27			RCRA Metals	SW846/6010	mg/L	Standard	Mar 3, 1998 13:20		Mar 16, 1998 by CG	Mar 18, 1998 15:30 by CG
28	MW-4	180827-004	BTEX	SW-846	ppm	Standard	Mar 3, 1998 13:40		Mar 6, 1998 by HL	Mar 6, 1998 13:41 by HL

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Monument Draw (Eunice)

Project Name: TNMPL

XENCO COC#: 1-80827
Date Received in Lab: Mar 4, 1998 11:00 by LY
XENCO contact : Carlos Castro/Edward Yonemoto

	Field ID	Lab. ID	Method Name	Method ID	Units	Turn Around	Date and Time: Sample Collected	Date and Time: Addition Requested	Date and Time: Extraction	Date and Time: Analysis
29			PAHs	SW846-8270	mg/L	Standard	Mar 3, 1998 13:40		Mar 10, 1998 by RK	Mar 11, 1998 23:53 by LC
30			Anions	EPA 300.0	mg/L	Standard	Mar 3, 1998 13:40		Mar 13, 1998 by OR	Mar 13, 1998 18:28 by OR
31			Carbonate	SM4500CO2D	mg/L	Standard	Mar 3, 1998 13:40		Mar 9, 1998 by IF	Mar 9, 1998 15:40 by IF
32			Bicarbonate	SM 4500CO2D	mg/L	Standard	Mar 3, 1998 13:40		Mar 9, 1998 by IF	Mar 9, 1998 15:40 by IF
33			TDS	EPA 160.1	mg/L	Standard	Mar 3, 1998 13:40		Mar 9, 1998 by IF	Mar 10, 1998 13:25 by IF
34			Metals (ICP)	EPA 6010	mg/L	Standard	Mar 3, 1998 13:40		Mar 16, 1998 by AO	Mar 19, 1998 12:01 by CG
35			Mercury, Tot	SW846-7470	mg/L	Standard	Mar 3, 1998 13:40		Mar 16, 1998 by CG	Mar 16, 1998 16:15 by CG
36			RCRA Metals	SW846/6010	mg/L	Standard	Mar 3, 1998 13:40		Mar 16, 1998 by CG	Mar 18, 1998 15:35 by CG
37	Wind Mill	180827-005	BTEX	SW-846	ppm	Standard	Mar 3, 1998 14:13		Mar 6, 1998 by HL	Mar 6, 1998 14:19 by HL
38			Anions	EPA 300.0	mg/L	Standard	Mar 3, 1998 14:13		Mar 13, 1998 by OR	Mar 13, 1998 18:36 by OR

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 # 180827-SA

Contractor: Keii Consultants Phone (210) 680-3767

Address: 5309 Wurzbach, Suite 100 San Antonio, TX 78238

Project Name: TNMPL Project Director: Mike Hawthorne

Project Location: Monument Draw (Eunice) Project Manager: Theresa

Sampler Signature: Stanley Grover Project No. 810005

No. coolers this shipment: Carrier: UPS Airbill No.

Contractor COC # Quote #: P.O. No: CALL Theresa NIX

Analyses requested: BTEX (8020) SW 846-8020; TPH (418.1); PAH EPA method 8100 or 8270; Cations/Anion; TDS EPA method 160.1; Heavy metals (ICP SCAN) EPA method 6010; Chlorides; Please Hold

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

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

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No of Containers Total	BTEX	TPH (418.1)	PAH	Cations/Anion	TDS	Heavy metals	Chlorides				Please Hold	Remarks	LAB ONLY ID #
1	MW-1	Mar 3, 98	12:35		[illegible]	/		/			/	HCl HNO3		6	/		/	/	/	/							1
2	MW-2	Mar 3, 98	1300			/		/			/	HCl HNO3		6	/		/	/	/	/							2
3	MW 3	3-3-98	1320			/		/			/	HCl HNO3		6	/		/	/	/	/							3
4	MW-4	3-3-98	1340			/		/			/	HCl HNO3		6	/		/	/	/	/							4
5	wind mill	3-3-98	14:13			/		/			/	HCl		3	/						/						5
6																											6
7																											7
8																											8
9																											9
10																											10

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Stanley Grover	3-3-98	1600			
			Received For Laboratory by: Jamie Yorkey	3/4/98	11:00

Remarks: Fax Analytical to Theresa at 210-680-3763 and to Stan Grover 505-392-2065
Heavy metals (ICP SCAN)

Pink (Contractor), Yellow & White (Lab). * Pre-scheduling is recommended

Precision Analytical Services

XENCO Laboratories

FACSIMILE COVER PAGE

Date of FAX: Apr 21, 1998

Total # of pages including this page: 3 Originals will be Mailed: (Yes) No

Deliver To: **Theresa Nix**

Requested by: **K.E.I. Consultants, Inc.**

Project Name: **Eunice Historical Site**

Analytical Report: **1-81314**

Project Id: 810005

Please remit your questions to :

- ☐ *Dr. Eduardo Builes, President* — *EduardoB@xenco.com*
- ☐ *Dr. Edward Yonemoto, Technical Director* — *EddieY@xenco.com*
- ☐ _____ — *Xenco@xenco.com*
- ☐ *Brent Barron, Client Services Manager* — *BrentB@xenco.com*
- ☐ *Debbie Simmons, Customer Service* — *DebbieS@xenco.com*
- ☐ *Dr. Carlos Castro, Laboratory Supervisor* — *XencoSA@xenco.com*

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Remarks: In order to expedite your inquiries please have this page on hand when calling.

Following are complete results.

Thank You.

Your complete satisfaction is our ultimate goal . Please call Dr. Builes to let us know how we can serve you better.

Small Business Administration Award of Excellence for 1994. Thank you for your support.

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-81314

K.E.I. Consultants, Inc.

Project Name: Eunice Historical Site

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Eunice, NM

Date Received in Lab : Apr 9, 1998 10:30
Date Report Faxed: Apr 21, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	181314 001 / MW-5 / / Liquid / 04/08/98 13:06			
Metals by ICP **EPA 6010**	*Analyzed:* / *Units:*	04/14/98 / mg/L	R.L.		
Aluminum		< 0.50	(0.50)		
Arsenic		< 0.10	(0.10)		
Barium		0.15	(0.08)		
Beryllium		< 0.020	(0.020)		
Boron		0.38	(0.20)		
Cadmium		< 0.010	(0.010)		
Calcium		188	(2.0)		
Chromium		< 0.050	(0.050)		
Cobalt		< 0.050	(0.050)		
Copper		< 0.10	(0.10)		
Iron		< 0.20	(0.20)		
Lead		< 0.050	(0.050)		
Magnesium		39.2	(0.2)		
Manganese		0.12	(0.05)		
Molybdenum		< 0.50	(0.50)		
Nickel		< 0.10	(0.10)		
Potassium		4.30	(1.00)		
Selenium		< 0.050	(0.050)		
Silicon		45.0	(0.5)		
Silver		< 0.050	(0.050)		
Sodium		94.3	(2.0)		
Strontium		4.47	(0.20)		
Tin		< 0.20	(0.20)		
Vanadium		< 0.10	(0.10)		
Zinc		< 1.00	(1.00)		
Total Mercury **EPA 7470**	*Analyzed:* / *Units:*	04/15/98 / mg/L	R.L.		
Mercury		< 0.0011	(0.0011)		
BTEX **EPA 8020**	*Analyzed:* / *Units:*	04/10/98 / ppm	R.L.		
Benzene		< 0.001	(0.001)		
Toluene		< 0.001	(0.001)		
Ethylbenzene		< 0.001	(0.001)		
m,p-Xylenes		< 0.002	(0.002)		

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-81314

K.E.I. Consultants, Inc.

Project Name: Eunice Historical Site

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Eunice, NM

Date Received in Lab : Apr 9, 1998 10:30
Date Report Faxed: Apr 21, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	181314 001 / MW-5 / / Liquid / 04/08/98 13:06			
EPA 8020	*Analyzed:* / *Units:*	04/10/98 / ppm	R.L.		
o-Xylene		< 0.001	(0.001)		
Total BTEX			N.D.		
PAHs by GC-MS (510 List) EPA 8270	*Analyzed:* / *Units:*	04/11/98 / mg/L	R.L.		
Acenaphthene		< 0.002	(0.002)		
Acenaphthylene		< 0.002	(0.002)		
Anthracene		< 0.002	(0.002)		
Benzo(a)anthracene		< 0.002	(0.002)		
Benzo(a)pyrene		< 0.002	(0.002)		
Benzo(b)fluoranthene		< 0.002	(0.002)		
Benzo(g,h,i)perylene		< 0.002	(0.002)		
Benzo(k)fluoranthene		< 0.002	(0.002)		
Chrysene		< 0.002	(0.002)		
Dibenzo(a,h)anthracene		< 0.002	(0.002)		
Fluoranthene		< 0.002	(0.002)		
Fluorene		< 0.002	(0.002)		
Indeno(1,2,3-cd)pyrene		< 0.002	(0.002)		
Naphthalene		< 0.002	(0.002)		
Phenanthrene		< 0.002	(0.002)		
Pyrene		< 0.002	(0.002)		
Bicarbonate SM 4500CO2D	*Analyzed:* / *Units:*	04/13/98 / mg/L	R.L.		
Bicarbonate		291	(1.0)		
Carbonate SM4500CO2D	*Analyzed:* / *Units:*	04/13/98 / mg/L	R.L.		
Carbonate		< 1.0	(1.0)		
Total Dissolved Solids EPA 160.1	*Analyzed:* / *Units:*	04/14/98 / mg/L	R.L.		
Total Dissolved Solids		485	(4.0)		
Anions by Ion Chromatography EPA 300.0	*Analyzed:* / *Units:*	04/14/98 / mg/L	R.L.		
Chloride		113	(1.00)		
Sulfate		75.5	(1.0)		

Edward H. Yonemoto, Ph.D.
Technical Director

ANALYTICAL REPORT 1-81314

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: Eunice Historical Site

Project Id: 810005

April 21, 1998

HOUSTON - DALLAS - SAN ANTONIO

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

XENCO Laboratories

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

April 21, 1998

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

Reference: **XENCO Report No.: 1-81314**
Project Name: Eunice Historical Site
Project ID: 810005
Project Address: Eunice, NM

Dear Theresa Nix:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with XENCO Chain of Custody Number 1-81314. All results being reported to you apply only to the samples analyzed, properly identified with a Laboratory ID number. This letter documents the official transmission of the contents of the report and validates the information contained within.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 3 years in our archives and after that time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in COC No. 1-81314 will be filed for 60 days, and after that time they will be properly disposed of without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

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

Sincerely,

Eddie Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Eunice, NM

Project Name: Eunice Historical Site

XENCO COC#: 1-81314
Date Received in Lab: Apr 9, 1998 10:30 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	MW-5	181314-001	BTEX	SW-846	ppm	3 days	Apr 8, 1998 13:06		Apr 10, 1998 by HL	Apr 10, 1998 11:35 by HL
2			PAHs	SW846-8270	mg/L	5 days	Apr 8, 1998 13:06		Apr 10, 1998 by SS	Apr 11, 1998 02:34 by LC
3			TDS	EPA 160.1	mg/L	5 days	Apr 8, 1998 13:06		Apr 13, 1998 by IF	Apr 14, 1998 10:10 by IF
4			Carbonate	SM4500CO2D	mg/L	7 days	Apr 8, 1998 13:06		Apr 13, 1998 by IF	Apr 13, 1998 14:30 by IF
5			Metals (ICP)	EPA 6010	mg/L	7 days	Apr 8, 1998 13:06		Apr 14, 1998 by AO	Apr 14, 1998 19:02 by MB
6			Anions	EPA 300.0	mg/L	7 days	Apr 8, 1998 13:06		Apr 14, 1998 by SA	Apr 14, 1998 10:46 by SS
7			Bicarbonate	SM 4500CO2D	mg/L	7 days	Apr 8, 1998 13:06		Apr 13, 1998 by IF	Apr 13, 1998 14:30 by IF
8			Mercury, Tot	SW846-7470	mg/L	Standard	Apr 8, 1998 13:06		Apr 14, 1998 by AO	Apr 15, 1998 14:54 by AO

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-81314

K.E.I. Consultants, Inc.

Project Name: Eunice Historical Site

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Eunice, NM

Date Received in Lab : Apr 9, 1998 10:30
Date Report Faxed: Apr 21, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	181314 001			
	Field ID:	MW-5			
	Depth:				
	Matrix:	Liquid			
	Sampled:	04/08/98 13:06			
Metals by ICP **EPA 6010**	*Analyzed:*	04/14/98			
	Units:	mg/L	R.L.		
Aluminum		< 0.50	(0.50)		
Arsenic		< 0.10	(0.10)		
Barium		0.15	(0.08)		
Beryllium		< 0.020	(0.020)		
Boron		0.38	(0.20)		
Cadmium		< 0.010	(0.010)		
Calcium		188	(2.0)		
Chromium		< 0.050	(0.050)		
Cobalt		< 0.050	(0.050)		
Copper		< 0.10	(0.10)		
Iron		< 0.20	(0.20)		
Lead		< 0.050	(0.050)		
Magnesium		39.2	(0.2)		
Manganese		0.12	(0.05)		
Molybdenum		< 0.50	(0.50)		
Nickel		< 0.10	(0.10)		
Potassium		4.30	(1.00)		
Selenium		< 0.050	(0.050)		
Silicon		45.0	(0.5)		
Silver		< 0.050	(0.050)		
Sodium		94.3	(2.0)		
Strontium		4.47	(0.20)		
Tin		< 0.20	(0.20)		
Vanadium		< 0.10	(0.10)		
Zinc		< 1.00	(1.00)		
Total Mercury **EPA 7470**	*Analyzed:*	04/15/98			
	Units:	mg/L	R.L.		
Mercury		< 0.0011	(0.0011)		
BTEX **EPA 8020**	*Analyzed:*	04/10/98			
	Units:	ppm	R.L.		
Benzene		< 0.001	(0.001)		
Toluene		< 0.001	(0.001)		
Ethylbenzene		< 0.001	(0.001)		
m,p-Xylenes		< 0.002	(0.002)		

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-81314

K.E.I. Consultants, Inc.

Project Name: Eunice Historical Site

Project ID: 810005
Project Manager: Theresa Nix
Project Location: Eunice, NM

Date Received in Lab : Apr 9, 1998 10:30
Date Report Faxed: Apr 21, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	181314 001 / MW-5 / / Liquid / 04/08/98 13:06			
EPA 8020	*Analyzed:* / *Units:*	04/10/98 / ppm	R.L.		
o-Xylene		< 0.001	(0.001)		
Total BTEX		N.D.			
PAHs by GC-MS (610 List) **EPA 8270**	*Analyzed:* / *Units:*	04/11/98 / mg/L	R.L.		
Acenaphthene		< 0.002	(0.002)		
Acenaphthylene		< 0.002	(0.002)		
Anthracene		< 0.002	(0.002)		
Benzo(a)anthracene		< 0.002	(0.002)		
Benzo(a)pyrene		< 0.002	(0.002)		
Benzo(b)fluoranthene		< 0.002	(0.002)		
Benzo(g,h,i)perylene		< 0.002	(0.002)		
Benzo(k)fluoranthene		< 0.002	(0.002)		
Chrysene		< 0.002	(0.002)		
Dibenzo(a,h)anthracene		< 0.002	(0.002)		
Fluoranthene		< 0.002	(0.002)		
Fluorene		< 0.002	(0.002)		
Indeno(1,2,3-cd)pyrene		< 0.002	(0.002)		
Naphthalene		< 0.002	(0.002)		
Phenanthrene		< 0.002	(0.002)		
Pyrene		< 0.002	(0.002)		
Bicarbonate **SM 4500CO2D**	*Analyzed:* / *Units:*	04/13/98 / mg/L	R.L.		
Bicarbonate		291	(1.0)		
Carbonate **SM4500CO2D**	*Analyzed:* / *Units:*	04/13/98 / mg/L	R.L.		
Carbonate		< 1.0	(1.0)		
Total Dissolved Solids **EPA 160.1**	*Analyzed:* / *Units:*	04/14/98 / mg/L	R.L.		
Total Dissolved Solids		485	(4.0)		
Anions by Ion Chromatography **EPA 300.0**	*Analyzed:* / *Units:*	04/14/98 / mg/L	R.L.		
Chloride		113	(1.00)		
Sulfate		75.5	(1.0)		

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18C63

EPA 6010 Metals by ICP

Date Validated: Apr 14, 1998 23:45
Date Analyzed: Apr 14, 1998 18:51
QA/QC Manager: Sunil Ajai, M.S.

Analyst: MB
Matrix: Liquid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Amount mg/L	[D] Detection Limit mg/L	[E] QC LIMITS Blank Spike Recovery %	[F] QC LIMITS Recovery Range %	[G] Qualifier
Aluminum	< 0.100	0.976	1.000	0.100	97.6	70-125	
Arsenic	< 0.100	1.112	1.000	0.100	111.2	70-125	
Barium	< 0.0100	0.5995	0.5000	0.0100	119.9	70-125	
Beryllium	< 0.0100	0.2125	0.2000	0.0100	106.3	70-125	
Cadmium	< 0.0200	0.2315	0.2000	0.0200	115.8	70-125	
Calcium	< 0.03	2.50	2.00	0.03	125.0	70-125	
Chromium	< 0.0500	0.5745	0.5000	0.0500	114.9	70-125	
Cobalt	< 0.0100	0.5300	0.5000	0.0100	106.0	70-125	
Copper	< 0.015	0.531	0.500	0.015	106.2	70-125	
Iron	< 0.013	1.202	1.000	0.013	120.2	70-125	
Lead	< 0.0500	1.1115	1.0000	0.0500	111.2	70-125	
Magnesium	< 0.025	2.406	2.000	0.025	120.3	70-125	
Manganese	< 0.0125	1.0680	1.0000	0.0125	106.8	70-125	
Nickel	< 0.050	0.535	0.500	0.050	107.0	70-125	
Potassium	< 0.05	1.94	2.00	0.05	97.0	70-125	
Selenium	< 0.1000	1.0900	1.0000	0.1000	109.0	70-125	
Silicon	0.422	12.533	15.000	0.100	80.7	70-125	
Silver	< 0.0200	0.8035	0.8000	0.0200	100.4	70-125	
Sodium	0.79	6.32	6.00	0.05	92.2	70-125	
Strontium	< 0.050	1.207	1.000	0.050	120.7	70-125	
Vanadium	< 0.015	0.505	0.500	0.015	101.0	70-125	
Zinc	< 0.015	0.562	0.500	0.015	112.4	70-125	

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

Sunil S. Ajai
Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18C63

EPA 6010 Metals by ICP

Date Validated: Apr 14, 1998 23:45
Date Analyzed: Apr 14, 1998 19:08
QA/QC Manager: Sunil Ajai, M.S.

Analyst: MB
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 183I4- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC	[I] LIMITS	[G]
Parameter	mg/L	mg/L	Detection Limit mg/L	Relative Difference %	Relative Difference %	mg/L	mg/L	Matrix Spike Recovery %	Recovery Range %	Qualifier
Aluminum	0.130	0.131	0.100	0 8	25.0	1.133	1.00	100.3	70-125	
Arsenic	< 0.100	< 0.100	0.100	N.C	25.0	0.979	1.00	97.9	70-125	
Barium	0.151	0.152	0.010	0.7	25.0	0.603	0.50	90.4	70-125	
Beryllium	< 0.0100	< 0.0100	0.0100	N.C	25.0	0 1740	0.200	87.0	70-125	
Cadmium	< 0.0200	< 0.0200	0.0200	N C	25.0	0.1770	0.200	88.5	70-125	
Calcium	188	190	0.03	1.1	25 0	186	2 0	100.0	70-125	
Chromium	< 0.0500	< 0.0500	0.0500	N.C	25.0	0.4665	0 500	93.3	70-125	
Cobalt	< 0.0100	< 0.0100	0.0100	N C	25 0	0.5165	0 500	103.3	70-125	
Copper	< 0.015	< 0.015	0.015	N.C	25.0	0.441	0 50	88 2	70-125	
Iron	< 0.200	< 0.200	0.200	N.C	25.0	1.164	1.00	109 6	70-125	
Lead	< 0.0500	< 0.0500	0.0500	N C	25.0	0.9080	1.000	90 8	70-125	
Magnesium	39.18	39.78	0.03	1.5	25.0	38.74	2.0	22.0	70-125	A,B
Manganese	0.122	0.128	0.013	4 8	25 0	1.149	1.00	102.7	70-125	

(A) High analyte concentration affects spike recovery.
(B) Post-digestion spike within acceptance limits.
Relative Difference [D] = 200*(B-A)/(B+A)
Matrix Spike Recovery [H] = 100*(F-A)/[G]
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

Sunil S Ajai
Edward H. Yonemoto, Ph D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A18C63

EPA 6010 Metals by ICP

Date Validated: Apr 14, 1998 23:45
Date Analyzed: Apr 14, 1998 19:08
QA/QC Manager: Sunil Ajai, M.S.

Analyst: MB
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 181314- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC	[I] LIMITS	[G]
Parameter			Detection Limit	Relative Difference	Relative Difference			Matrix Spike Recovery	Recovery Range	Qualifier
	mg/L	mg/L	mg/L	%	%	mg/L	mg/L	%	%	
Nickel	< 0.050	< 0.050	0.050	N.C	25.0	0.423	0.50	84.6	70-125	
Potassium	4.303	4.663	0.050	8.0	25.0	5.403	2.00	55.0	70-125	A,B
Selenium	< 0.1000	< 0.1000	0.1000	N.C	25.0	0.9550	1.000	95.5	70-125	
Silicon	44.98	44.37	0.10	1.4	25.0	42.65	15.0	15.5	70-125	B
Silver	< 0.0200	< 0.0200	0.0200	N.C	25.0	0.0580	0.800	7.3	70-125	B
Sodium	94.31	96.80	0.05	2.6	25.0	82.76	6.0	192.5	70-125	A,B
Strontium	4.470	4.612	0.050	3.1	25.0	5.539	1.00	106.9	70-125	
Vanadium	0.038	0.038	0.015	0.0	25.0	0.538	0.50	100.0	70-125	
Zinc	< 1.00	< 1.00	1.00	N.C	25.0	0.498	0.50	89.6	70-125	

(A) High analyte concentration affects spike recovery.
(B) Post-digestion spike within acceptance limits.
Relative Difference [D] = 200*(B-A)/(B+A)
Matrix Spike Recovery [H] = 100*(F-A)/[G]
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

Sunil S Ajai

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A05B20

SW846- 7470 Total Mercury

Date Validated: Apr 16, 1998 10:31
Date Analyzed: Apr 16, 1998 14:46
QA/QC Manager: Sunil Ajai, M.S.

Analyst: AO
Matrix: Liquid

	BLANK SPIKE ANALYSIS						
Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Amount mg/L	[D] Detection Limit mg/L	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Mercury	< 0.0011	0.0027	0.0028	0.0011	96.4	70-125	

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

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A05B20

SW846- 7470 Total Mercury

Date Validated: Apr 16, 1998 10:31
Date Analyzed: Apr 15, 1998 14:55
QA/QC Manager: Sunil Ajai, M.S.

Analyst: AO
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					MATRIX SPIKE ANALYSIS				
Q.C. Sample ID 183I4- 001	[A] Sample Result	[B] Duplicate Result	[C] Detection Limit	[D] QC Relative Difference	[E] LIMITS Relative Difference	[F] Matrix Spike Result	[G] Matrix Spike Amount	[H] QC Matrix Spike Recovery	[I] LIMITS Recovery Range	[G] Qualifier
Parameter	mg/L	mg/L	mg/L	%	%	mg/L	mg/L	%	%	
Mercury	< 0.0011	< 0.0011	0.0011	N.C	25.0	0.0022	0.0028	78.6	70-125	

Relative Difference [D] = 200*(B-A)/(B+A)
Matrix Spike Recovery [H] = 100*(F-A)/[G]
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

Sunil S. Ajai
Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25B14

SW- 846 5030/8020 BTEX

Date Validated: Apr 10, 1998 16:00
Date Analyzed: Apr 10, 1998 10:37
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Liquid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 181315- 004	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] Detection Limit	Matrix Limit Relative Difference	[F] QC Spike Relative Difference	[G] QC Matrix Spike Recovery	[H] QC M.S.D. Recovery	[I] Matrix Spike Recovery Range	[J] Qualifier
Parameter	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	
Benzene	< 0.0010	0.1010	0.0984	0.1000	0.0010	20.0	2.6	101.0	98.4	65-135	
Toluene	< 0.0010	0.0980	0.0986	0.1000	0.0010	20.0	0.6	98.0	98.6	65-135	
Ethylbenzene	< 0.0010	0.1020	0.1010	0.1000	0.0010	20.0	1.0	102.0	101.0	65-135	
m,p-Xylenes	< 0.0020	0.2120	0.2060	0.2000	0.0020	20.0	2.9	106.0	103.0	65-135	
o-Xylene	< 0.0010	0.1040	0.1030	0.1000	0.0010	20.0	1.0	104.0	103.0	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25B14

SW- 846 5030/8020 BTEX

Date Validated: Apr 10, 1998 16:00
Date Analyzed: Apr 10, 1998 09:40
QA/QC Manager: Sunil Ajai, M.S.

Analyst: HL
Matrix: Liquid

	BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY										
Parameter	[A] Blank Result ppm	[B] Blank Spike Result ppm	[C] Blank Spike Duplicate Result ppm	[D] Blank Spike Amount ppm	[E] Detection Limit ppm	Blank Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Blank Spike Recovery %	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	[J] Qualifier
Benzene	< 0.0010	0.0967	0.0971	0.1000	0.0010	20.0	0.4	96.7	97.1	65-135	
Toluene	< 0.0010	0.0987	0.0955	0.1000	0.0010	20.0	3.3	98.7	95.5	65-135	
Ethylbenzene	< 0.0010	0.0986	0.0968	0.1000	0.0010	20.0	1.8	98.6	96.8	65-135	
m,p-Xylenes	< 0.0020	0.2040	0.1980	0.2000	0.0020	20.0	3.0	102.0	99.0	65-135	
o-Xylene	< 0.0010	0.0993	0.0981	0.1000	0.0010	20.0	1.2	99.3	98.1	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A02B41

SW846-8270 PAHs by GC-MS (610 List)

Date Validated: Apr 14, 1998 11:56
Date Analyzed: Apr 10, 1998 23:33
QA/QC Manager: Sunil Ajai, M.S.

Analyst: LC
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] 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	0.0750	0.0742	0.1000	0.0040	31.0	1.1	75.0	74.2	46-118	
4-Chloro-3-Methylphenol	< 0.0040	0.0646	0.0674	0.1000	0.0040	42.0	4.2	64.6	67.4	23-97	
2-Chlorophenol	< 0.0040	0.0624	0.0638	0.1000	0.0040	40.0	2.2	62.4	63.8	27-123	
1,4-Dichlorobenzene	< 0.0040	0.0716	0.0732	0.1000	0.0040	28.0	2.2	71.6	73.2	36-97	
2,4-Dinitrotoluene	< 0.0040	0.0694	0.0738	0.1000	0.0040	38.0	6.1	69.4	73.8	24-96	
N-Nitroso-di-n-propylamine	< 0.0080	0.0676	0.0654	0.1000	0.0080	38.0	3.3	67.6	65.4	41-116	
4-Nitrophenol	< 0.0080	0.0218	0.0248	0.1000	0.0080	50.5	12.9	21.8	24.8	10-80	
Pentachlorophenol	< 0.0020	0.0392	0.0498	0.1000	0.0020	50.0	23.8	39.2	49.8	9-103	
Phenol	< 0.0020	0.0352	0.0364	0.1000	0.0020	42.0	3.4	35.2	36.4	12-89	
Pyrene	< 0.0040	0.0878	0.0904	0.1000	0.0040	31.0	2.9	87.8	90.4	26-127	
1,2,4-Trichlorobenzene	< 0.0020	0.0730	0.0738	0.1000	0.0020	28.0	1.1	73.0	73.8	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A20A51

SM 4500C02D Bicarbonate

Date Validated: Apr 14, 1998 10:42
Date Analyzed: Apr 13, 1998 14:00
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

BLANK SPIKE ANALYSIS

Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Amount mg/L	[D] Detection Limit mg/L	[E] QC Blank Spike Recovery %	[F] LIMITS Recovery Range %	[G] Qualifier
Bicarbonate	< 1.00	100	106	1.00	94.3	70-125	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A20A51

SM 4500CO2D Bicarbonate

Date Validated: Apr 14, 1998 10:42
Date Analyzed: Apr 13, 1998 14:30
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 181314- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Bicarbonate	291	296	1.00	1.7	25.0	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A20A50

SM4500CO2D Carbonate

Date Validated: Apr 14, 1998 10:42
Date Analyzed: Apr 13, 1998 14:30
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 181314- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Carbonate	< 1.00	< 1.00	1.00	N.C	25.0	

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 T. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A19B27

EPA 160.1 Total Dissolved Solids

Date Validated: Apr 14, 1998 10:45
Date Analyzed: Apr 14, 1998 10:15
QA/QC Manager: Sunil Ajai, M.S.

Analyst: IF
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 131315- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Total Dissolved Solids	1370	1380	4.00	0.7	25.0	

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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A10A69

EPA 300.0 Anions by Ion Chromatography

Date Validated: Apr 14, 1998 13:00
Date Analyzed: Apr 14, 1998 12:02
QA/QC Manager: Sunil Ajai, M.S.

Analyst: SS
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 181358- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Nitrate	430	433	0.10	0.7	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A10A69

EPA 300.0 Anions by Ion Chromatography

Date Validated: Apr 14, 1998 13:00
Date Analyzed: Apr 14, 1998 11:21
QA/QC Manager: Sunil Ajai, M.S.

Analyst: SS
Matrix: Liquid

	MATRIX DUPLICATE ANALYSIS					
Q.C. Sample ID 181315- 004	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC	[E] LIMITS	[F]
Parameter			Detection Limit	Relative Difference	Relative Difference	Qualifier
	mg/L	mg/L	mg/L	%	%	
Chloride	187	185	0.050	1.1	20.0	
Sulfate	315	314	0.10	0.3	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.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A10A69

EPA 300.0 Anions by Ion Chromatography

Date Validated: Apr 14, 1998 13:00
Date Analyzed: Apr 14, 1998 10:15
QA/QC Manager: Sunil Ajai, M.S.

Analyst: SS
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] 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
Chloride	< 0.050	9.010	9.162	10.000	0.050	20.0	1.7	90.1	91.6	70-125	
Nitrate	< 0.10	8.97	8.87	10.00	0.10	20.0	1.1	89.7	88.7	70-125	
Sulfate	< 0.10	8.45	8.42	10.00	0.10	20.0	0.4	84.5	84.2	70-125	

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.
Technical Director

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 # 181314-98

Contractor: KET CONSULTANTS Phone (210) 680-3767

Address: 5309 WURZBACH RD, STE 100, SAN ANTONIO, TX 78238

Project Name: EUNICE HISTORICAL SITE 810005

Project Director: MIKE HAWTHORNE

Project Location: EUNICE, NM

Project Manager: THERESA NIX

Sampler Signature: [signature]

Project No. 810005

No. coolers this shipment: 1

Carrier: UPS

Airbill No.

Contractor COC #

Quote #:

P.O. No: CALL T. NIX FOR PO

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

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

SAMPLE CHARACTERIZATION

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No. of Containers Total	BTEX (5030/8020-602) EPA MTD SW 846 8020	TPH (418.1)	PAH (MTD 8100 or 8270)	TDS (MTD 160.1)	CATIONS/ANIONS	HEAVY METALS (ICP-SCAN)				Please Hold	Remarks	LAB ONLY ID #
1	MW5	4/8/98	1306			/		/			/	HCL HNO3		6	/		/	/	/	/						1
2																										2
3																										3
4																										4
5																										5
6																										6
7																										7
8																										8
9																										9
10																										10

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
[signature]	4/8/98				
			Received For Laboratory by: [signature]	4/9/98	10:30

Remarks:
FAX RESULTS TO: T. NIX @ (210) 680-3763
• ICP SCAN FOR HEAVY METALS
→ Via UPS

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

* Pre-scheduling is recommended

Precision Analytical Services

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 an air rotary drilling rig with split spoon samples at discrete intervals. 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.

Soil samples were express mailed to Xenco Laboratories of San Antonio, Texas for BTEX, TPH-DRO, SPLP SVOC, SPLP VOC, SPLP TPH, FOC, and moisture content analyses using the methods described below. Selected soil samples were also submitted for determination of chloride concentrations. Soil samples were analyzed for BTEX, TPH, and SPLP concentrations within 14 days following the collection date.

The soil samples were analyzed in accordance with the methods as follows:

- BTEX concentrations in accordance with EPA Method SW846-8020
- TPH concentrations in accordance with modified EPA Method 8015-DRO
- SPLP TPH concentrations in accordance with EPA Method 1312/418.1
- SPLP VOC concentrations in accordance with EPA Method SW846-1312/8260
- SPLP SVOC concentrations in accordance with EPA Method SW846-1312/8270
- FOC concentrations in accordance with ASTM Method D2974
- moisture content in accordance with ASTM 2216-71
- chlorides in accordance with EPA Method 300.0

GROUND WATER SAMPLING

Monitoring wells were developed and purged with a clean PVC bailer. The bailer was cleaned prior to each use with Liqui-Nox detergent and rinsed with distilled water. Monitoring wells with sufficient recharge were purged by removing a minimum of 3 well volumes. Monitoring wells that did not recharge sufficiently were purged until no additional ground water could be obtained.

After purging the wells, ground water samples were collected with a disposable Teflon sampler and polyethylene line by personnel wearing clean, disposable gloves. Ground water sample containers were filled in the order of decreasing volatilization sensitivity (i.e., BTEX containers were filled first and PAH containers second).

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

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

The filled containers were labeled and placed on ice in an insulated cooler. The cooler was sealed for transportation to the analytical laboratory. Proper chain-of-custody documentation was maintained throughout the sampling process.

The ground water samples were analyzed in accordance with the methods as follows:

- BTEX concentrations in accordance with EPA Method SW846-8020
- Metals concentrations in accordance with EPA ICP Method 6010
- PAH concentrations in accordance with EPA Method 8270

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.