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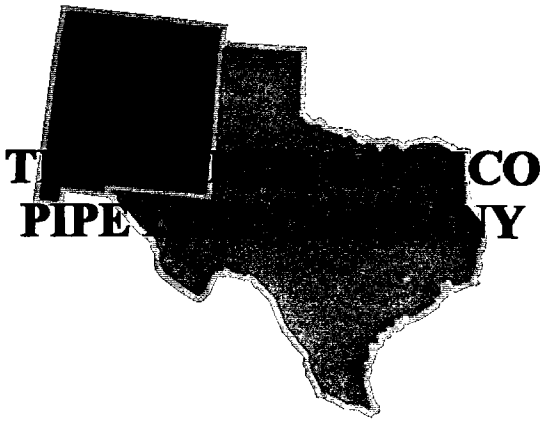
REPORTS

DATE:
1998



GROUND WATER MONITORING REPORT

TNM-97-16
LEA COUNTY, NEW MEXICO

kei

5309 Wurzbach, Suite 100
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GROUND WATER MONITORING REPORT

TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
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

Theresa Nix
Project Manager

J. Michael Hawthorne, P.G., REM

KEI Job No. 710034-1-0

June 30, 1998

TABLE OF CONTENTS

PURPOSE AND SCOPE

This binder presents results of ground water monitoring events conducted for Texas - New Mexico Pipe Line Company (TNMPL) site TNM-97-16 located in Lea County, New Mexico in the NE/4, NW/4, Section 12, Township 24 South, Range 37 East from the fourth quarter of 1997 to present. Ground water monitoring is conducted to assess the concentrations and extent of petroleum hydrocarbon constituents in ground water. The monitoring events consist of some or all of the following:

- measuring static water levels in the monitoring wells
- checking for the presence of phase-separate hydrocarbons (PSH)
- purging and sampling each well exhibiting sufficient recharge

Site details are presented on FIG. 1.

FIELD AND REPORTING PROTOCOLS

GROUND WATER MONITORING AND SAMPLING

During sampling events, monitoring wells that do not contain PSH are purged of approximately 3 well volumes of water. Purging equipment is cleaned prior to each use with Liqui-Nox detergent and rinsed with water. After purging the wells, ground water sample containers are filled in the order of decreasing volatility (i.e., benzene, toluene, ethylbenzene, and xylenes (BTEX) containers are filled first and other containers which may be required are filled second).

Ground water samples collected for BTEX analyses are placed in sterile, 40 ml glass VOA vials equipped with Teflon-lined caps. Ground water samples collected for polycyclic aromatic hydrocarbon (PAH) analyses are placed in sterile 1 liter glass containers equipped with Teflon-lined caps. Ground water samples collected for ICP heavy metals analysis are placed in 500 ml containers preserved with nitric acid equipped with Teflon-lined caps. The containers are typically provided by the analytical laboratory. The vials are filled to a positive meniscus, sealed, and visually checked for the presence of air bubbles.

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

Purged water collected during each event is stored in drums on-site pending disposal.

LABORATORY RESULTS

Laboratory results for ground water samples obtained during each event are delivered to a qualified environmental analytical laboratory for determination of BTEX concentrations by EPA Method SW846-8020. Ground water samples collected during the fourth quarter of 1997 were submitted for semi-volatile organic compounds (SVOC). During the October 20, 1997 event, groundwater samples were also collected from 2 windmills located near the site and submitted for determination of BTEX and total petroleum hydrocarbons (TPH) concentrations. Ground water samples collected during the second quarter of 1998 were

also submitted for ICP metals, PAH, cations, anions, and total dissolved solids (TDS) concentrations.

Laboratory results for each event are summarized in TABLES I through III and BTEX concentrations are graphically presented on FIG. 1. Copies of certified laboratory reports and chain-of-custody documentation are also attached. The figures, the certified laboratory reports, and chain-of-custody documentation for each event are presented behind the corresponding dated tabs.

GROUND WATER GRADIENT

Ground water elevation contours generated from the water level measurements collected from each event are presented on FIG. 1. Historical ground water measurements are summarized in TABLE IV. These items are presented behind the corresponding dated tabs.

PSH MONITORING

PSH has not been detected in any of the monitoring wells or the on-site water well. The wells are gauged approximately monthly for the presence of PSH.

GENERAL NOTES

ND - Indicates constituent was not detected above the method detection or reporting limit.
PSH - Phase-separate hydrocarbons.
--- - Indicates the constituent was not analyzed (TABLE I) or PSH was not detected and a corrected ground water elevation was not required (TABLE IV).

Depth to water is referenced from the top of PVC elevation.

Method detection/reporting limits:

BTEX	-	0.001 to 0.006 mg/l
TPH	-	1.0 mg/l
SVOC	-	0.010 to 0.025 mg/l
PAH	-	0.002 mg/l
Metals	-	0.0011 to 2.0 mg/l
Cations	-	1.0 mg/l
Anions	-	2.0 to 2.00 mg/l
TDS	-	4.0 mg/l

Laboratory test methods:

BTEX	-	EPA Method SW846-8020
TPH	-	Modified EPA Method 8015 Diesel Range Organics (DRO)
SVOC	-	EPA Method 8270
PAH	-	EPA Method 8270
Metals	-	EPA ICP Method 6010
Cations	-	SM4500CO2D
Anions	-	EPA Method 300.0
TDS	-	EPA Method 160.1

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Cations	-	1.0 mg/l
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Cations	-	SM4500CO2D
Anions	-	EPA Method 300.0
TDS	-	EPA Method 160.1

TABLE I

SUMMARY OF LABORATORY RESULTS - GROUND WATER
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

MONITORING WELL NO.	DATE SAMPLED	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYL-BENZENE (mg/l)	XYLENES (mg/l)	BTEX (mg/l)	TPH (mg/l)
Area "A" (R.W.)	10/13/97	ND	0.002	0.002	0.006	0.010	—
MW-1	10/20/97	0.003	0.003	0.003	0.010	0.019	—
MW-1	01/14/98	ND	ND	ND	ND	ND	—
MW-1	04/08/98	ND	ND	ND	ND	ND	—
MW-2	10/20/97	ND	0.002	0.001	0.007	0.010	—
MW-2	01/14/98	ND	ND	ND	ND	ND	—
MW-2	04/08/98	ND	ND	ND	ND	ND	—
MW-3	10/20/97	ND	ND	ND	ND	ND	—
MW-3	01/14/98	ND	ND	ND	0.002	0.002	—
MW-3	04/08/98	ND	ND	ND	ND	ND	—
WW-1	10/20/97	ND	ND	ND	ND	ND	—
WW-1	01/14/98	ND	ND	ND	ND	ND	—
WW-1	04/08/98	ND	ND	ND	ND	ND	—
SOUTH WINDMILL	10/20/97	ND	0.002	ND	ND	0.002	ND
NORTH WINDMILL	10/20/97	ND	0.002	0.001	0.005	0.008	ND

TABLE II

SUMMARY OF GROUND WATER RESULTS - METALS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

SAMPLE ID	MW-1	MW-2	MW-3	WW-1
DATE SAMPLED	04/08/98	04/08/98	04/08/98	04/08/98
PARAMETER	CONCENTRATION (mg/l)			
Aluminum	ND	2.02	ND	ND
Boron	0.73	0.55	0.53	ND
Calcium	185	177	208	74.7
Iron	ND	0.52	ND	ND
Magnesium	34.5	39.6	40.5	34.3
Manganese	0.73	0.91	0.36	ND
Potassium	6.52	6.27	5.51	5.72
Silicon	49.4	49.6	44.3	43.3
Sodium	285	220	200	208
Strontium	2.94	3.03	3.53	ND

NOTES:

1. The samples were collected on 04/08/98.
2. Those constituents not listed above were ND.

TABLE III

SUMMARY OF GROUND WATER RESULTS - MISCELLANEOUS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	MW-1	MW-2	MW-3	WW-1
DATE SAMPLED	04/08/98	04/08/98	04/08/98	04/08/98
PARAMETER	CONCENTRATION (mg/l)			
SVOC:				
Diethylphthalate	ND	0.388	ND	ND
Cations:				
Bicarbonate	204	176	183	188
Carbonate	ND	ND	ND	ND
Total Dissolved Solids	1,370	1,270	1,140	1,200
Anions:				
Sulfate	363	333	294	315
Chloride	228	210	171	187

NOTES:

1. The SVOC samples were collected on 10/20/97.
2. The SVOC constituents not listed above were ND.
3. All PAH constituents were ND.

TABLE IV

MONITORING WELL MW-1
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3163.59	20.12	3143.47	---	---
11/04/97	3163.59	20.20	3143.39	---	---
12/02/97	3163.59	20.12	3143.47	---	---
01/01/98	3163.59	20.07	3143.52	---	---
01/14/98	3163.59	20.08	3143.51	---	---
02/02/98	3163.59	20.03	3143.56	---	---
03/06/98	3163.59	20.09	3143.50	---	---
04/08/98	3163.59	20.11	3143.48	---	---
05/01/98	3163.59	20.14	3143.45	---	---

TABLE IV
(continued)

MONITORING WELL MW-2
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3162.29	20.86	3141.43	---	---
11/04/97	3162.29	20.98	3141.31	---	---
12/02/97	3162.29	20.93	3141.36	---	---
01/01/98	3162.29	20.89	3141.40	---	---
01/14/98	3162.29	20.84	3141.45	---	---
02/02/98	3162.29	20.86	3141.43	---	---
03/06/98	3162.29	20.98	3141.31	---	---
04/08/98	3162.29	21.01	3141.28	---	---
05/01/98	3162.29	20.94	3141.35	---	---

TABLE IV
(continued)

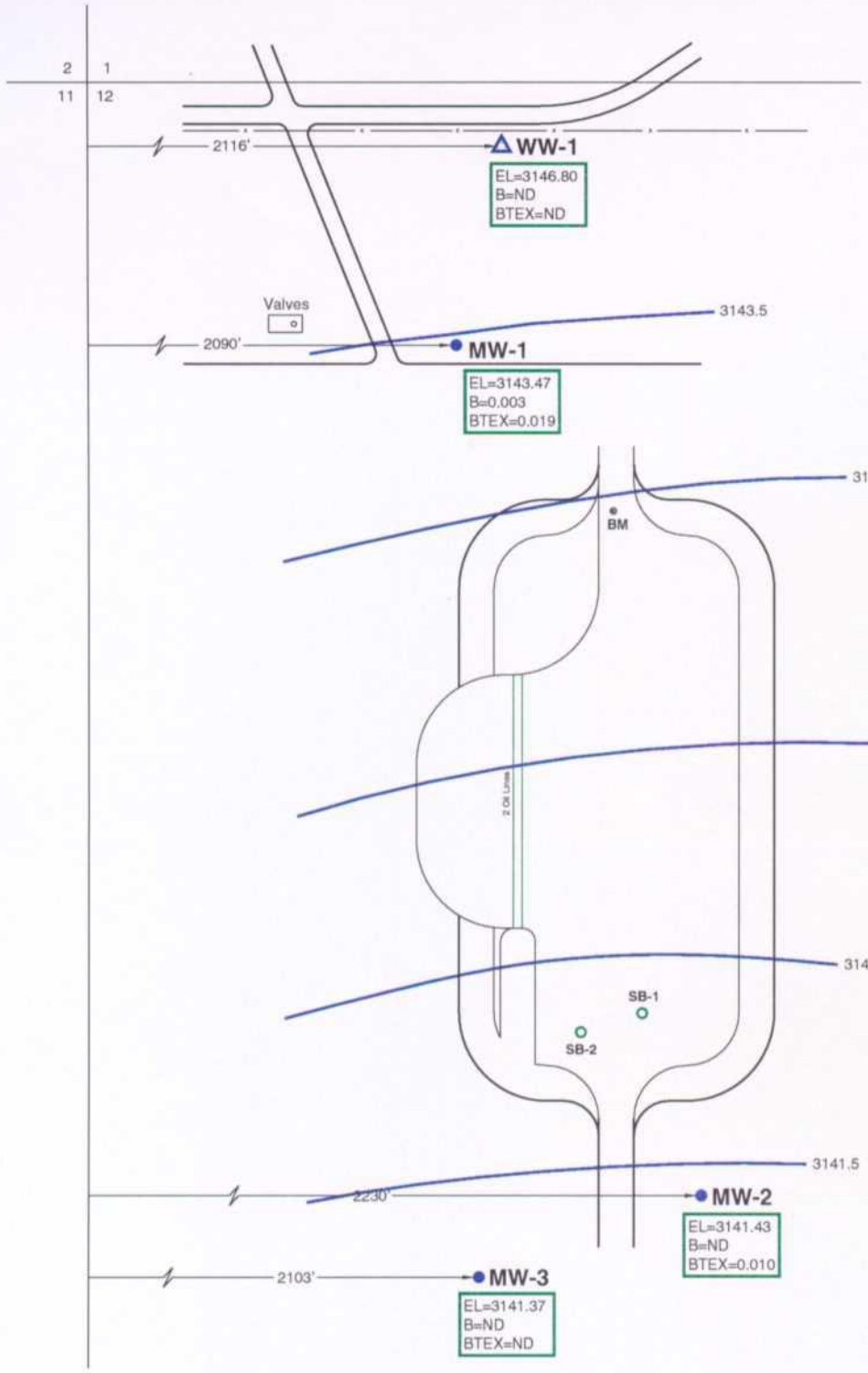
MONITORING WELL MW-3
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3162.15	20.78	3141.37	---	---
11/04/97	3162.15	20.88	3141.27	---	---
12/02/97	3162.15	20.84	3141.31	---	---
01/01/98	3162.15	20.80	3141.35	---	---
01/14/98	3162.15	20.78	3141.37	---	---
02/02/98	3162.15	20.75	3141.40	---	---
03/06/98	3162.15	20.94	3141.21	---	---
04/08/98	3162.15	20.91	3141.24	---	---
05/01/98	3162.15	20.83	3141.32	---	---

TABLE IV

WATER WELL
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3164.988	18.19	3146.80	—	—
11/04/97	3164.988	20.96	3144.03	—	—
12/02/97	3164.988	20.93	3144.06	—	—
01/01/98	3164.988	20.88	3144.11	—	—
01/14/98	3164.988	20.88	3144.11	—	—
02/02/98	3164.988	20.85	3144.14	—	—
03/06/98	3164.988	20.87	3144.12	—	—
04/08/98	3164.988	20.89	3144.10	—	—
05/01/98	3164.988	20.89	3144.10	—	—
06/02/98	3164.988	21.08	3143.91	—	—



Approximate Scale: 1"=100'

0 50 100

NOTE: Adjacent properties are not to scale.

LEGEND

- Monitoring Well Location
- Soil Boring Location
- Water Well Location
- Contour Interval = 0.5 feet
- EL = Ground water elevation (feet) calculated from measurements obtained on October 20, 1997.
- ND = Indicates constituent was below laboratory reporting limits.
- B = Benzene Concentration (mg/l)
- BTEX = Total Benzene, Toluene, Ethylbenzene, and Xylenes Concentration (mg/l)

NOTE:
Ground water samples were collected on October 20, 1997.

2998-RM G:\710034GW)

k·e·i

GROUND WATER CONTOURS/CONCENTRATIONS - OCTOBER 20, 1997			710034
TNMPL	TNM-97-16	LEA COUNTY, NEW MEXICO	FIG 1

ANALYTICAL REPORT 1-72543

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: TNMPL

Project Id: 710034

October 27, 1997

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

October 27, 1997

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

Reference: **XENCO Report No.: 1-72543**
Project Name: TNMPL
Project ID: 710034
Project Address: TNMPL JAL

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 1-72543. 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, and completeness.

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. 1-72543 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 Laboratories is accredited by the American Association for Laboratory Accreditation (A2LA) for technical competence in the field of Environmental Testing (Certificate No. 0343-01). In accordance with A2LA's guidelines, XENCO operates a Quality System that meets ISO/IEC Guide 25 requirements and 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 Yamamoto, Ph.D.
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-72543

K.E.I. Consultants, Inc.

Project ID: 710034
Project Manager: Theresa Nix
Project Location: TNMPL JAL

Project Name: TNMPL

Date Received in Lab : Oct 21, 1997 10:00 by AS
Date Report Faxed: Oct 27, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:*	172543-001 MW-1	172543-002 MW-1	172543-003 MW-2	172543-004 MW-2	172543-005 MW-3	172543-006 MW-3	172543-007 6" WW	172543-008 6" WW	172543-009 S Windmill
BTEX by EPA 8020		Date Analyzed - Analytical Results								**ppm (mg/L - mg/Kg)**
		Oct 23, 1997		Oct 23, 1997		Oct 23, 1997		Oct 23, 1997		Oct 23, 1997
Benzene		0.003		< 0.001		< 0.001		< 0.001		< 0.001
Toluene		0.003		0.002		< 0.001		< 0.001		0.002
Ethylbenzene		0.003		0.001		< 0.001		< 0.001		< 0.001
m,p-Xylenes		0.007		0.005		< 0.002		< 0.002		< 0.002
o-Xylene		0.003		0.002		< 0.001		< 0.001		< 0.001
Total BTEX		0.019		0.010		< 0.006		< 0.006		0.002
Semivolatiles (SVOCs TCL) by EPA 8270			Date Analyzed - Analytical Results							**ppm (mg/L - mg/Kg)**
			Oct 22, 1997		Oct 22, 1997		Oct 22, 1997		Oct 22, 1997	
Acenaphthene			< 0.010		< 0.010		< 0.010		< 0.010	
Acenaphthylene			< 0.010		< 0.010		< 0.010		< 0.010	
Anthracene			< 0.010		< 0.010		< 0.010		< 0.010	
Benzo(a)anthracene			< 0.010		< 0.010		< 0.010		< 0.010	
Benzo(a)pyrene			< 0.010		< 0.010		< 0.010		< 0.010	
Benzo(b)fluoranthene			< 0.010		< 0.010		< 0.010		< 0.010	
Benzo(g,h,i)perylene			< 0.010		< 0.010		< 0.010		< 0.010	
Benzo(k)fluoranthene			< 0.010		< 0.010		< 0.010		< 0.010	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-72543

K.E.I. Consultants, Inc.

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		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
			Oct 22, 1997		Oct 22, 1997		Oct 22, 1997		Oct 22, 1997	
Butyl benzyl phthalate			< 0.010		< 0.010		< 0.010		< 0.010	
Carbazole			< 0.010		< 0.010		< 0.010		< 0.010	
4-Chloroaniline			< 0.010		< 0.010		< 0.010		< 0.010	
bis [2-Chloroethoxy] methane			< 0.010		< 0.010		< 0.010		< 0.010	
bis [2-Chloroethyl] ether			< 0.010		< 0.010		< 0.010		< 0.010	
bis [2-Chloroisopropyl] ether			< 0.010		< 0.010		< 0.010		< 0.010	
2-Chloronaphthalene			< 0.010		< 0.010		< 0.010		< 0.010	
2-Chlorophenol			< 0.010		< 0.010		< 0.010		< 0.010	
4-Chlorophenyl-phenyl ether			< 0.010		< 0.010		< 0.010		< 0.010	
Chrysene			< 0.010		< 0.010		< 0.010		< 0.010	
Dibenzofuran			< 0.010		< 0.010		< 0.010		< 0.010	
Dibenzo(a,h)anthracene			< 0.010		< 0.010		< 0.010		< 0.010	
1,2-Dichlorobenzene			< 0.010		< 0.010		< 0.010		< 0.010	
1,3-Dichlorobenzene			< 0.010		< 0.010		< 0.010		< 0.010	
1,4-Dichlorobenzene			< 0.010		< 0.010		< 0.010		< 0.010	
3,3'-Dichlorobenzidine			< 0.010		< 0.010		< 0.010		< 0.010	
2,4-Dichlorophenol			< 0.010		< 0.010		< 0.010		< 0.010	

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

XENCO Laboratories

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		Date Analyzed - Analytical Results								**ppm (mg/L - mg/Kg)**
			Oct 22, 1997		Oct 22, 1997		Oct 22, 1997		Oct 22, 1997	
Diethyl phthalate			< 0.010		** 0.388		< 0.010		< 0.010	
2,4-Dimethylphenol			< 0.010		< 0.010		< 0.010		< 0.010	
Dimethyl phthalate			< 0.010		< 0.010		< 0.010		< 0.010	
4,6-Dinitro-2-methylphenol			< 0.025		< 0.025		< 0.025		< 0.025	
2,4-Dinitrophenol			< 0.025		< 0.025		< 0.025		< 0.025	
2,4-Dinitrotoluene			< 0.010		< 0.010		< 0.010		< 0.010	
2,6-Dinitrotoluene			< 0.010		< 0.010		< 0.010		< 0.010	
Di-n-octyl phthalate			< 0.010		< 0.010		< 0.010		< 0.010	
bis [2-Ethylhexyl] phthalate			< 0.010		< 0.010		< 0.010		< 0.010	
Fluoranthene			< 0.010		< 0.010		< 0.010		< 0.010	
Fluorene			< 0.010		< 0.010		< 0.010		< 0.010	
Hexachlorobenzene			< 0.010		< 0.010		< 0.010		< 0.010	
Hexachlorobutadiene			< 0.010		< 0.010		< 0.010		< 0.010	
Hexachlorocyclopentadiene			< 0.010		< 0.010		< 0.010		< 0.010	
Hexachloroethane			< 0.010		< 0.010		< 0.010		< 0.010	
Indeno(1,2,3-cd)pyrene			< 0.010		< 0.010		< 0.010		< 0.010	
Isophorone			< 0.010		< 0.010		< 0.010		< 0.010	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-72543

K.E.I. Consultants, Inc.

Project ID: 710034
Project Manager: Theresa Nix
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Analysis Requested	*Lab ID:* / *Field ID:*	172543-001 MW-1	172543-002 MW-1	172543-003 MW-2	172543-004 MW-2	172543-005 MW-3	172543-006 MW-3	172543-007 6" WW	172543-008 6" WW	172543-009 S Windmill
		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
			Oct 22, 1997		Oct 22, 1997		Oct 22, 1997		Oct 22, 1997	
2-Methylnaphthalene			< 0.010		< 0.010		< 0.010		< 0.010	
2-Methylphenol			< 0.010		< 0.010		< 0.010		< 0.010	
4-Methylphenol			< 0.010		< 0.010		< 0.010		< 0.010	
Naphthalene			< 0.010		< 0.010		< 0.010		< 0.010	
2-Nitroaniline			< 0.025		< 0.025		< 0.025		< 0.025	
3-Nitroaniline			< 0.025		< 0.025		< 0.025		< 0.025	
4-Nitroaniline			< 0.025		< 0.025		< 0.025		< 0.025	
Nitrobenzene			< 0.010		< 0.010		< 0.010		< 0.010	
2-Nitrophenol			< 0.010		< 0.010		< 0.010		< 0.010	
4-Nitrophenol			< 0.010		< 0.010		< 0.010		< 0.010	
N-Nitroso-di-n-propylamine			< 0.010		< 0.010		< 0.010		< 0.010	
N-Nitrosodiphenylamine			< 0.010		< 0.010		< 0.010		< 0.010	
Pentachlorophenol			< 0.025		< 0.025		< 0.025		< 0.025	
Phenanthrene			< 0.010		< 0.010		< 0.010		< 0.010	
Phenol			< 0.010		< 0.010		< 0.010		< 0.010	
Pyrene			< 0.010		< 0.010		< 0.010		< 0.010	
Pyridine			< 0.010		< 0.010		< 0.010		< 0.010	

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-72543

K.E.I. Consultants, Inc.

Project ID: 710034
Project Manager: Theresa Nix
Project Location: TNMPL JAL

Project Name: TNMPL

Date Received in Lab : Oct 21, 1997 10:00 by AS
Date Report Faxed: Oct 27, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:*	172543-001 MW-1	172543-002 MW-1	172543-003 MW-2	172543-004 MW-2	172543-005 MW-3	172543-006 MW-3	172543-007 6" WW	172543-008 6" WW	172543-009 S Windmill
		Date Analyzed - Analytical Results **ppm (mg/L - mg/Kg)**								
			Oct 22, 1997		Oct 22, 1997		Oct 22, 1997		Oct 22, 1997	
1,2,4-Trichlorobenzene			< 0.010		< 0.010		< 0.010		< 0.010	
2,4,5-Trichlorophenol			< 0.025		< 0.025		< 0.025		< 0.025	
2,4,6-Trichlorophenol			< 0.010		< 0.010		< 0.010		< 0.010	
4-Bromophenyl-phenylether			< 0.010		< 0.010		< 0.010		< 0.010	
4-Chloro-3-Methylphenol			< 0.010		< 0.010		< 0.010		< 0.010	
Di-n-butyl phthalate			< 0.010		< 0.010		< 0.010		< 0.010	
** Result beyond calibration limits										

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-72543

K.E.I. Consultants, Inc.

Project ID: 710034
Project Manager: Theresa Nix
Project Location: TNMPL JAL

Project Name: TNMPL

Date Received in Lab : Oct 21, 1997 10:00 by AS
Date Report Faxed: Oct 27, 1997
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	172543-010	172543-011	172543-012						
	Field ID:	S Windmill	N Windmill	N Windmill						
	Depth:									
TPH-DRO (Diesel) by EPA 8015 M		Date Analyzed - Analytical Results								**ppm (mg/L - mg/Kg)**
		Oct 22, 1997		Oct 22, 1997						
Total Petroleum Hydrocarbons		< 1.0		< 1.0						
BTEX by EPA 8020			Date Analyzed - Analytical Results							**ppm (mg/L - mg/Kg)**
			Oct 23, 1997							
Benzene			< 0.001							
Toluene			0.002							
Ethylbenzene			0.001							
m,p-Xylenes			0.003							
o-Xylene			0.002							
Total BTEX			0.008							

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A29D12

SW- 846 5030/8020 BTEX

Date Validated: Oct 24, 1997 16:00
Date Analyzed: Oct 22, 1997 18:26
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OR
Matrix: Liquid

	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	0.0972	0.1000	0.0010	97.2	65-135	
Toluene	< 0.0010	0.0957	0.1000	0.0010	95.7	65-135	
Ethylbenzene	< 0.0010	0.1020	0.1000	0.0010	102.0	65-135	
m,p-Xylenes	< 0.0020	0.2070	0.2000	0.0020	103.5	65-135	
o-Xylene	< 0.0010	0.0962	0.1000	0.0010	96.2	65-135	

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

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

XEN Laboratories

Certificate Of Quality Control for Batch : 17A29D12

SW- 846 5030/8020 BTEX

Date Validated: Oct 24, 1997 16:00
Date Analyzed: Oct 22, 1997 19:02
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: OR
Matrix: Liquid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 172468- 001	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] Method Detection Limit	Matrix Limit Relative Difference	[F] QC Spike Relative Difference	[G] QC Matrix Spike Recovery	[H] QC M.S.D. Recovery	[I] Matrix Spike Recovery Range	[J] Qualifier
Parameter	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	
Benzene	< 0.0010	0.1080	0.1120	0.1000	0.0010	25.0	3.6	108.0	112.0	65-135	
Toluene	< 0.0010	0.1070	0.1110	0.1000	0.0010	25.0	3.7	107.0	111.0	65-135	
Ethylbenzene	< 0.0010	0.1070	0.1120	0.1000	0.0010	25.0	4.6	107.0	112.0	65-135	
m,p-Xylenes	< 0.0020	0.2150	0.2240	0.2000	0.0020	25.0	4.1	107.5	112.0	65-135	
o-Xylene	< 0.0010	0.1040	0.1080	0.1000	0.0010	25.0	3.8	104.0	108.0	65-135	

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

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A34F28

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

Date Validated: Oct 23, 1997 14:17
Date Analyzed: Oct 22, 1997 17:45
QA/QC Manager: Edward H. Yonemoto, Ph.D.

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	< 0.0040	0.0830	0.0860	0.1000	0.0040	31.0	3.6	83.0	86.0	46-118	
4-Chloro-3-Methylphenol	< 0.0040	0.0702	0.0750	0.1000	0.0040	42.0	6.6	70.2	75.0	23-97	
2-Chlorophenol	< 0.0040	0.0652	0.0704	0.1000	0.0040	40.0	7.7	65.2	70.4	27-123	
1,4-Dichlorobenzene	< 0.0040	0.0720	0.0780	0.1000	0.0040	28.0	8.0	72.0	78.0	36-97	
2,4-Dinitrotoluene	< 0.0040	0.0814	0.0818	0.1000	0.0040	38.0	0.5	81.4	81.8	24-96	
N-Nitroso-di-n-propylamine	< 0.0080	0.0810	0.0810	0.1000	0.0080	38.0	0.0	81.0	81.0	41-116	
4-Nitrophenol	< 0.0080	0.0226	0.0206	0.1000	0.0080	50.5	9.3	22.6	20.6	10-80	
Pentachlorophenol	< 0.0020	0.0770	0.0810	0.1000	0.0020	50.0	5.1	77.0	81.0	9-103	
Phenol	< 0.0020	0.0258	0.0300	0.1000	0.0020	42.0	15.1	25.8	30.0	12-89	
Pyrene	< 0.0040	0.0898	0.0906	0.1000	0.0040	31.0	0.9	89.8	90.6	26-127	
1,2,4-Trichlorobenzene	< 0.0020	0.0778	0.0820	0.1000	0.0020	28.0	5.3	77.8	82.0	39-98	

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

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

XENCO Laboratories

Certificate Of Quality Control for Batch : 17A02C51

SW- 846 8015 M TPH- DRO (Diesel)

Date Validated: Oct 22, 1997 12:10
Date Analyzed: Oct 22, 1997 02:53
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: MM
Matrix: Liquid

BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY

Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Duplicate Result mg/L	[D] Blank Spike Amount mg/L	[E] Method Detection Limit mg/L	Blank Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Blank Spike Recovery %	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	[J] Qualifier
Total Petroleum Hydrocarbons	< 0.20	2.02	2.18	2.00	0.20	25.0	7.6	101.0	109.0	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.
QA/QC Manager

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 710034
Project Manager: Theresa Nix
Project Location: TNMPL JAL

Project Name: TNMPL

XENCO COC#: 1-72543
Date Received in Lab: Oct 21, 1997 10:00 by AS
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	172543-001	BTEX	SW-846	ppm	Standard	Oct 20, 1997 13:35		Oct 22, 1997 by OR	Oct 23, 1997 01:12 by OR
2		172543-002	SV-TCL	SW846-8270	mg/L	Standard	Oct 20, 1997 13:35		Oct 22, 1997 by RK	Oct 22, 1997 21:34 by LC
3	MW-2	172543-003	BTEX	SW-846	ppm	Standard	Oct 20, 1997 13:59		Oct 22, 1997 by OR	Oct 23, 1997 01:30 by OR
4		172543-004	SV-TCL	SW846-8270	mg/L	Standard	Oct 20, 1997 13:59		Oct 22, 1997 by RK	Oct 22, 1997 22:21 by LC
5	MW-3	172543-005	BTEX	SW-846	ppm	Standard	Oct 20, 1997 13:45		Oct 22, 1997 by OR	Oct 23, 1997 01:48 by OR
6		172543-006	SV-TCL	SW846-8270	mg/L	Standard	Oct 20, 1997 13:45		Oct 22, 1997 by RK	Oct 22, 1997 23:07 by LC
7	6" WW	172543-007	BTEX	SW-846	ppm	Standard	Oct 20, 1997 11:15		Oct 22, 1997 by OR	Oct 23, 1997 02:06 by OR
8		172543-008	SV-TCL	SW846-8270	mg/L	Standard	Oct 20, 1997 11:15		Oct 22, 1997 by RK	Oct 22, 1997 23:54 by LC
9	South Windmill	172543-009	BTEX	SW-846	ppm	Standard	Oct 20, 1997 11:20		Oct 22, 1997 by OR	Oct 23, 1997 02:24 by OR
10		172543-010	TPH8015M-D	SW-846 8015 M	mg/L	Standard	Oct 20, 1997 11:20		Oct 21, 1997 by CY	Oct 22, 1997 04:19 by MM
11	North Windmill	172543-011	BTEX	SW-846	ppm	Standard	Oct 20, 1997 14:17		Oct 22, 1997 by OR	Oct 23, 1997 02:42 by OR
12		172543-012	TPH8015M-D	SW-846 8015 M	mg/L	Standard	Oct 20, 1997 14:17		Oct 21, 1997 by CY	Oct 22, 1997 04:48 by MM

XENCO Laboratories

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 2

Lab. Batch # 177543-H

Contractor: K-E-I Consultants Phone (210) 680-3767

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

Project Name: TNMPL Project Director: Mike Hawthorn

Project Location: TNMPL JAL Project Manager: Theresa Nix

Sampler Signature: Stanley Hoover Project No.: 710034

No. coolers this shipment: Contractor COC #

Carrier: UPS Quote #:

Airbill No. P.O. No: 8146

SAMPLE CHARACTERIZATION

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	No of Containers Total	BTEX (8260/8020)	TPH (418.1)	Semi-Vol.	Please Hold	Lab ID #
1	MW-1	10/20 97	1335			X		X			X	HCl	2	X				1
2	MW-1	10/20 97	1335			X		X			X		1		X			2
3	MW-2	10/20 97	1359			X		X			X	HCl	2	X				3
4	MW-2	10/20 97	1359			X		X			X		1		X			4
5	MW-3	10/20 97	1345			X		X			X	HCl	2	X				5
6	MW-3	10/20 97	1345			X		X			X		1		X			6
7	6" WW	10/20 97	1115			X		X			X	HCl	2	X				7
8	6" WW	10/20 97	1115			X		X			X		1		X			8
9																		9
10																		10

Unl Dies Ker Unknown

Waste Oil

PIT No: Tank No:

Sample Description

Turn-around
- ASAP
- 24 hrs
- 48 hrs
- (Standard)

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Stanley Hoover	10/20/97	1630			
			Received For Laboratory by: Lynn L Sands	10/21/97	10:00

Remarks
Please send analytical Results
TO Theresa Nix
Fax 1 830-591-1476
Phone 1 210-680-3767

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 # 172543-4

Contractor: K.e.i Consultants Phone (210) 680-3767

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

Project Name: TNMSL Project Director: Mike Hawthorn

Project Location: JAL Project Manager: Theresa NIX

Sampler Signature: Stanley Hoven Project No.: 710034

No. coolers this shipment: Contractor COC #

Carrier: UPS Quote #:

Airbill No. P.O. No: 8146

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No of Containers Total	BTEX (8020/602)	TPH (418.1)	8015 MOD	Please Hold	Remarks	LAB ONLY ID #
1	South Wind Mill	10-20-97	1120			X		X			X	HCl		2	X					1
2	South Wind Mill	10-20-97	1120			X		X			X	HCl		1		X				2
3	North Wind Mill	10-20-97	1417			X		X			X	HCl		2	X					3
4	North Wind Mill	10-20-97	1417			X		X			X	HCl		1		X				4
5																				5
6																				6
7																				7
8																				8
9																				9
10																				10

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

Waste Oil PIT No: Tank No:

Unl Dies Ker Unknown

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Stanley Hoven	10-20-97	1630			
			Received For Laboratory by: Glenn R. Spruell	10/21/97	10:00

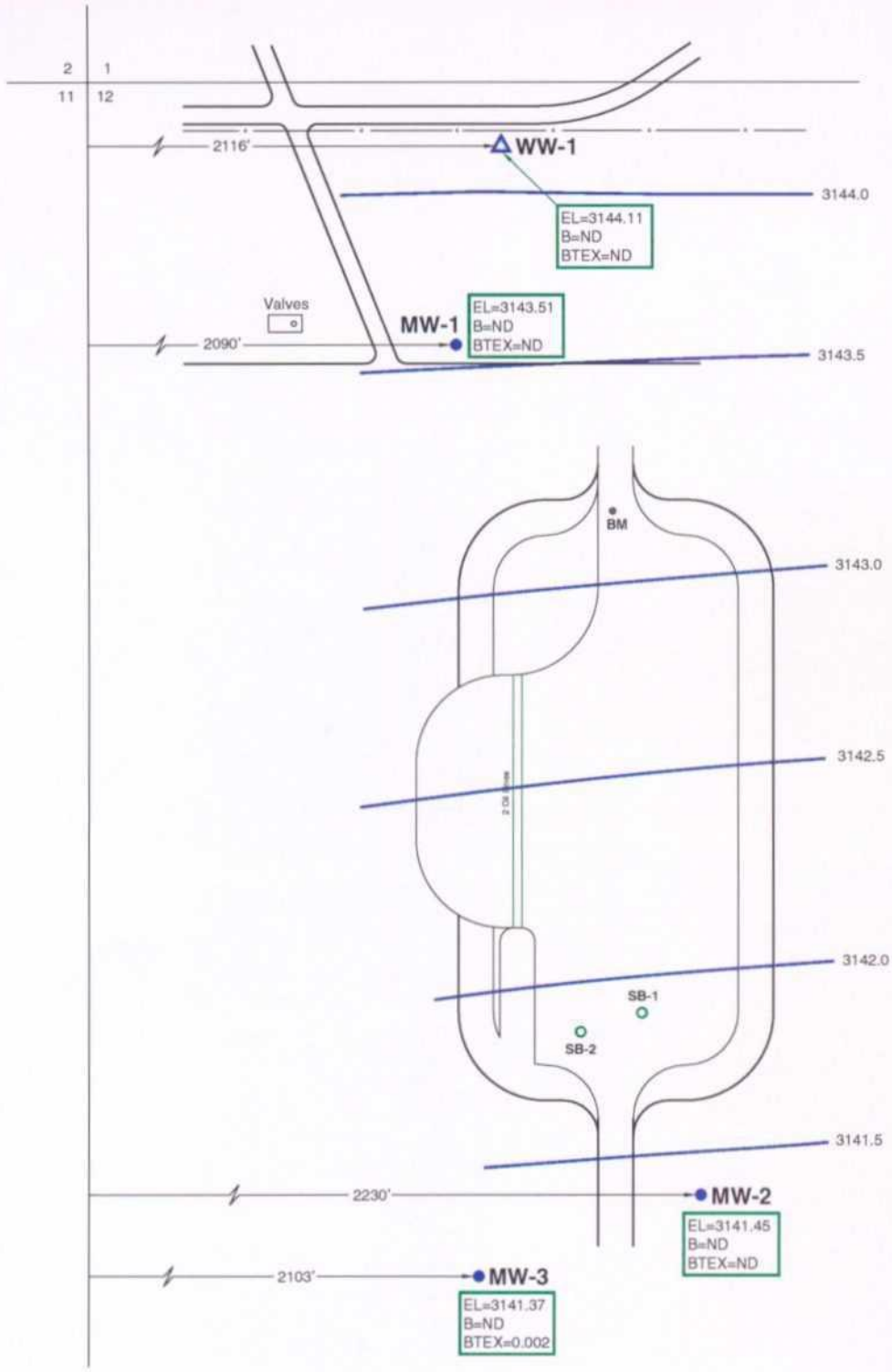
Remarks

Please Fax to Theresa NIX
Fax: 830-591-1476
Phone: 210-680-3767

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

* Pre-scheduling is recommended

Precision Analytical Services



Approximate Scale: 1"=100'

0 50 100

NOTE: Adjacent properties are not to scale.

LEGEND

- Monitoring Well Location
- Soil Boring Location
- Water Well Location
- Contour Interval = 0.5 feet
- EL = Ground water elevation (feet) calculated from measurements obtained on January 14, 1998.
- ND = Indicates constituent was below laboratory reporting limits.
- B = Benzene Concentration (mg/l)
- BTEX = Total Benzene, Toluene, Ethylbenzene, and Xylenes Concentration (mg/l)

NOTE:
Ground water samples were collected on January 14, 1998.

k·e·i

GROUND WATER CONTOURS/CONCENTRATIONS - JANUARY 14, 1998			710034
TNMPL	TNM-97-16	LEA COUNTY, NEW MEXICO	FIG 1

ANALYTICAL REPORT 1-80147

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: JAL

Project Id: 710034

January 20, 1998

XENCO Laboratories

HOUSTON - DALLAS - SAN ANTONIO

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

XENCO Laboratories

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

January 20, 1998

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

Reference: **XENCO Report No.: 1-80147**
Project Name: JAL
Project ID: 710034
Project Address: Jal, 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 1-80147. 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, and completeness.

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. 1-80147 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 Laboratories is accredited by the American Association for Laboratory Accreditation (A2LA) for technical competence in the field of Environmental Testing (Certificate No. 0343-01). In accordance with A2LA's guidelines, XENCO operates a Quality System that meets ISO/IEC Guide 25 requirements and 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 Yohemoto, Ph.D.
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80147

K.E.I. Consultants, Inc.

Project Name: JAL

Project ID: 710034
Project Manager: Theresa Nix
Project Location: Jal, NM

Date Received in Lab : Jan 16, 1998 09:30
Date Report Faxed: Jan 20, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180147 001 MW-1 Liquid 01/14/98 14:23	180147 002 MW-2 Liquid 01/14/98 15:00	180147 003 MW-3 Liquid 01/14/98 14:40	180147 004 6"WW Liquid 01/14/98 14:05
BTEX **EPA 8020**	*Analyzed:* *Units:*	01/19/98 ppm R.L.	01/19/98 ppm R.L.	01/19/98 ppm R.L.	01/19/98 ppm R.L.
Benzene		< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
Toluene		< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
Ethylbenzene		< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
m,p-Xylenes		< 0.002 (0.002)	< 0.002 (0.002)	0.002 (0.002)	< 0.002 (0.002)
o-Xylene		< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
Total BTEX		N.D.	N.D.	0.002	N.D.

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A18

SW- 846 5030/8020 BTEX

Date Validated: Jan 19, 1998 17:30
Date Analyzed: Jan 19, 1998 10:39
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Liquid

	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	0.1030	0.1000	0.0010	103.0	65-135	
Toluene	< 0.0010	0.1050	0.1000	0.0010	105.0	65-135	
Ethylbenzene	< 0.0010	0.1080	0.1000	0.0010	108.0	65-135	
m,p-Xylenes	< 0.0020	0.2200	0.2000	0.0020	110.0	65-135	
o-Xylene	< 0.0010	0.1060	0.1000	0.0010	106.0	65-135	

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

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A18

SW- 846 5030/8020 BTEX

Date Validated: Jan 19, 1998 17:30
Date Analyzed: Jan 19, 1998 11:16
QA/QC Manager: Edward H. Yonemoto, Ph.D.

Analyst: HL
Matrix: Liquid

	MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY										
Q.C. Sample ID 180147- 001	[A] Sample Result	[B] Matrix Spike Result	[C] Matrix Spike Duplicate Result	[D] Matrix Spike Amount	[E] Method Detection Limit	Matrix Limit Relative Difference	[F] QC Spike Relative Difference	[G] QC Matrix Spike Recovery	[H] QC M.S.D. Recovery	[I] Matrix Spike Recovery Range	[J] Qualifier
Parameter	ppm	ppm	ppm	ppm	ppm	_ %	%	%	%	%	
Benzene	< 0.0010	0.1020	0.1060	0.1000	0.0010	20.0	3.8	102.0	106.0	65-135	
Toluene	< 0.0010	0.1000	0.1040	0.1000	0.0010	20.0	3.9	100.0	104.0	65-135	
Ethylbenzene	< 0.0010	0.1090	0.1130	0.1000	0.0010	20.0	3.6	109.0	113.0	65-135	
m,p-Xylenes	< 0.0020	0.2320	0.2400	0.2000	0.0020	20.0	3.4	116.0	120.0	65-135	
o-Xylene	< 0.0010	0.1090	0.1130	0.1000	0.0010	20.0	3.6	109.0	113.0	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

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 710034
Project Manager: Theresa Nix
Project Location: Jal, NM

Project Name: JAL

XENCO COC#: 1-80147
Date Received in Lab: Jan 16, 1998 09:30 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
1	MW-1	180147-001	BTEX	SW-846	ppm	3 days	Jan 14, 1998 14:23		Jan 19, 1998 by HL	Jan 19, 1998 11:16 by HL
2	MW-2	180147-002	BTEX	SW-846	ppm	3 days	Jan 14, 1998 15:00		Jan 19, 1998 by HL	Jan 19, 1998 12:14 by HL
3	MW-3	180147-003	BTEX	SW-846	ppm	3 days	Jan 14, 1998 14:40		Jan 19, 1998 by HL	Jan 19, 1998 12:33 by HL
4	6"WW	180147-004	BTEX	SW-846	ppm	3 days	Jan 14, 1998 14:05		Jan 19, 1998 by HL	Jan 19, 1998 12:52 by HL

XENCO Laboratories

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 1

Lab. Batch # 180147-SA

Contractor: K.C.I. Consultants Phone: (210) 680-3767

Address: 5309 Wurzbach, Suite 100 San Antonio

Project Name: JAL Project Director: Mike Hawthorne

Project Location: JAL, NM Project Manager: Theresa Nix

Sampler Signature: Stanley Graver Project No.: 710034

No. coolers this shipment: Contractor COC #

Carrier: UPS Quote #:

Airbill No. P.O. No.: 8573

SAMPLE CHARACTERIZATION

Preservative

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	EPA method SW 846-8020 BTEX (8030/8020-602)	TPH (418.1)											Please Hold	Remarks	LAB ONLY ID #
1	mw-1	1-14-98	14:23			/			40ml		/	HCl		2	/													1
2	mw-2	1-14-98	15:00			/			40ml		/	HCl		2	/													2
3	mw-3	1-14-98	14:40			/			40ml		/	HCl		2	/													3
4	½" ww	1-14-98	14:05			/			40ml		/	HCl		2	/													4
5																												5
6																												6
7																												7
8																												8
9																												9
10																												10

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

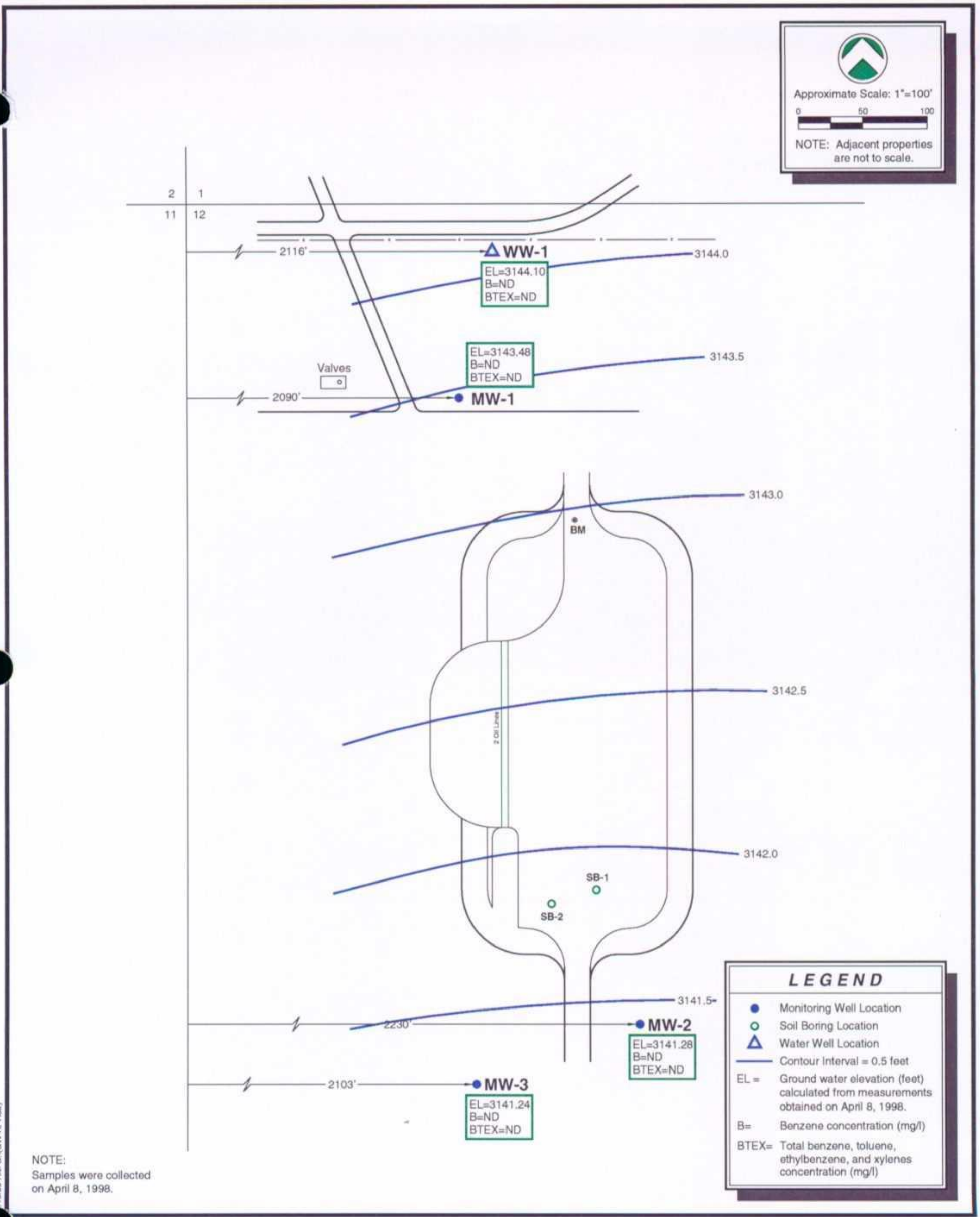
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Stanley Graver	1-15-98	1600			
			Received For Laboratory by: UPS Jenni Yordy	1/16/98	930

Remarks:
EPA method SW 846-8020
Please Fax Analytical Results to
Theresa Nix @ 680-3763
Please fax a copy to
Stan Graver 505-392-2065

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

* Pre-scheduling is recommended

Precision Analytical Services



k·e·i

GROUND WATER CONTOURS / CONCENTRATIONS - APRIL 1998		710034
TNMPL TNM-97-16	LEA COUNTY, NEW MEXICO	FIG 1

ANALYTICAL REPORT 1-81315

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: JAL-TNM 97-16

Project Id: 710034-1-0-0

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.: 1-81315**
Project Name: JAL-TNM 97-16
Project ID: 710034-1-0-0
Project Address: Jal, 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 1-81315. 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. 1-81315 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 Yamamoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-81315

K.E.I. Consultants, Inc.

Project Name: JAL-TNM 97-16

Project ID: 710034-1-0-0
Project Manager: Theresa Nix
Project Location: Jal, 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:*	181315 001		181315 002		181315 003		181315 004	
	Field ID:	MW-1		MW-2		MW-3		6"H2O-Well	
	Depth:								
	Matrix:	Liquid		Liquid		Liquid		Liquid	
	Sampled:	04/08/98 10:37		04/08/98 10:05		04/08/98 10:23		04/08/98 10:55	
Metals by ICP EPA 6010	*Analyzed:*	04/14/98		04/14/98		04/14/98		04/14/98	
	Units:	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.
Aluminum		< 0.50	(0.50)	2.02	(0.50)	< 0.50	(0.50)	< 0.50	(0.50)
Arsenic		< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)
Barium		< 0.080	(0.080)	< 0.080	(0.080)	< 0.080	(0.080)	< 0.080	(0.080)
Beryllium		< 0.020	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)	< 0.020	(0.020)
Boron		0.73	(0.20)	0.55	(0.20)	0.53	(0.20)	< 0.20	(0.20)
Cadmium		< 0.010	(0.010)	< 0.010	(0.010)	< 0.010	(0.010)	< 0.010	(0.010)
Calcium		185	(2.0)	177	(2.0)	208	(2.0)	74.7	(2.0)
Chromium		< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)
Cobalt		< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)
Copper		< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)
Iron		< 0.20	(0.20)	0.52	(0.20)	< 0.20	(0.20)	< 0.20	(0.20)
Lead		< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)
Magnesium		34.5	(0.2)	39.6	(0.2)	40.5	(0.2)	34.3	(0.2)
Manganese		0.73	(0.05)	0.91	(0.05)	0.36	(0.05)	< 0.050	(0.050)
Molybdenum		< 0.50	(0.50)	< 0.50	(0.50)	< 0.50	(0.50)	< 0.50	(0.50)
Nickel		< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)
Potassium		6.52	(1.00)	6.27	(1.00)	5.51	(1.00)	5.72	(1.00)
Selenium		< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)
Silicon		49.4	(0.5)	49.6	(0.5)	44.3	(0.5)	43.3	(0.5)
Silver		< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)	< 0.050	(0.050)
Sodium		285	(2.0)	220	(2.0)	200	(2.0)	208	(2.0)
Strontium		2.94	(0.20)	3.03	(0.20)	3.53	(0.20)	< 0.20	(0.20)
Tin		< 0.20	(0.20)	< 0.20	(0.20)	< 0.20	(0.20)	< 0.20	(0.20)
Vanadium		< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)	< 0.10	(0.10)
Zinc		< 1.00	(1.00)	< 1.00	(1.00)	< 1.00	(1.00)	< 1.00	(1.00)
Total Mercury EPA 7470	*Analyzed:*	04/15/98		04/15/98		04/15/98		04/15/98	
	Units:	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	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:*	04/10/98		04/10/98		04/10/98		04/10/98	
	Units:	ppm	R.L.	ppm	R.L.	ppm	R.L.	ppm	R.L.
Benzene		< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)
Toluene		< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)
Ethylbenzene		< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)
m,p-Xylenes		< 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 1-81315

K.E.I. Consultants, Inc.

Project Name: JAL-TNM 97-16

Project ID: 710034-1-0-0
Project Manager: Theresa Nix
Project Location: Jal, 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:*	181315 001		181315 002		181315 003		181315 004	
	Field ID:	MW-1		MW-2		MW-3		6"H2O-Well	
	Depth:								
	Matrix:	Liquid		Liquid		Liquid		Liquid	
	Sampled:	04/08/98 10:37		04/08/98 10:05		04/08/98 10:23		04/08/98 10:55	
EPA 8020	*Analyzed:*	04/10/98		04/10/98		04/10/98		04/10/98	
	Units:	ppm	R.L.	ppm	R.L.	ppm	R.L.	ppm	R.L.
o-Xylene		< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)	< 0.001	(0.001)
Total BTEX			N.D.		N.D.		N.D.		N.D.
PAHs by GC-MS (610 List)	*Analyzed:*	04/11/98		04/11/98		04/11/98		04/11/98	
EPA 8270	*Units:*	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	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)
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)	< 0.002	(0.002)	< 0.002	(0.002)	< 0.002	(0.002)
Pyrene		< 0.002	(0.002)	< 0.002	(0.002)	< 0.002	(0.002)	< 0.002	(0.002)
Bicarbonate	*Analyzed:*	04/13/98		04/13/98		04/13/98		04/13/98	
SM 4500CO2D	*Units:*	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.
Bicarbonate		204	(1.0)	176	(1.0)	183	(1.0)	188	(1.0)
Carbonate	*Analyzed:*	04/13/98		04/13/98		04/13/98		04/13/98	
SM4500CO2D	*Units:*	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.
Carbonate		< 1.0	(1.0)	< 1.0	(1.0)	< 1.0	(1.0)	< 1.0	(1.0)
Total Dissolved Solids	*Analyzed:*	04/14/98		04/14/98		04/14/98		04/14/98	
EPA 160.1	*Units:*	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.
Total Dissolved Solids		1370	(4.0)	1270	(4.0)	1140	(4.0)	1200	(4.0)
Anions by Ion Chromatography	*Analyzed:*	04/14/98		04/14/98		04/14/98		04/14/98	
EPA 300.0	*Units:*	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.	mg/L	R.L.
Chloride		228	(2.00)	210	(2.00)	171	(2.00)	187	(2.00)
Sulfate		363	(2.0)	333	(2.0)	294	(2.0)	315	(2.0)

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 Blank Spike Recovery %	[F] 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	

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 : 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 18314- 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	%	%	
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

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

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 14:46
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
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 : 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 181314- 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

Houston Dallas San Antonio

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 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 : 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 : 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. Tonemoto, 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 14:00
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 H. 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 181315- 001	[A] Sample Result	[B] Duplicate Result	[C]	[D] QC LIMITS	[E]	[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
Analyst: SS
Date Analyzed: Apr 14, 1998 11:21
Matrix: Liquid
QA/QC Manager: Sunil Ajai, M.S.

	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

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

ANALYTICAL CHAIN CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 710034-1-0-0
Project Manager: Theresa Nix
Project Location: Jal, NM

Project Name: JAL-TNM 97-16

XENCO COC#: 1-81315
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-1	181315-001	BTEX	SW-846	ppm	3 days	Apr 8, 1998 10:37		Apr 10, 1998 by HL	Apr 10, 1998 11:54 by HL
2			PAHs	SW846-8270	mg/L	5 days	Apr 8, 1998 10:37		Apr 10, 1998 by SS	Apr 11, 1998 04:22 by LC
3			TDS	EPA 160.1	mg/L	5 days	Apr 8, 1998 10:37		Apr 13, 1998 by IF	Apr 14, 1998 10:15 by IF
4			Metals (ICP)	EPA 6010	mg/L	7 days	Apr 8, 1998 10:37		Apr 14, 1998 by AO	Apr 14, 1998 19:38 by MB
5			Anions	EPA 300.0	mg/L	7 days	Apr 8, 1998 10:37		Apr 14, 1998 by SA	Apr 14, 1998 11:37 by SS
6			Carbonate	SM4500CO2D	mg/L	7 days	Apr 8, 1998 10:37		Apr 13, 1998 by IF	Apr 13, 1998 14:50 by IF
7			Bicarbonate	SM 4500CO2D	mg/L	7 days	Apr 8, 1998 10:37		Apr 13, 1998 by IF	Apr 13, 1998 14:50 by IF
8			Mercury, Tot	SW846-7470	mg/L	Standard	Apr 8, 1998 10:37		Apr 14, 1998 by AO	Apr 15, 1998 15:07 by AO
9	MW-2	181315-002	BTEX	SW-846	ppm	3 days	Apr 8, 1998 10:05		Apr 10, 1998 by HL	Apr 10, 1998 12:14 by HL
10			PAHs	SW846-8270	mg/L	5 days	Apr 8, 1998 10:05		Apr 10, 1998 by SS	Apr 11, 1998 05:06 by LC
11			TDS	EPA 160.1	mg/L	5 days	Apr 8, 1998 10:05		Apr 13, 1998 by IF	Apr 14, 1998 10:25 by IF
12			Metals (ICP)	EPA 6010	mg/L	7 days	Apr 8, 1998 10:05		Apr 14, 1998 by AO	Apr 14, 1998 19:44 by MB
13			Anions	EPA 300.0	mg/L	7 days	Apr 8, 1998 10:05		Apr 14, 1998 by SA	Apr 14, 1998 11:44 by SS
14			Carbonate	SM4500CO2D	mg/L	7 days	Apr 8, 1998 10:05		Apr 13, 1998 by IF	Apr 13, 1998 15:00 by IF
15			Bicarbonate	SM 4500CO2D	mg/L	7 days	Apr 8, 1998 10:05		Apr 13, 1998 by IF	Apr 13, 1998 15:00 by IF
16			Mercury, Tot	SW846-7470	mg/L	Standard	Apr 8, 1998 10:05		Apr 14, 1998 by AO	Apr 15, 1998 14:58 by AO
17	MW-3	181315-003	BTEX	SW-846	ppm	3 days	Apr 8, 1998 10:23		Apr 10, 1998 by HL	Apr 10, 1998 12:33 by HL
18			PAHs	SW846-8270	mg/L	5 days	Apr 8, 1998 10:23		Apr 10, 1998 by SS	Apr 11, 1998 05:51 by LC
19			TDS	EPA 160.1	mg/L	5 days	Apr 8, 1998 10:23		Apr 13, 1998 by IF	Apr 14, 1998 10:30 by IF
20			Metals (ICP)	EPA 6010	mg/L	7 days	Apr 8, 1998 10:23		Apr 14, 1998 by AO	Apr 14, 1998 19:50 by MB
21			Anions	EPA 300.0	mg/L	7 days	Apr 8, 1998 10:23		Apr 14, 1998 by SA	Apr 14, 1998 11:14 by SS
22			Carbonate	SM4500CO2D	mg/L	7 days	Apr 8, 1998 10:23		Apr 13, 1998 by IF	Apr 13, 1998 15:10 by IF
23			Bicarbonate	SM 4500CO2D	mg/L	7 days	Apr 8, 1998 10:23		Apr 13, 1998 by IF	Apr 13, 1998 15:10 by IF
24			Mercury, Tot	SW846-7470	mg/L	Standard	Apr 8, 1998 10:23		Apr 14, 1998 by AO	Apr 15, 1998 14:59 by AO
25	6" H2O Well	181315-004	BTEX	SW-846	ppm	3 days	Apr 8, 1998 10:55		Apr 10, 1998 by HL	Apr 10, 1998 10:37 by HL
26			PAHs	SW846-8270	mg/L	5 days	Apr 8, 1998 10:55		Apr 10, 1998 by SS	Apr 11, 1998 06:37 by LC
27			TDS	EPA 160.1	mg/L	5 days	Apr 8, 1998 10:55		Apr 13, 1998 by IF	Apr 14, 1998 10:35 by IF
28			Metals (ICP)	EPA 6010	mg/L	7 days	Apr 8, 1998 10:55		Apr 14, 1998 by AO	Apr 14, 1998 19:56 by MB

XENCO Laboratories

ANALYTICAL CHAIN CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 710034-1-0-0
Project Manager: Theresa Nix
Project Location: Jal, NM

Project Name: JAL-TNM 97-16

XENCO COC#: 1-81315
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
29			Anions	EPA 300.0	mg/L	7 days	Apr 8, 1998 10:55		Apr 14, 1998 by SA	Apr 14, 1998 11:21 by SS
30			Carbonate	SM4500CO2D	mg/L	7 days	Apr 8, 1998 10:55		Apr 13, 1998 by IF	Apr 13, 1998 15:20 by IF
31			Bicarbonate	SM 4500CO2D	mg/L	7 days	Apr 8, 1998 10:55		Apr 13, 1998 by IF	Apr 13, 1998 15:20 by IF
32			Mercury, Tot	SW846-7470	mg/L	Standard	Apr 8, 1998 10:55		Apr 14, 1998 by AO	Apr 15, 1998 15:03 by AO

XENCO Laboratories

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 1

Lab. Batch # 1315-SA

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

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

Project Name: JAL-TNM 97-16 Project Director: MIKE HAWTHORNE

Project Location: JAL, NM Project Manager: THERESA NIX

Sampler Signature: Project No.: 71034-1-0-0

No. coolers this shipment: 2 Contractor COC #: 132

Carrier: UPS Quote #:

Airbill No. P.O. No.: 8873

Field ID	Date	Time	DEPTH	SOIL	WATER	COMP	GRAB	Container Size	Container Type P, G	Preservative Ice	Preservative Other	No of CONTAINERS Total	BTEX (EPA METHOD 5030/8020-602)	TPH (418.1)	PAH (EPA METHOD 8100 OR 8270)	TDS (EPA METHOD 160.1)	CATIONS/ANIONS	HEAVY METALS (ICP SCAN)	Please Hold	LAB ONLY ID #
1 MW-1	4/8/98	1037			X		X			X	HCL HNO3	6	X	X	X	X	X	X		1
2 MW-2	4/8/98	1005			X		X			X	HCL HNO3	6	X	X	X	X	X	X		2
3 MW-3	4/8/98	1023			X		X			X	HCL HNO3	6	X	X	X	X	X	X		3
4 6" H2O WELL	4/8/98	1055			X		X			X	HCL HNO3	6	X	X	X	X	X	X		4
5																				5
6																				6
7																				7
8																				8
9																				9
10																				10

SAMPLE CHARACTERIZATION

Unl Dies Ker Unknown

Waste Oil

PIT No: Tank No:

Sample Description

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

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Kenneth P Whittle	4/8/98				
			Received For Laboratory by:	4/9/98	10:30

Remarks:
FAX RESULTS TO:
THERESA NIX @ (210) 680-3763

• ICP SCAN FOR HEAVY METALS

→ Via UPS

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

* Pre-scheduling is recommended

Precision Analytical Services

TABLE I

SUMMARY OF LABORATORY RESULTS - GROUND WATER
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

MONITORING WELL NO.	DATE SAMPLED	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYL-BENZENE (mg/l)	XYLENES (mg/l)	BTEX (mg/l)	TPH (mg/l)
Area "A" (R.W.)	10/13/97	ND	0.002	0.002	0.006	0.010	---
MW-1	10/20/97	0.003	0.003	0.003	0.010	0.019	---
MW-1	01/14/98	ND	ND	ND	ND	ND	---
MW-1	04/08/98	ND	ND	ND	ND	ND	---
MW-1	07/14/98	ND	ND	ND	ND	ND	---
MW-2	10/20/97	ND	0.002	0.001	0.007	0.010	---
MW-2	01/14/98	ND	ND	ND	ND	ND	---
MW-2	04/08/98	ND	ND	ND	ND	ND	---
MW-2	07/14/98	0.006	ND	ND	0.001	0.007	---
MW-3	10/20/97	ND	ND	ND	ND	ND	---
MW-3	01/14/98	ND	ND	ND	0.002	0.002	---
MW-3	04/08/98	ND	ND	ND	ND	ND	---
MW-3	07/14/98	ND	ND	ND	ND	ND	---
WW-1	10/20/97	ND	ND	ND	ND	ND	---
WW-1	01/14/98	ND	ND	ND	ND	ND	---
WW-1	04/08/98	ND	ND	ND	ND	ND	---
WW-1	07/14/98	ND	ND	ND	ND	ND	---
SOUTH WINDMILL	10/20/97	ND	0.002	ND	ND	0.002	ND
NORTH WINDMILL	10/20/97	ND	0.002	0.001	0.005	0.008	ND
Excavation Water	06/02/98	0.242	0.222	0.179	0.302	0.945	---

TABLE II

MONITORING WELL MW-1
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3163.59	20.12	3143.47	—	—
11/04/97	3163.59	20.20	3143.39	—	—
12/02/97	3163.59	20.12	3143.47	—	—
01/01/98	3163.59	20.07	3143.52	—	—
01/14/98	3163.59	20.08	3143.51	—	—
02/02/98	3163.59	20.03	3143.56	—	—
03/06/98	3163.59	20.09	3143.50	—	—
04/08/98	3163.59	20.11	3143.48	—	—
05/01/98	3163.59	20.14	3143.45	—	—
06/02/98	3163.59	20.37	3143.22	—	—
07/14/98	3163.59	20.28	3143.31	—	—
08/04/98	3163.59	20.32	3143.27	—	—

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OIL CONSERVATION DIVISION

TABLE II
(continued)

MONITORING WELL MW-2
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3162.29	20.86	3141.43	—	—
11/04/97	3162.29	20.98	3141.31	—	—
12/02/97	3162.29	20.93	3141.36	—	—
01/01/98	3162.29	20.89	3141.40	—	—
01/14/98	3162.29	20.84	3141.45	—	—
02/02/98	3162.29	20.86	3141.43	—	—
03/06/98	3162.29	20.98	3141.31	—	—
04/08/98	3162.29	21.01	3141.28	—	—
05/01/98	3162.29	20.94	3141.35	—	—
06/02/98	3162.29	21.16	3141.13	—	—
07/14/98	3162.29	21.25	3141.04	—	—
08/04/98	3162.29	21.29	3141.00	—	—

TABLE II
(continued)

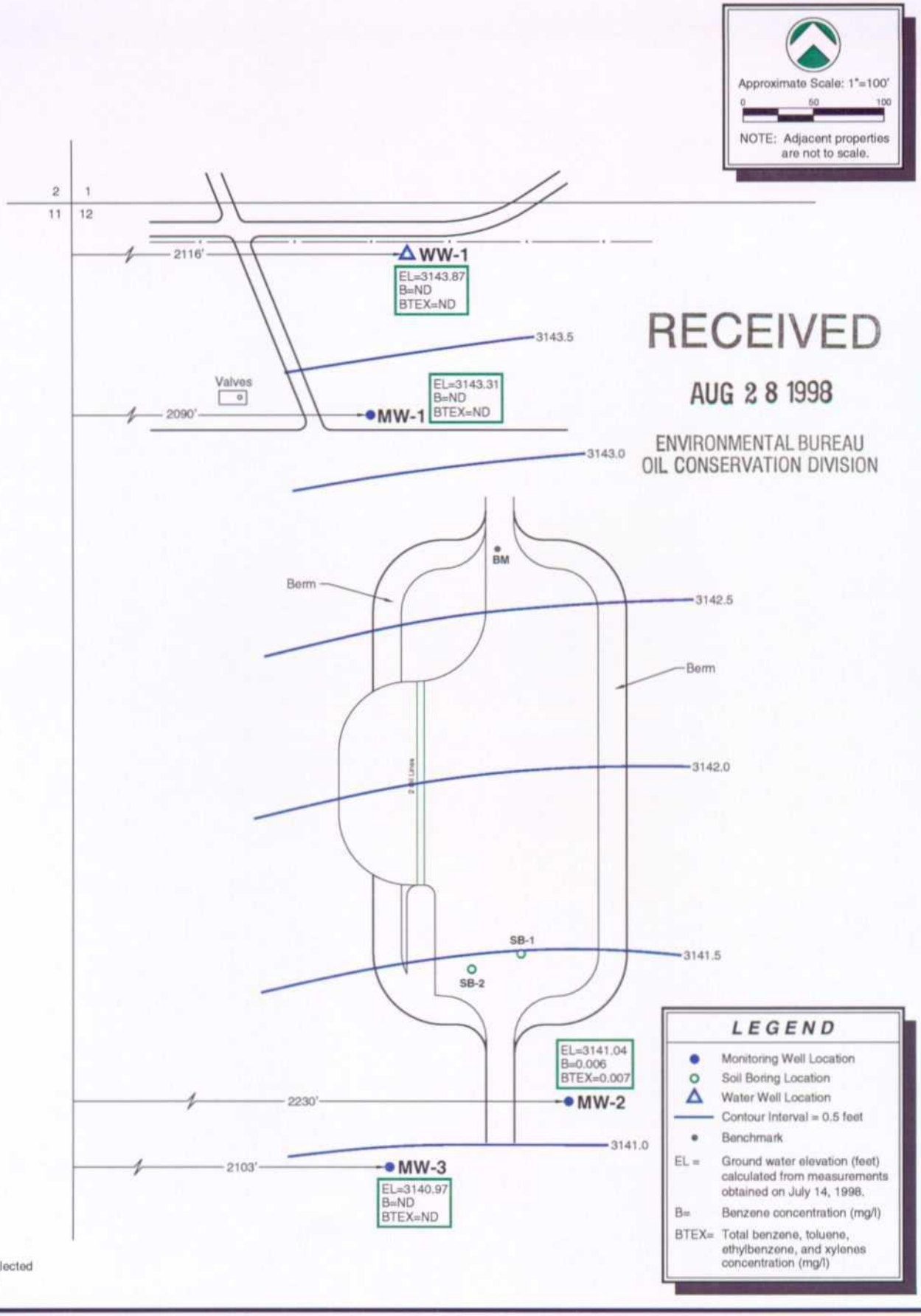
MONITORING WELL MW-3
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3162.15	20.78	3141.37	---	---
11/04/97	3162.15	20.88	3141.27	---	---
12/02/97	3162.15	20.84	3141.31	---	---
01/01/98	3162.15	20.80	3141.35	---	---
01/14/98	3162.15	20.78	3141.37	---	---
02/02/98	3162.15	20.75	3141.40	---	---
03/06/98	3162.15	20.94	3141.21	---	---
04/08/98	3162.15	20.91	3141.24	---	---
05/01/98	3162.15	20.83	3141.32	---	---
06/02/98	3162.15	21.02	3141.13	---	---
07/14/98	3162.15	21.18	3140.97	---	---
08/04/98	3162.15	21.26	3140.89	---	---

TABLE II
(continued)

WATER WELL
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3164.988	18.19	3146.80	—	—
11/04/97	3164.988	20.96	3144.03	—	—
12/02/97	3164.988	20.93	3144.06	—	—
01/01/98	3164.988	20.88	3144.11	—	—
01/14/98	3164.988	20.88	3144.11	—	—
02/02/98	3164.988	20.85	3144.14	—	—
03/06/98	3164.988	20.87	3144.12	—	—
04/08/98	3164.988	20.89	3144.10	—	—
05/01/98	3164.988	20.89	3144.10	—	—
06/02/98	3164.988	21.08	3143.91	—	—
07/14/98	3164.988	21.12	3143.87	—	—
08/04/98	3164.988	21.18	3143.81	—	—



NOTE:
Samples were collected on July 14, 1998.

k·e·i

GROUND WATER CONTOURS / CONCENTRATIONS - JULY 1998			710034
TNMPL	TNM-97-16	LEA COUNTY, NEW MEXICO	FIG 1

ANALYTICAL REPORT 1-82666

for

K.E.I. Consultants, Inc.

Project Manager: Theresa Nix

Project Name: JAL Site

Project Id: 710034-1-0

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July 17, 1998

XENCO Laboratories

HOUSTON - DALLAS - SAN ANTONIO

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

XENCO Laboratories

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

July 17, 1998

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

Reference: **XENCO Report No.: 1-82666**
Project Name: JAL Site
Project ID: 710034-1-0
Project Address: JAL, 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 1-82666. 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. 1-82666 will be filed for 60 days, and after that time they will be properly disposed of without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

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

Sincerely,

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-82666

K.E.I. Consultants, Inc.

Project Name: JAL Site

Project ID: 710034-1-0
Project Manager: Theresa Nix
Project Location: JAL, NM

Date Received in Lab : Jul 15, 1998 10:00
Date Report Faxed: Jul 17, 1998
XENCO contact : Carlos Castro/Eddie Clemons

Analysis Requested	*Lab ID:*	182666 001	182666 002	182666 003	182666 004
	Field ID:	6" WW	MW-1	MW-2	MW-3
	Depth:				
	Matrix:	Liquid	Liquid	Liquid	Liquid
	Sampled:	07/14/98 10:50	07/14/98 10:59	07/14/98 11:08	07/14/98 11:25
BTEX EPA 8020	*Analyzed:*	07/15/98	07/15/98	07/15/98	07/15/98
	Units:	ppm R.L.	ppm R.L.	ppm R.L.	ppm R.L.
Benzene		< 0.001 (0.001)	< 0.001 (0.001)	0.006 (0.001)	< 0.001 (0.001)
Toluene		< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
Ethylbenzene		< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
m,p-Xylenes		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)
o-Xylene		< 0.001 (0.001)	< 0.001 (0.001)	0.001 (0.001)	< 0.001 (0.001)
Total BTEX		N.D.	N.D.	0.007	N.D.

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Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25C29

SW- 846 5030/8020 BTEX

Date Validated: Jul 16, 1998 15:00
Date Analyzed: Jul 15, 1998 15:44

Analyst: HL
Matrix: Liquid

	BLANK SPIKE ANALYSIS						
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
					QC	LIMITS	
Parameter	Blank Result	Blank Spike Result	Blank Spike Amount	Detection Limit	Blank Spike Recovery	Recovery Range	Qualifier
	ppm	ppm	ppm	ppm	%	%	
Benzene	< 0.0010	0.1080	0.1000	0.0010	108.0	70-125	
Toluene	< 0.0010	0.1030	0.1000	0.0010	103.0	70-125	
Ethylbenzene	< 0.0010	0.1030	0.1000	0.0010	103.0	70-125	
m,p-Xylenes	< 0.0020	0.2140	0.2000	0.0020	107.0	70-125	
o-Xylene	< 0.0010	0.1060	0.1000	0.0010	106.0	70-125	

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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25C29

SW- 846 5030/8020 BTEX

Date Validated: Jul 16, 1998 15:00
Date Analyzed: Jul 15, 1998 16:32

Analyst: HL
Matrix: Liquid

MATRIX SPIKE / MATRIX SPIKE DUPLICATE AND RECOVERY

Q.C. Sample ID 182651- 022 / Parameter	[A] Sample Result ppm	[B] Matrix Spike Result ppm	[C] Matrix Spike Duplicate Result ppm	[D] Matrix Spike Amount ppm	[E] Detection Limit ppm	Matrix Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Matrix Spike Recovery %	[H] QC M.S.D. Recovery %	[I] Matrix Spike Recovery Range %	[J] Qualifier
Benzene	< 0.0010	0.0960	0.0995	0.1000	0.0010	20.0	3.6	96.0	99.5	70-125	
Toluene	< 0.0010	0.0993	0.0985	0.1000	0.0010	20.0	0.8	99.3	98.5	70-125	
Ethylbenzene	< 0.0010	0.0988	0.0979	0.1000	0.0010	20.0	0.9	98.8	97.9	70-125	
m,p-Xylenes	< 0.0020	0.2050	0.2050	0.2000	0.0020	20.0	0.0	102.5	102.5	70-125	
o-Xylene	< 0.0010	0.1020	0.1020	0.1000	0.0010	20.0	0.0	102.0	102.0	70-125	

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

Eddie L. Clemons, II
QA/QC Manager

XENCO Laboratories

ANALYTICAL CHAIN CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 710034-1-0
Project Manager: Theresa Nix
Project Location: JAL, NM

Project Name: JAL Site

XENCO COC#: 1-82666
Date Received in Lab: Jul 15, 1998 10:00 by CC
XENCO contact : Carlos Castro/Eddie Clemons

	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	6" WW	182666-001	BTEX	SW-846	ppm	10 days	Jul 14, 1998 10:50		Jul 15, 1998 by HL	Jul 15, 1998 18:24 by HL
2	MW-1	182666-002	BTEX	SW-846	ppm	10 days	Jul 14, 1998 10:59		Jul 15, 1998 by HL	Jul 15, 1998 18:40 by HL
3	MW-2	182666-003	BTEX	SW-846	ppm	10 days	Jul 14, 1998 11:08		Jul 15, 1998 by HL	Jul 15, 1998 18:56 by HL
4	MW-3	182666-004	BTEX	SW-846	ppm	10 days	Jul 14, 1998 11:25		Jul 15, 1998 by HL	Jul 15, 1998 19:12 by HL

XENCO Laboratories

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

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 1 of 1

Lab. Batch # 182666-SA

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

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

Project Name: JAL site | Project Director: Mike Hawthorne

Project Location: JAL, NM | Project Manager: Theresa Nix

Sampler Signature: Stanley Stoves | Project No.: 710034-1-0

No. coolers this shipment:

Carrier: UPS

Airbill No.

Contractor COC # 160

Quote #:

P.O. No.: 710034-1-0

	Field ID	Date	Time	Depth	Soil	Water	Comp	Grab	Container Size	Container Type P, G	Preservative Ice	Preservative Other	Sample Description	No of Containers Total	BTEX (5030/8020-602)	TPH (418.1)	Please Hold	Remarks	LAB ONLY ID #
1	6" WW	7-14-98	10:50			/		/	40ml		/	HCL		2	/			Call Theresa at 210-680-3767 if you have any questions.	1
2	MW-1	7-14-98	10:59			/		/	40 ML		/	HCL		2	/				2
3	MW-2	7-14-98	11:08			/		/	40 ML		/	HCL		2	/				3
4	MW-3	7-14-98	11:25			/		/	40 ML		/	HCL		2	/				4
5																			5
6																			6
7																			7
8																			8
9																			9
10																			10

SAMPLE CHARACTERIZATION

Unl Dies Ker Unknown

Waste Oil

PIT No: Tank No:

Turn-around: ASAP / 24 hrs / 48 hrs / Standard 10 days

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AUG 28 1998
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OIL CONSERVATION DIVISION

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Stanley Stoves	7-14-98	1500			
			Received For Laboratory by: Cortez	7/15/98	10:00

Remarks:
Fax Results to Theresa Nix at 210-680-3763
• BTEX: EPA method SW846-8020
(Via UPS) → (A310 185 538 6)

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

* Pre-scheduling is recommended

Precision Analytical Services

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

September 16, 1998

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

Re: Ground Water Monitoring Event
TNM-97-16
Section 12, Township 24 South, Range 37 East
Lea County, New Mexico
Job No. 710034-1

Dear Mr. Savoie:

Transmitted with this letter is the revised Table of Contents and FIGs. 2 and 3 that were inadvertently omitted from the ground water binder update packet for the third quarter of 1998 ground water monitoring event conducted at TNM-97-16. A copy has been submitted to OCD Hobbs and OCD Santa Fe.

Please remove and replace the former Table of Contents and add TABLE II. Add FIG. 2 and FIG. 3 behind the 98 QTR 3 tab.

Please call me at (210) 680-3767 if you have any questions or comments.

Respectfully,

Theresa Nix

Theresa Nix
Project Manager

Enclosure

cc: Marc Oler, TTTI
OCD Hobbs, Wayne Price
OCD Santa Fe, William Olson ✓
J. Michael Hawthorne, KEI

TABLE OF CONTENTS

TABLE II

MONITORING WELL MW-1
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3163.59	20.12	3143.47	---	---
11/04/97	3163.59	20.20	3143.39	---	---
12/02/97	3163.59	20.12	3143.47	---	---
01/01/98	3163.59	20.07	3143.52	---	---
01/14/98	3163.59	20.08	3143.51	---	---
02/02/98	3163.59	20.03	3143.56	---	---
03/06/98	3163.59	20.09	3143.50	---	---
04/08/98	3163.59	20.11	3143.48	---	---
05/01/98	3163.59	20.14	3143.45	---	---
06/02/98	3163.59	20.37	3143.22	---	---
07/14/98	3163.59	20.28	3143.31	---	---
08/04/98	3163.59	20.32	3143.27	---	---
09/12/98	3163.59	20.63	3142.96	---	---

TABLE II
(continued)

MONITORING WELL MW-2
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3162.29	20.86	3141.43	---	---
11/04/97	3162.29	20.98	3141.31	---	---
12/02/97	3162.29	20.93	3141.36	---	---
01/01/98	3162.29	20.89	3141.40	---	---
01/14/98	3162.29	20.84	3141.45	---	---
02/02/98	3162.29	20.86	3141.43	---	---
03/06/98	3162.29	20.98	3141.31	---	---
04/08/98	3162.29	21.01	3141.28	---	---
05/01/98	3162.29	20.94	3141.35	---	---
06/02/98	3162.29	21.16	3141.13	---	---
07/14/98	3162.29	21.25	3141.04	---	---
08/04/98	3162.29	21.29	3141.00	---	---
09/12/98	3162.29	21.69	3140.60	---	---

TABLE II
(continued)

MONITORING WELL MW-3
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

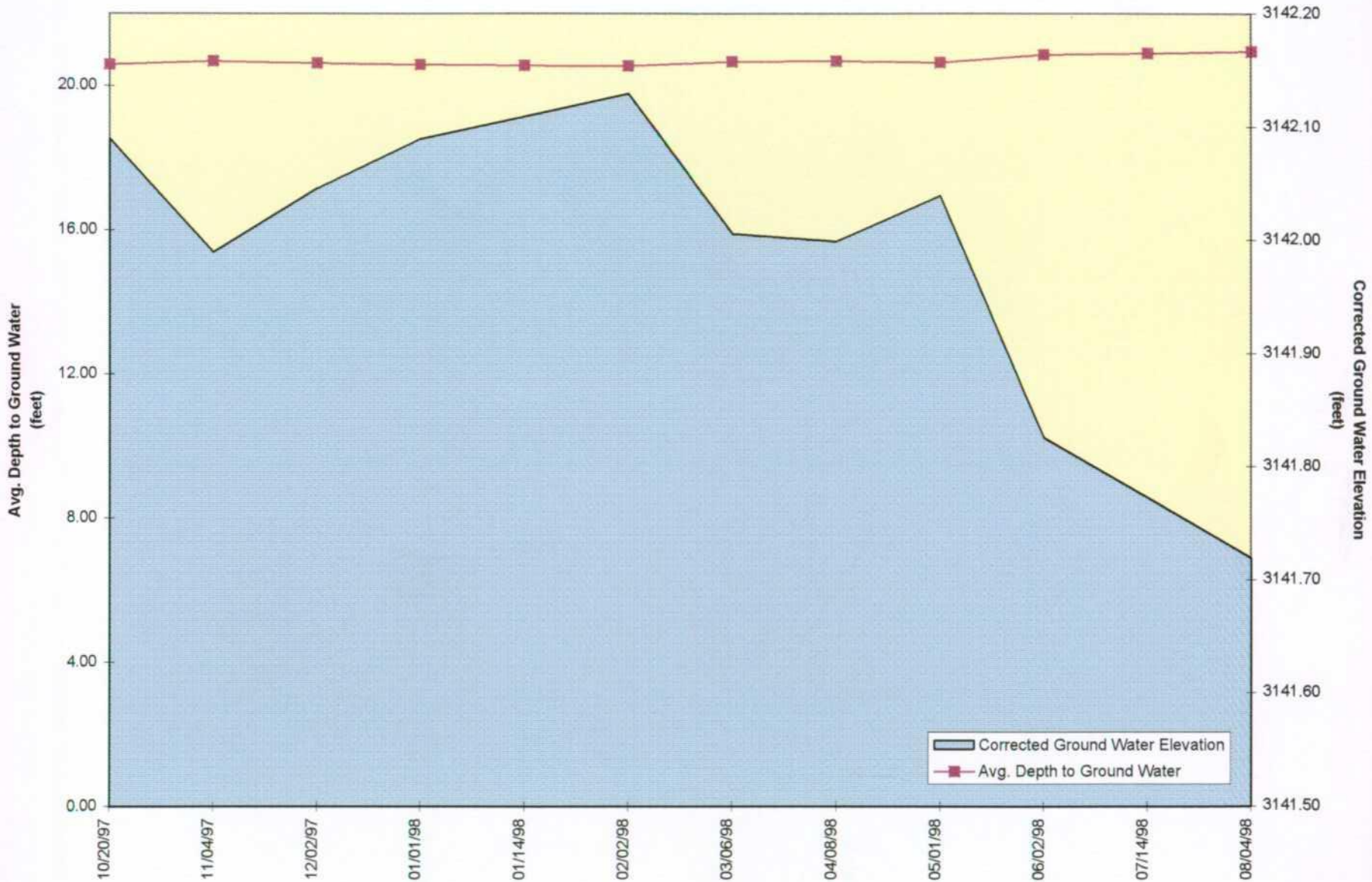
DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3162.15	20.78	3141.37	---	---
11/04/97	3162.15	20.88	3141.27	---	---
12/02/97	3162.15	20.84	3141.31	---	---
01/01/98	3162.15	20.80	3141.35	---	---
01/14/98	3162.15	20.78	3141.37	---	---
02/02/98	3162.15	20.75	3141.40	---	---
03/06/98	3162.15	20.94	3141.21	---	---
04/08/98	3162.15	20.91	3141.24	---	---
05/01/98	3162.15	20.83	3141.32	---	---
06/02/98	3162.15	21.02	3141.13	---	---
07/14/98	3162.15	21.18	3140.97	---	---
08/04/98	3162.15	21.26	3140.89	---	---
09/12/98	3162.15	21.58	3140.57	---	---

TABLE II
(continued)

WATER WELL
SUMMARY OF GROUND WATER MEASUREMENTS
TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-16
LEA COUNTY, NEW MEXICO

DATE MEASURED	PVC ELEVATION (feet)	DEPTH TO WATER (feet)	GROUND WATER ELEVATION		PSH THICKNESS (feet)
			Actual	Corrected	
10/20/97	3164.988	18.19	3146.80	---	---
11/04/97	3164.988	20.96	3144.03	---	---
12/02/97	3164.988	20.93	3144.06	---	---
01/01/98	3164.988	20.88	3144.11	---	---
01/14/98	3164.988	20.88	3144.11	---	---
02/02/98	3164.988	20.85	3144.14	---	---
03/06/98	3164.988	20.87	3144.12	---	---
04/08/98	3164.988	20.89	3144.10	---	---
05/01/98	3164.988	20.89	3144.10	---	---
06/02/98	3164.988	21.08	3143.91	---	---
07/14/98	3164.988	21.12	3143.87	---	---
08/04/98	3164.988	21.18	3143.81	---	---
09/12/98	3164.988	21.99	3143.00	---	---

FIGURE 2
AVERAGE GROUND WATER DATA



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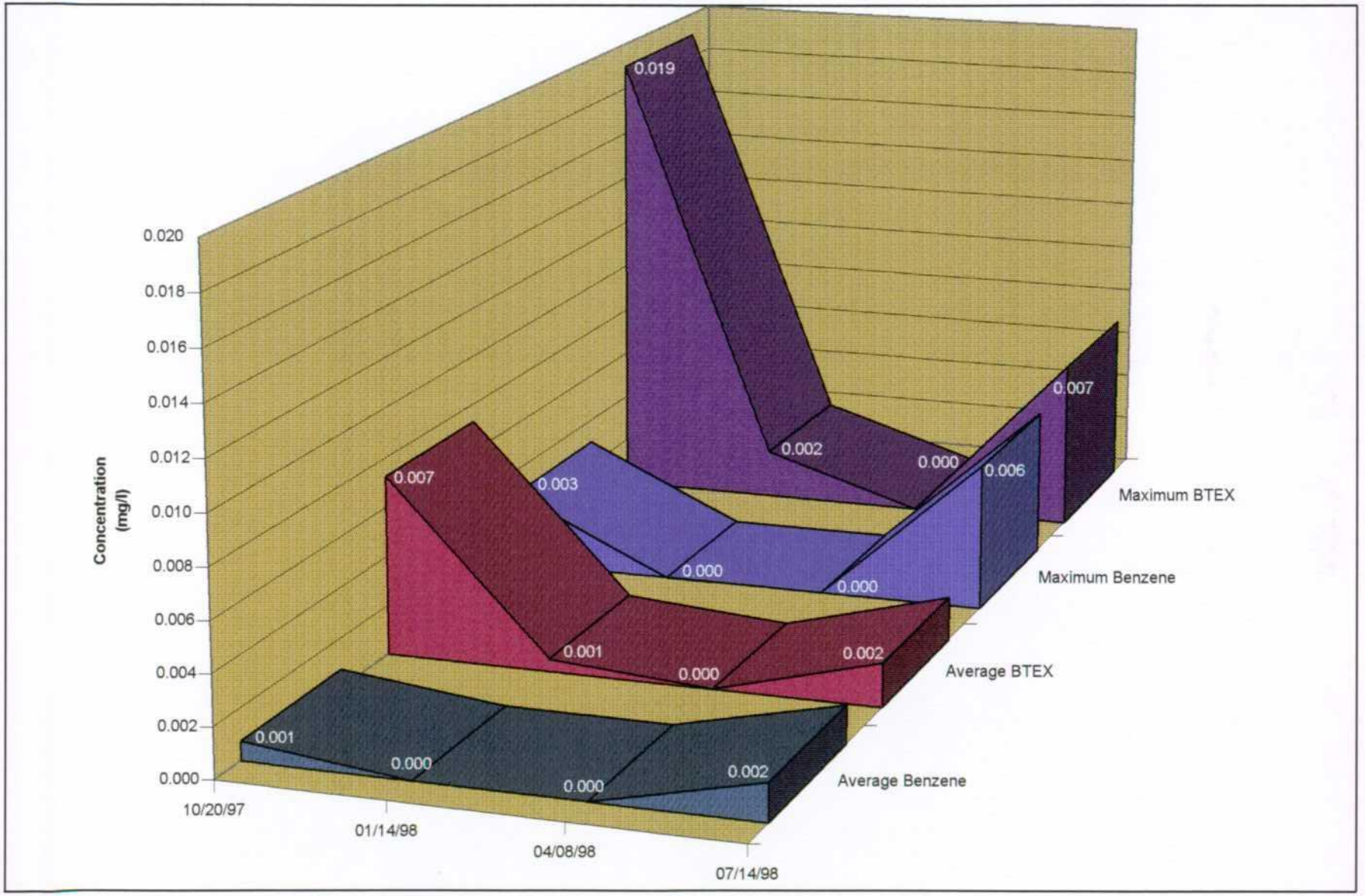
p:\tnmp\710034\monitor\sumaverg.xls

FIGURE 3
AVERAGE BENZENE AND BTEX CONCENTRATIONS



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p:\tnmpl\710034\monitor\sumaverg.xls