AP - 009

STAGE 1 & 2 WORKPLANS

DATE:

Aug. 31, 1998

SITE DESCRIPTION

In February of 1998 borings and monitoring wells were installed in selected locations at site HDO-90-23. Water samples obtained from monitoring wells MW-2 and MW-3 on April 7, 1998, contained benzene concentrations of 1.362 and 0.398 mg/l and BTEX concentrations of 4.751 and 1.019 mg/l respectively. On June 2, 1998, 0.21 feet of phase-separate hydrocarbon (PSH) was observed in 1 monitoring well (designated MW-2). A site map is presented as FIG. 1.

PROPOSED STAGE 1 ABATEMENT PLAN ACTIVITIES

Stage 1 abatement plan activities will consist of the following:

- confirm property line location in the field and/or with records, as necessary
- conduct a records research for the area to determine site geology and hydrogeology, subsurface hydraulic conductivity, transmissivity, and storativity information
- conduct a registered water well search within a 1 mile radius of the site
- install a minimum of 2 monitoring wells to delineate hydrocarbon impact cross-gradient from MW-2 in general accordance with the TNMPL Initial Ground Water Investigation Standard Protocol for New Mexico dated December 1, 1997 (see attached)
- if field conditions dictate, install additional wells to delineate hydrocarbon impact
- collect soil samples for field screening and/or laboratory analysis from each boring to determine vertical extent and magnitude of hydrocarbon impact to vadose-zone soils
- classify the subsurface soil profile in general accordance with the Unified Soil Classification System by visually observing the soil samples obtained during the assessment
- collect ground water samples for laboratory analysis from each monitoring well to determine the magnitude of hydrocarbon impact to ground water
- obtain depth to ground water measurements and calculate the ground water gradient and direction
- survey all well locations by a Professional Land Surveyor registered in the State of New Mexico
- prepare a report summarizing field activities and laboratory results

SCOPE OF WORK

A generalized scope of work is presented below. The final scope may be adjusted in the field based upon conditions encountered.

Initially, as limited by physical accessibility, 2 monitoring wells (referred to as 1st tier wells) will be installed 100 feet cross-gradient from MW-2. Soil samples will be collected every 10 feet and soil samples will be collected continuously from 35 feet below ground surface to

ground water (estimated at 43 feet below ground surface). The soils will be classified in the field, soil samples will be field screened, and selected samples from the wells will be prepared and shipped to the laboratory for analysis.

If delineation of the PSH extent is not achieved with the 1st tier wells, additional wells (2nd tier) will be installed approximately 100 feet outward from those 1st tier wells that exhibit PSH. Soil samples from the 2nd tier wells will be collected every 10 feet below ground surface and continuously from 10 feet to ground water. The soils will be classified in the field, soil samples will be field screened, and selected samples from the monitoring wells will be prepared and shipped to the laboratory for analysis. Selected soil samples will be submitted for determination of TPH-DRO and BTEX concentrations.

Upon advancement to total depth and collection of soil samples, a permanent well consisting of factory slotted PVC and blank riser will be placed in the open hole of each boring designated as a permanent well. The borings that exhibit PSH will be completed as 4-inch wells. The borings without apparent PSH will be completed as 2-inch wells.

GROUND WATER SAMPLING AND ANALYSIS

Upon completion of drilling, each well will be gauged to determine the depth to ground water and the PSH thickness, if present. Each well will be purged and ground water samples will be collected from wells which do not contain PSH. One ground water and 1 PSH sample will be obtained from 1 well exhibiting PSH in order to characterize the PSH and any dissolved-phase hydrocarbon that may be partitioning into ground water.

Ground water samples from the monitoring wells will be submitted for determination of BTEX, polycyclic aromatic hydrocarbons (PAH), heavy metals, major cations/anions, and total dissolved solids (TDS) concentrations. The PSH sample will be fingerprinted to characterize constituent hydrocarbons.

MONITORING PROGRAM

All monitoring wells shall be sampled quarterly for determination of BTEX concentrations. A quarterly report will be submitted within 45 days after the sampling event.

QA/QC PROCEDURES

DECONTAMINATION OF EQUIPMENT

Cleaning of drilling equipment will be the responsibility of the drilling company. In general, the cleaning procedures will consist 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 will be cleaned with Liqui-Nox detergent and rinsed with distilled water.

SOIL SAMPLING

Samples of the subsurface soils will be obtained utilizing an air rotary drilling rig with split spoon samples at the intervals presented above. Representative soil samples will be divided into 2 separate portions using clean, disposable gloves and clean sampling tools. One portion of the soil sample will be placed in a disposable sample bag. The bag will be labeled and sealed for head-space analysis using a photo-ionization detector (PID) calibrated to a 100 ppm isobutylene standard. Each sample will be allowed to volatilize for approximately 30 minutes at ambient temperature prior to conducting the analysis.

The other portion of the soil sample will be placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container will be filled to capacity to limit the amount of head-space present. Each container will be labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler will be sealed for shipment to the laboratory. Proper chain-of-custody documentation will be maintained throughout the sampling process.

Soil samples will be express mailed to an approved laboratory for BTEX and TPH-DRO analyses using the methods described below. Soil samples will be analyzed for BTEX and TPH-DRO within 14 days following the collection date.

The soil samples will be analyzed as follows:

- BTEX concentrations in accordance with EPA Method SW846-8020
- TPH concentrations in accordance with modified EPA Method 8015-DRO

GROUND WATER SAMPLING

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

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

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

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

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

The ground water samples will be analyzed as follows:

- BTEX concentrations in accordance with EPA Method SW846-8020
- PAH concentrations in accordance with EPA Method 8100 or 8270
- Metals concentrations in accordance with EPA ICP Method 6010
- Major cations concentrations in accordance with SM4500CO2D
- Major anions concentrations in accordance with EPA Method 300.0
- TDS concentrations in accordance with EPA Method 160.1

LABORATORY PROTOCOL

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

SCHEDULE OF ACTIVITIES

The activities outlined above will be conducted upon approval of this plan. Following completion of the site assessment, the developed data will be compiled and analyzed to determine appropriate remediation options for the site. A plan describing the recommended options will be developed and submitted for approval.

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

December 1, 1997

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

Re: Initial Ground Water Investigation - Standard Protocol - New Mexico
Texas - New Mexico Pipe Line Company
KEI Job No. 610057

Dear Mr. Savoie:

This document presents the Initial Ground Water Investigation - Standard Protocol for Texas - New Mexico Pipe Line release investigation sites which may have impacted ground water in New Mexico. It is not intended to apply to releases that have only impacted soils. Monitoring well installation and soil and ground water sampling procedures are defined to investigate a site for potential hydrocarbon impact in soil and ground water. Every effort will be made to adhere to the scope as defined herein. However, some alterations may be necessary without prior notification to OCD based on conditions encountered in the field.

MONITORING WELL INSTALLATION

Following evaluation of available field and analytical data for a given site, monitoring wells will be installed to complete a triangulation of ground water monitoring points around the suspected source area. At least one monitoring well will be installed in the apparent upgradient direction from the source area, and at least two monitoring wells will be installed in the apparent downgradient direction from the source area. A minimum of three monitoring wells will be installed. However, should site conditions warrant, additional wells may also be installed.

The monitoring wells will be installed to approximately ten feet into ground water as observed during drilling. The well materials will consist of either two inch or four inch internal diameter, threaded connection, Schedule 40 PVC solid pipe, and 15 feet of either 0.010 or 0.020 inch slotted PVC well screen. A graded, clean silica sand will be placed in the annulus of the screened interval for each well. A minimum two foot bentonite seal will be placed above the sand packing and either a stick-up or flush mount, steel protective cover will then be concreted in place. Each well will be protected with a locked cap.

The monitoring wells will be installed by a well driller licensed in the State of New Mexico. Elevations of the monitoring well PVC riser, top of cover, surface pad, and ground surface will be determined.

GROUND WATER MONITORING

A ground water monitoring event will be conducted after installation and development of the monitoring wells. The event will consist of gauging the water level in each monitoring well, checking for the potential presence of phase-separate hydrocarbons (PSH), and purging and sampling all wells not containing PSH. The ground water flow direction and gradient will be determined from data obtained during the monitoring event.

Monitoring wells will be developed and purged. The purging equipment will be cleaned prior to each use in accordance with standard regulatory sampling protocols. Monitoring wells with sufficient recharge will be purged by removing a minimum of three well volumes. Monitoring wells that do not recharge sufficiently will be purged until no additional ground water can be removed.

SOIL SAMPLING

During drilling, a minimum of two soil samples from each borehole will be obtained based on the following criteria:

- The sample with the highest head-space reading,
- The sample directly above the ground water level measured at the time of drilling, and/or
- The sample at the bottom of each boring.

The samples will be submitted for determination of the following potential parameters:

- Total Petroleum Hydrocarbons (TPH) by EPA Method 418.1 or modified 8015(DRO).
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method SW846-8020.
- (Optional) - the sample exhibiting the highest TPH concentration (if any) may also be analyzed for SPLP TPH by EPA Method 1312/418.1 or 1312/8015, SPLP Volatiles (VOC) by EPA Method SW846-1312/8260, and SPLP Semi-volatiles (SVOC) by EPA Method SW846-1312/8270.

To evaluate the potential for contaminant migration, a soil sample from the unsaturated zone of a soil boring not impacted by the release as determined by field screening during drilling will be obtained for the determination of engineering soil parameters. These soil parameters will include moisture content and fraction organic carbon by ASTM Method D2974

Additional samples will be collected if multiple lithologies are present which may affect transport of potential petroleum hydrocarbons.

GROUND WATER SAMPLING

After purging the wells, ground water samples will be collected and analyzed in the field for temperature, pH, and dissolved oxygen. Ground water samples will also be submitted to the analytical laboratory for determination of the following potential parameter concentrations:

- BTEX by EPA Method SW846-8020.
- Polycyclic Aromatic Hydrocarbons (PAH) by EPA Method 8100.
- Major Cations by EPA Method 6010.
- Major Anions by EPA Method 300.0.
- Carbonate and Bicarbonate by Method SM4500CO2D.
- Total dissolved solids (TDS) by EPA Method 160.1.
- Sulfate and chlorides by EPA Method 300.0.
- Heavy Metals (ICP Scan) by EPA Method 6010.

The major cations/anions include the following:

Calcium	Bicarbonate
Magnesium	Carbonate
Potassium	Chloride
Sodium	Sulfate
Total Dissolved Solids (TDS)	

The heavy metals include the following:

Aluminum	Barium
Beryllium	Boron
Cadmium	Calcium
Chromium	Cobalt
Copper	Iron
Magnesium	Manganese
Molybdenum	Nickel
Silicon	Silver
Strontium	Tin
Vanadium	Zinc

The laboratory results will be evaluated against the New Mexico Water Quality Control Commission (NMWQCC) standards for drinking water sources.

QA/QC PROCEDURES

SOIL

Native soil samples will be collected either continuously or at selected discrete intervals from the ground surface to a depth of approximately two feet below ground water as observed during drilling. Soil samples will be obtained every two feet for the first 10 feet, followed by every five feet thereafter. The soil samples will be used to evaluate water levels and the distribution of potential phase-separate hydrocarbons (PSH).

Representative soil samples will be divided into two separate portions using clean, disposable gloves and clean sampling tools. One portion of the soil sample will be placed in a disposable sample bag. The bag will be labeled and sealed for head-space analysis using a photo-ionization detector (PID) calibrated to a 100 ppm isobutylene standard. Each sample will be allowed to volatilize for approximately 30 minutes at ambient temperature prior to conducting the PID analysis.

The other portion of the soil sample will be placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container will be filled to capacity with soil to limit the amount of head-space present. Each container will be labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler will be sealed for shipment to the laboratory. Proper chain-of-custody documentation will be maintained throughout the sampling process.

GROUND WATER

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

Ground water samples collected for potential BTEX analysis will be placed in sterile, 40 ml glass VOA vials equipped with Teflon-lined caps or as directed by the analytical laboratory. The containers will be provided and pre-preserved with HCl by the analytical laboratory.

Ground water samples collected for potential PAH analysis will be filled to capacity in sterile, one liter glass containers equipped with Teflon-lined caps or as directed by the analytical laboratory. The containers will be provided by the analytical laboratory.

Ground water samples collected for potential major cations/anions will be filled to capacity in sterile, one liter glass containers equipped with Teflon-lined caps or as directed by the analytical laboratory. The containers will be provided by the analytical laboratory.

Ground water samples collected for potential heavy metals will be filled to capacity in sterile, one liter glass containers equipped with Teflon-lined caps or as directed by the analytical laboratory. The containers will be provided and pre-preserved with nitric acid by the analytical laboratory.

All containers will be filled to a positive meniscus, sealed, and visually checked for the presence of air bubbles. The filled containers will be labeled and placed on ice in an insulated cooler. The cooler will be sealed for transportation to the analytical laboratory. Proper chain-of-custody documentation will be maintained throughout the sampling process.

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

If you have any questions, please contact me via E-mail or by phone at (210) 680-3767.

Respectfully,

J. Michael Hawthorne, P.G., REM

tln\p:\tnmpl\610057\rgwproto.doc

cc: Mr. Edwin H. Gripp
Mr. Marc Oler

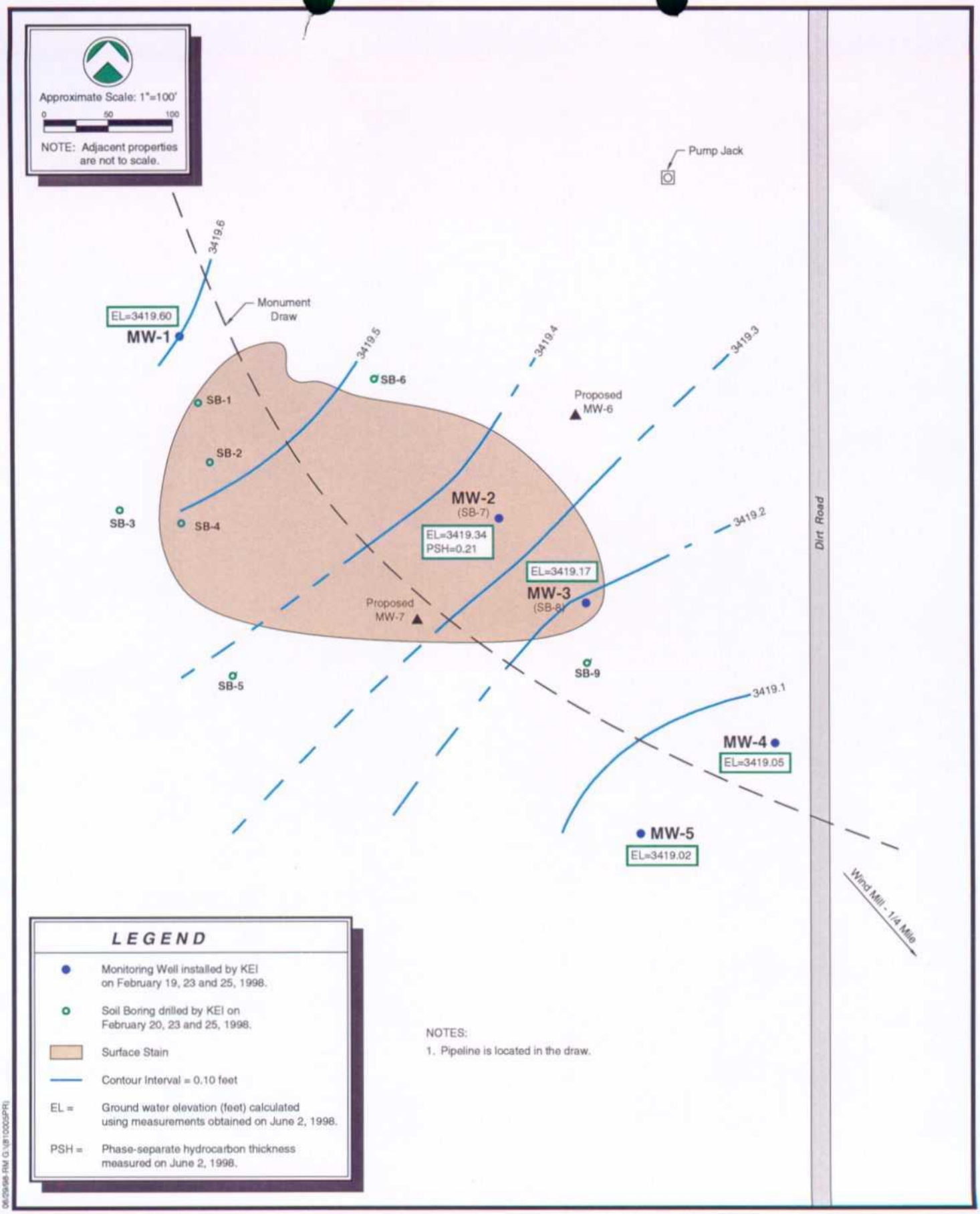
NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Oil Conservation Division Regulations, the following Stage 1 abatement plan proposal has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

Texas - New Mexico Pipe Line Company, Tony Savoie, (505) 395-2705, P. O. Box 1030, Jal, New Mexico 88252 has submitted a Stage 1 Abatement Plan proposal for site HDO-90-23, approximately 8 miles southeast of Monument in Lea County, New Mexico 88252 in Section 6, Township 20 South, Range 37 East, Lea County, New Mexico. Texas-New Mexico Pipe Line Company operates a crude oil pipeline at the site. Phase-separated hydrocarbon (PSH) has been observed on the ground water. The Stage 1 abatement plan proposal presents the following subsurface investigation activities: confirm property line location; confirm site geology and hydrogeology; conduct a registered water well search within a 1 mile radius of the site; install a minimum of 2 monitoring wells; if necessary, install additional wells; collect soil samples for field screening and/or laboratory analysis from each boring; collect ground water samples for laboratory analysis from each monitoring well; obtain depth to ground water measurements and calculate the ground water gradient and direction; survey all well locations by a Professional Land Surveyor registered in the State of New Mexico; and prepare a report summarizing field activities and laboratory results.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The Stage 1 abatement plan proposal may be viewed at the above address or at the Oil Conservation Division District Office, 1000 West Broadway, Hobbs, New Mexico 88240, Telephone (505) 392-4046, between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed Stage 1 abatement plan, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him.



06/29/98-RM G:\810005\PRJ

k·e·i	PROPOSED ADDITIONAL MONITORING WELLS	810005
	TEXAS - NEW MEXICO PIPE LINE CO. HDO-90-23 LEA COUNTY, NEW MEXICO	FIG 1

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

August 31, 1998

RECEIVED
SEP 0 8 1998
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

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

Re: Wells MW-1 through MW-5
Borings SB-1 through SB-6 and SB-9
HDO-90-23
Section 6, Township 20 South, Range 37 East
Lea County, New Mexico
Job No. 810005-1

Dear Mr. Savoie:

Transmitted with this letter is the final Subsurface Investigation Report for the installation of 5 monitoring wells and 7 soil borings at the referenced site. One copy has been forwarded to OCD Sante Fe and one to OCD Hobbs.

Please contact me at (210) 680-3767 with your questions or comments.

Respectfully,

Theresa Nix
Project Manager

Enclosure

cc: Marc Oler; TTTI
Wayne Price, OCD Hobbs
William Olson, OCD Sante Fe

p:\tnmpl\810005\assment1\rsubsin1.doc

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

August 20, 1997

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

RECEIVED
AUG 3 1 1998
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Re: Groundwater Monitoring Event
Texas - New Mexico Pipe Line Company
HDO-90-23
Section 6, Township 20 South, Range 37 East
Lea County, New Mexico
KEI Job No. 810005-1

Dear Mr. Savoie:

Transmitted with this letter is the ground water binder for all ground water monitoring events conducted at site HDO-90-23 located in Lea County, New Mexico.

After each ground water monitoring and sampling event, you will receive a packet containing the following:

- Updated gauging tables
- Updated ground water laboratory results tables
- Updated figures
- A copy of the laboratory ground water results and chain-of-custody documentation
- A dated "tab" for each new event

When you receive each packet, please remove and replace the former tables. Add the new dated tab and place the updated figures, laboratory reports, and chain-of-custody documentation behind this tab.

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

Respectfully,

Theresa Nix

Theresa Nix
Project Manager

Enclosure

cc: OCD Hobbs Office
OCD Sante Fe Office ✓
Marc Oler, TTTI
J. Michael Hawthorne, KEI

tln\p:\tnmpl\810005\monitor\rgwbinder.doc

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

RECEIVED
JUN 15 1998
OIL CONSERVATION DIVISION

June 11, 1998

Mr. Roger Anderson
STATE OF NEW MEXICO
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Texas-New Mexico Pipe Line Company
Pipe Line Release HDO-90-23
Section 6, Township 20 South, Range 37 East
Lea County, New Mexico
Job No. 810005-1

Dear Mr. Anderson:

This letter provides written notification of hydrocarbon impact to ground water at the above referenced site during monitoring well gauging activities.

During a recent ground water gauging event at the referenced site, hydrocarbon impact to ground water was noted. Approximately 0.21 inches of product was measured in on-site monitoring well MW-2.

A Stage 1 Abatement Plan proposal will be prepared and submitted to your office for approval.

If you have any questions please contact Mr. Savoie at (505) 395-2705 or call me at (210) 680-3767.

Respectfully,

Theresa Nix

Theresa Nix
Project Manager

cc: TNMPL, Tony Savoie
OCD Hobbs District Office, Wayne Price

tln\tnmpl\810005\cpshnot.doc