GW - 294

PERMITS, RENEWALS, & MODS Application

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey
Division Director
Oil Conservation Division

May 14, 2014

Ms. Camille J. Bryant
Plains All American Pipeline, L.P.
2530 State Highway 214
Denver City, Texas 79323

Re: Discharge Plan Renewal Permit GW-294
Plain's Pipeline Townsend Remediation Site
Lea County, New Mexico

Dear Ms. Bryant:

The Oil Conservation Division (OCD) has received Plain's Pipeline request and initial fee to renew GW-294 for their Townsend Remediation Site located in the SE/4 of the SE/4 of Section 11, Township 16 South, Range 35 East, NMPM, Lea County, New Mexico. The initial submittal provided the required information in order to deem the application "administratively" complete.

Therefore, the Water Quality Control Commission regulations (WQCC) notice requirements of 20.6.2.3108 NMAC must be satisfied and demonstrated to OCD. OCD will provide public notice pursuant to the WQCC notice requirements of 20.6.2.3108 NMAC to determine if there is any public interest.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3492 or leonard.lowe@state.nm.us. On behalf of the staff of the NMOCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Leonard Lowe
Environmental Engineer

LRL/lrl
xc: OCD District I Office, Hobbs

PUBLIC NOTICE

Plains Pipeline, L.P., Camille Bryant, Remediation Coordinator, 2530 State Highway 214, Denver City, Texas 79323, has submitted a renewal application for the previously approved discharge plan (GW-294) for the Plains Pipeline Townsend Site, located in Unit Letter P of Section 11, Township 16 South, Range 35 East, NMPM, Lea County, New Mexico, approximately two miles southwest of Lovington, New Mexico. Up to 5 barrels of crude oil and 86,000 barrels of hydrocarbon-impacted groundwater are generated on site annually. Liquids enter a "pump and treat system" where crude oil is separated, collected and temporarily stored in containment vessels prior to transport and disposal at an NMOCD-approved facility. Effluent groundwater is treated on site and re-injected to the groundwater table. Effluent groundwater is sampled monthly to ensure compliance with New Mexico Oil Conservation Division and New Mexico Water Quality Control Commission standards. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 50 feet below ground surface, with a total dissolved solids concentration of approximately 500 to 1,000 mg/L. The discharge plan addresses how impacted groundwater and recovered crude oil will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh water. Any interested person may obtain information; submit comments or request to be placed on a facility specific mailing list for future notices by contacting Mr. Leonard Lowe at the New Mexico OCD at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3492. The OCD will accept comments and statements of interest regarding the renewal and will create a facility-specific mailing list for persons who wish to receive future notices.

To be published in the Hobbs News Sun, which has a circulation of approximately 20,000 subscribers (online and in print).

From:	Lowe, Leonard, EMNRD
To:	"Camille J Bryant"
Cc:	Griswold, Jim, EMNRD
Subject:	Admistratively Complete; GW-294, Townsend Remediation Site
Date:	Wednesday, May 14, 2014 3:44:00 PM
Attachments:	GW-294 Admin Complete.pdf Applicant Public Notice.pdf
Importance:	High

Camille Bryant,

GW-294 Admin Complete Status has been met.
The Applicant Public Notice is approved for publishing in your stated Newspaper. Request an affidavit of publication, once received submit a copy to me.
Technical review of the Application has commenced.

Thank you,

Leonard Lowe

Environmental Engineer
Oil **C**onservation **D**ivision
1220 South St. Frances
Santa Fe, New Mexico 87004
Office: 505-476-3492 Fax: 505-476-3462
E-mail: leonard.lowe@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of Check No. 7034500 dated 4/17/14

or cash received on 4/24/14 in the amount of $ 100.00

from PLAINS PIPELINE, L.P.

for GW-294

Submitted by: JIM GRISWOLD Date: 4/25/14

Submitted to ASD by: LUPE SHERMAN Date: 4/25/14

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility: _____ Renewal: _____

Modification _____ Other ✓ APPLICATION FEE / DISCHARGE PERMIT

Organization Code 521.07 Applicable FY 14

To be deposited in the Water Quality Management Fund.

Full Payment _____ or Annual Increment _____

NEW MEXICO ENVIRONMENT DEPARTMENT - ALBUQUERQUE FIELD OFFICE DAILY CHECK RECEIPT LOG

DATE RECEIVED	WALK-IN	MAIL	NAME ON CHECK	DATE OF CHECK	CHECK/MONEY ORDER#	PROGRAM ACCOUNT CODE	AMOUNT OF CHECK	DATE DEPOSITED	DEPOSITED BY:
4/24/14		✓	PLAINS MARKETING, L.P	4/17/14	7034500		$100.00		
TOTAL							$100.00		

REVENUE TRANSMITTAL SHEET

Description	Fund	Dept.	Share Acct	Sub Acct	Amount
Liquid Waste	34000	Z3200	496402		
Water Recreation Facilities	40000	Z8501	496402		
Food Permit Fees	99100	Z2600	496402		
OTHER	34100	232900		2329029000	

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised June 10, 2003

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES,GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☒ Renewal ☐ Modification

1. Type: **GW Discharge Plan for Remediation Site**

2. Operator: **Plains Pipeline, L. P.**

   Address: **P. O. Box 4648, Houston, TX 77210-4648**

   Contact Person: **Camille J. Bryant, Remediation Coordinator; Phone: (575) 441-1099**

3. Location: **SE ¼, SE¼** Section **11** Township **16** Range **35E**

   Submit large-scale topographic map showing exact location.

4. Attach the name, telephone number and address of the landowner of the facility site.

5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.

6. Attach a description of all materials stored or used at the facility.

7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.

8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.

9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.

10. Attach a routine inspection and maintenance plan to ensure permit compliance.

11. Attach a contingency plan for reporting and clean-up of spills or releases.

12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.

13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

14. CERTIFICATION I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Camille J. Bryant — Title: Remediation Coordinator

Signature: Camille J. Bryant — Date: April 1, 2014

E-mail Address: cjbryant@paalp.com

New Mexico Discharge Plan
GW-294

Townsend Site

TNM 97-04-KNOWN

Lea County, New Mexico

Plains Pipeline, LP

333 Clay Street, Suite 1600

Houston, Texas 77002

April 2014

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 Introduction

Plains Pipeline, LP, is the responsible party for a crude oil release remediation site located near Lovington, New Mexico. The Townsend Site (TNM 97-04 Known) consists of fifteen (15) groundwater monitor wells and four (4) recovery wells. Groundwater is transported to the surface utilizing six (6) total fluid groundwater pumps. Also located on-site is a 500 gallon oil/water separation tank, a 500 gallon aeration tank, a trailer-mounted "pump and treat" system with an air blower used for a sparging system and aeration of the aeration tank. Treated water is gravity fed to an infiltration gallery located up gradient of the release site. Also located on site are eight (8) sparging wells located generally down gradient of the central hydrocarbon plume. An equipment building on site houses an air compressor used to operate the total fluid pumps and various equipment used for routine maintenance of the system. The "pump and treat" system utilizes two (2) fifteen gallon drums of chemicals (antiscalent and microbicide) to control biologic growth and reduce mineral scale within the system.

2.0 Operator Information

Owner/Operator:	Plains Pipeline, LP 333 Clay Street, Suite 1600 Houston, Texas 77002 (713) 646-4100
Local Representative:	Camille Bryant Plains Pipeline, LP 2530 State Highway 214 Denver City, Texas 79323 (575) 441-1099

3.0 Facility Location

The Townsend Site is located south of New Mexico Highway 82, approximately two (2) miles southwest of Lovington, New Mexico. The Site is located in Unit Letter P ($SE^{1/4}$ $SE^{1/4}$), Section 11, Township 16 South, Range 35 East, in Lea County, New Mexico. A site location map is provided as Appendix A.

4.0 Landowner

The Landowner, according to the Lea County, New Mexico tax records is:

Mr. Mario Corral
6625 Megert Lane
Lovington, New Mexico 88260

5.0 Facility Description

The Townsend Site is a crude oil release remediation site. According to records from a previous responsible party, the release occurred or was discovered in 1997. There are currently fifteen (15) groundwater monitor wells, four (4) recovery wells, and eight (8) air sparing well on-site. During the past year (2013), five (5) of the on-site monitor wells and four (4) of the on-site recovery wells exhibited phase-separated hydrocarbons (PSH). Plains utilizes six (6) total fluid groundwater pumps installed in the monitor and recovery wells to transport recovered crude oil and impacted groundwater to the surface. The fluid is temporarily stored in a 500 gallon poly tank, this "settling tank" allows the hydrocarbons to separate from the groundwater. After this initial separation the water is pumped to a skid mounted "pump and treat" system, which allows for additional oil/water separation. Following separation, the water is gravity feed to a 500 gallon "aeration" poly tank. The aeration tank utilizes compressed air from the trailer mounted blower to volatize hydrocarbons from the water. Following aeration, the water is pumped through two (2) bag particulate filters and through two (2) 500 pound carbon canisters. On exit from the carbon canisters the water exits the skid mounted system and is gravity fed to the infiltration gallery wells. A Site Map is provided as Figure 2.

Monitor and recovery wells are sampled quarterly or as approved by the New Mexico Oil Conservation Division (NMOCD). The groundwater samples are analyzed for concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) and if warranted, for Polynuclear Aromatic Hydrocarbons (PAH).

Groundwater which has been treated on-site is sampled once per month from a sampling port located downstream of the carbon canisters. The water sample is analyzed for concentrations of BTEX and PAH, as directed by the NMOCD. Annually, the treated water is sampled for concentrations of NMWQCC metals. Analytical results are compared NMOCD regulatory limits based on the New Mexico groundwater standards found in section 20.6.2.3103 of the New Mexico Administrative Code.

6.0 Material Stored or Used at the Facility

Materials stored or used at the facility include crude oil, groundwater, and motor oil for use as a lubricant in the air compressor motor. An antiscalent (Analytix AN-310FG) and a microbicide (Glutaraldehyde – 15% mixture) are stored on site in fifteen (15) gallon drums. Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) are provided in Appendix A.

7.0 Waste Generated and Procedures

Motor oil is used in the on-site compressor motor to lubricate the motor. The lubricating oil is changed once a month. Recovered crude oil is collected on-site in a 500 gallon poly tank.

8.0 Waste Collection, Storage, and Disposal Procedures

Used motor will is collected and transported off-site to be recycled by a commercial recycler. Recovered crude oil is re-injection into the Plains Pipeline transportation system or disposed of at an NMOCD approved disposal facility.

9.0 Proposed Modifications

No modifications are currently proposed at this site.

10.0 Inspections and Maintenance

10.1 Routine Inspections

The site is inspected a minimum of twice weekly by a third party contractor. The site is monitored for any change in conditions, including releases. Since the initial release occurred, no releases have occurred. In the unlikely event of a release at the site, the release would be promptly addressed.

10.2 Routine Maintenance

The site is inspected on a twice weekly and any necessary maintenance is addressed during the visits. All wells, piping, and storage containers are maintained in good condition to prevent releases and prevent any impact to stormwater.

11.0 Release Prevention and Reporting Procedures

The site is inspected on a twice weekly basis by a third party contractor. The Site is maintained to prevent accidental releases and any releases which might occur would immediately be reported to Plains by phone. All tanks are maintained in appropriately sized secondary containments and due to the total volume of the storage tanks (1,000 gallons) no Spill Prevention Control and Countermeasures (SPCC) Plan is required for this facility. Procedures for release response are as follows:

In the event of a minor release, the site contractors are trained in release response and the appropriate release response equipment is maintained in the contractor's vehicles. In the event a release occurs, which cannot be handled by the available personnel and equipment, additional trained and experienced local contractors are "on call" to respond to the release. The contractor's available equipment includes vacuum trucks, dump trucks, backhoes, hand tools, and absorbent materials. Additional release controls, such as curbing, diking and other acceptable measures may also be implemented to control potential releases and prevent additional impact to groundwater. During release response, all impacted material is collected in rainproof containers or stockpiled on a plastic sheeting in the event of a larger release, the impacted soil is characterized and disposed of in accordance with applicable State and Federal Law.

In the event of a reportable release, notification would be provided to the NMOCD in accordance with New Mexico Administrative Code (NMAC) Rule 116 and any other applicable regulations. The facility will follow methods set forth in the New Mexico Water Quality Control Commission (NMWQCC) Section 3107.A.11 and will utilize NMOCD accepted methods for remediation of releases. Plains maintains in-house reporting and response procedures for all release, regardless of the volume released.

12.0 Site Characteristics

12.1 Physical Setting

The facility is located at an elevation of approximately 3,200 feet above Mean Sea Level (MSL) and is located near the Townsend Oil Field. The surface topography slopes gently to the southeast.

12.2 Geology and Hydrogeology

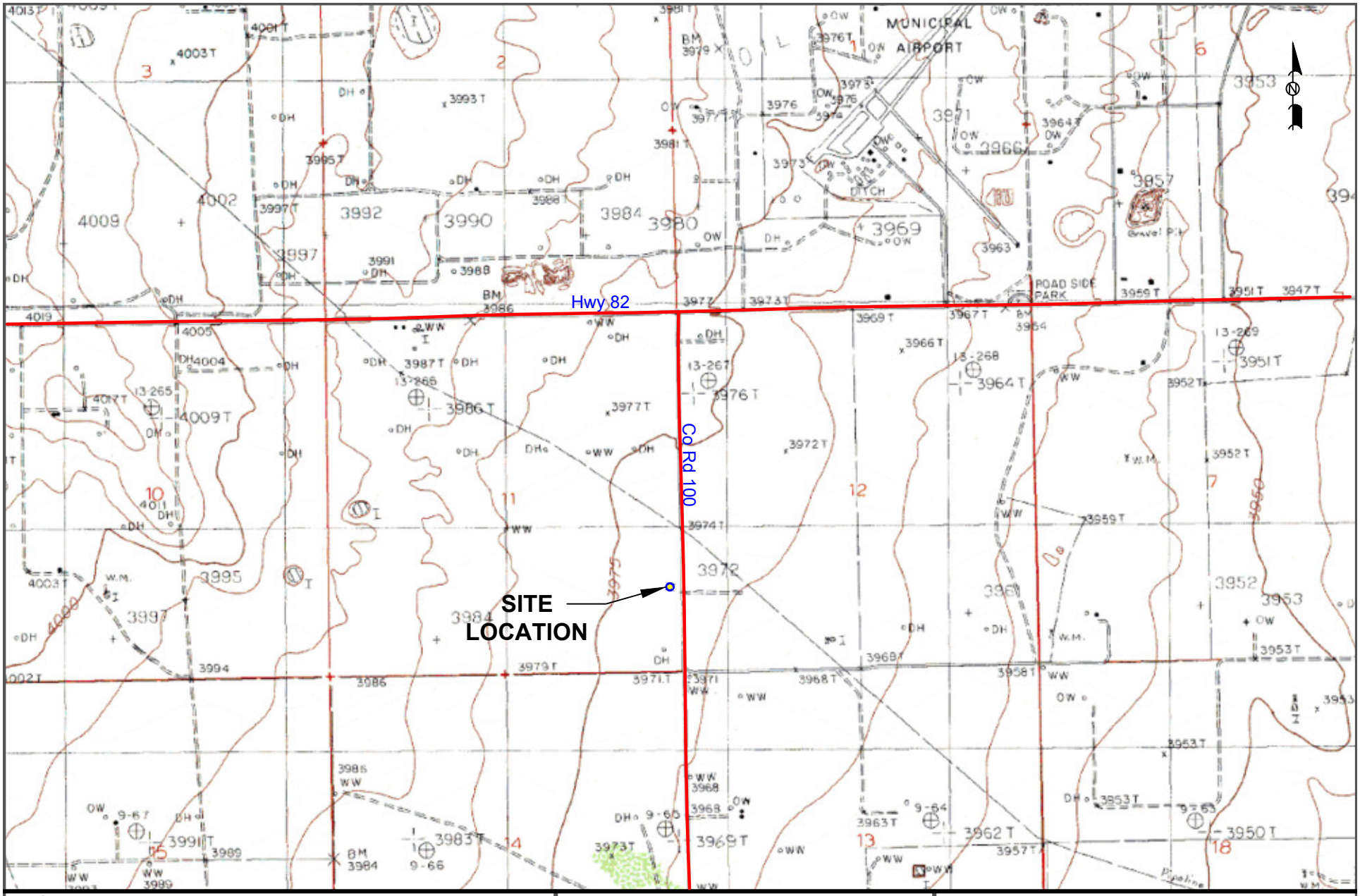
The surface geology at the site consists of the Tertiary Ogallala Formation, which consists of mostly eolian sediments, primarily sand and silt. The Ogallala Formation ranges in thickness from 0 to approximately 700 feet in southeastern New Mexico. The Ogallala Formation in New Mexico appears to have been deposited under arid subhumid climate conditions, under which alluvial sediments partially filled paleovalleys in the Pre-Ogallala erosional surface, while thick eolian sands and silts covered most of the paleo highs and the fluvial sections.

Calcic paleosols occur throughout the eolian sediments, generally near the top of the Ogallala Formation. These cemented zones are resistant to weathering and form ledges in outcrops within the Ogallala Formation. The Ogallala cap rock (caliche) is the most distinctive of these layers and generally marks the top of the Ogallala Formation. The cap rock maybe as thick as 60 feet in some locations.

The Ogallala Formation is the principal hydrogeologic unit in the High Plains aquifer, which consists of one (1) or more hydraulically geologic units of the late Tertiary or Quaternary Age. Depth to groundwater at the Site is approximately fifty (50) feet below ground surface (bgs). The inferred groundwater gradient is to the southeast in the vicinity of the site. A Inferred Groundwater Gradient Map is provided as Figure 3

13.0 Facility Closure Plan

Currently, groundwater remediation activities are in progress and ongoing. Groundwater remediation activities will continue until all phase-separated hydrocarbons have been recovered and analytical results indicate dissolved-phase BTEX constituents are below NMOCD regulatory guidelines. On completion of groundwater remediation activities, a Site Closure Request will be submitted to the NMOCD. No schedule for this Site Closure Request submittal is available at this time.



LEGEND:

2000 1000 0 1000 2000

Distance in Feet

NMOCD Reference #GW-0294

Figure 1
Site Location Map
TNM 97-04
Plains Marketing, L.P.
Lea County, NM

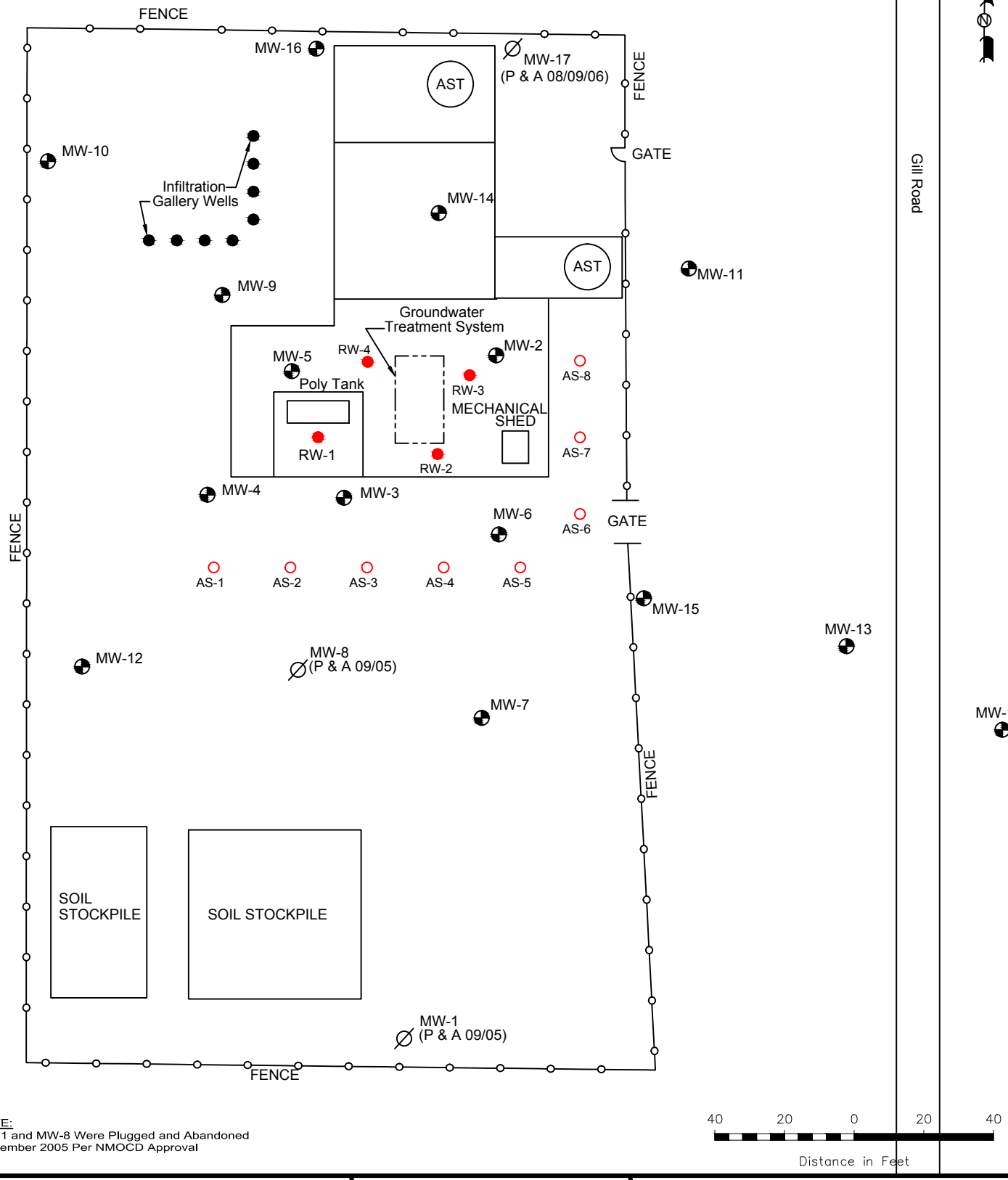
NOVA safety and environmental

2057 Commerce Drive
Midland, Texas 79703
432.520.7720

www.novasafetyandenvironmental.com

March 3, 2011	Scale: 1" = 2000'	CAD By: TA	Checked By: RKR

LATITUDE & LONGITUDE COORDINATES: N 32° 55' 57.1" W 103° 25' 12.3"



NOTE:
MW-1 and MW-8 Were Plugged and Abandoned September 2005 Per NMOCD Approval

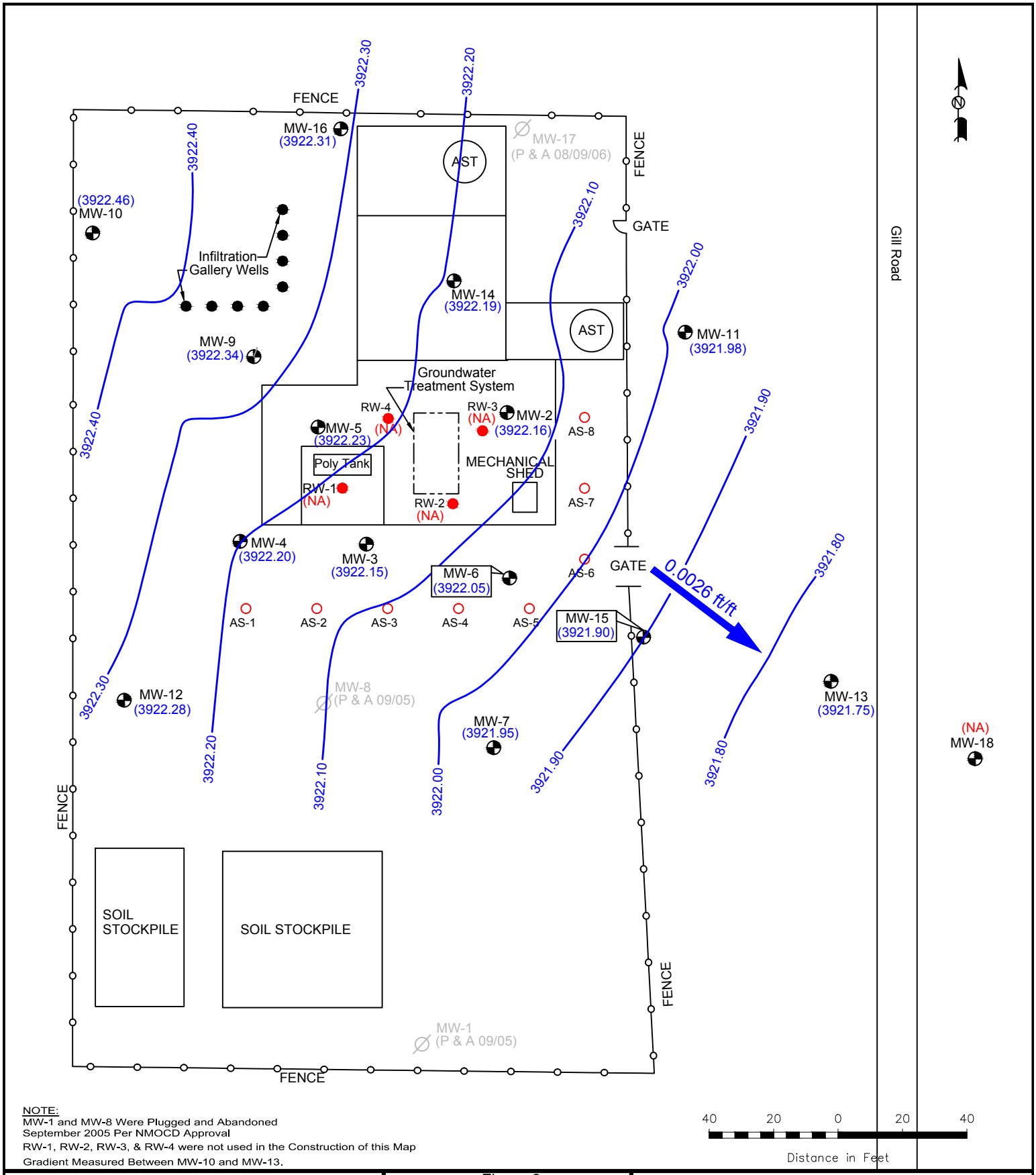
LEGEND:

- Monitoring Well Location
- Recovery Well Location
- Air Sparging Well Location
- Infiltration Gallery Well Location

Figure 2
Site Map and System
Well Locations Map
NMOCD Reference # GW-0294
Plains Marketing, L.P.
TNM 97-04
Lea County, NM

NOVA safety and environmental
2057 Commerce Drive
Midland, Texas 79703
432.520.7720
www.novasafetyandenvironmental.com

March 31, 2011	Scale: 1" = 40'	CAD By: TA	Checked By: RKR
Lat. N 32° 44' 50.3" Long. W 103° 23' 38.5"	NW1/4 SE1/4 Sec 18 T18S R36E		



NOTE:
MW-1 and MW-8 Were Plugged and Abandoned September 2005 Per NMOCD Approval
RW-1, RW-2, RW-3, & RW-4 were not used in the Construction of this Map
Gradient Measured Between MW-10 and MW-13.

LEGEND:

- Monitoring Well Location
- Recovery Well Location
- Air Sparging Well Location
- Infiltration Gallery Well Location
- Groundwater Elevation Contour
- (NA) Not Available

Figure 3
Inferred Groundwater Gradient Map
(11/18/2013-11/19/2013)
NMOCD Reference # GW-0294
Plains Marketing, L.P.
TNM 97-04
Lea County, NM

NOVA safety and environmental
2057 Commerce Drive
Midland, Texas 79703
432.520.7720
www.novasafetyandenvironmental.com

January 2, 2014	Scale: 1" = 40'	CAD By: TA	Checked By: CS
Lat. N 32° 44' 50.3" Long. W 103° 23' 38.5"	NW1/4 SE1/4 Sec 18 T18S R36E		

MATERIAL SAFETY DATA SHEET

Review Date: 04/17/2008

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: PENNZOIL™ Multi-Grade Motor Oil - All Grades

MSDS NUMBER: 612978LU - 3
PRODUCT CODE(S): 2010, 2011, 2012, 3560, 3600, 3606, 3610, 3616, 3650, 3656, 5041969, 5041970, 5041971, 5044482, 5044491, 5047954, 5060206, 5065725, 5069624, 5070239, 5076150, 5076175, 59751, 62569, 62710

PRODUCT USE: Motor Oil

MANUFACTURER	TELEPHONE NUMBERS
SOPUS Products	**Spill Information:** (877) 242-7400
P.O. Box 4427	**Health Information:** (877) 504-9351
Houston, TX. 77210-4427	**MSDS Assistance Number:** (877) 276-7285

SECTION 2 PRODUCT/INGREDIENTS

INGREDIENTS	CAS#	CONCENTRATION
Multigrade Motor Oil		
Highly refined petroleum oils	Mixture	90 - 99 %weight
Proprietary additives (<1% zinc)	Mixture	1 - 3 %weight

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Appearance & Odor: Amber liquid. Petroleum oil odor.
Health Hazards: No known immediate health hazards.
Physical Hazards: No known physical hazards.
NFPA Rating (Health, Fire, Reactivity): 0, 1, 0
Hazard Rating: Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4

Route(s) of Exposure: Skin

Inhalation:
Inhalation of vapors (generated at high temperatures only) or oil mist may cause mild irritation of the nose, throat, and respiratory tract.

Eye Irritation:
Lubricating oils are generally considered no more than minimally irritating to the eyes.

Skin Contact:
Lubricating oils are generally considered no more than minimally irritating to the skin. Prolonged and repeated contact may result in defatting and drying of the skin that may cause various skin disorders such as dermatitis, folliculitis or oil acne.

Ingestion:
Lubricating oils are generally no more than slightly toxic if swallowed.

Other Health Effects:
The International Agency for Research on Cancer (IARC) has determined there is sufficient evidence for the carcinogenicity in experimental animals of used gasoline motor oils. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the used product.

Signs and Symptoms:
Irritation as noted above.

Aggravated Medical Conditions:
Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

For additional health information, refer to section 11.

SECTION 4 FIRST AID MEASURES

Inhalation:
Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

Skin:
Remove contaminated clothing and shoes and wipe excess from skin. Flush skin with water, then wash with soap and water. If irritation occurs, get medical attention. Do not reuse clothing until cleaned.

Eye:
Flush with water. If irritation occurs, get medical attention.

Ingestion:
Do not induce vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, get medical attention.

Note to Physician:
In general, emesis induction is unnecessary in high viscosity, low volatility products such as oils and greases.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point [Method]: >430 ºF/>221.11 ºC [Cleveland Open Cup]
Upper Flammability Limit: Not Determined
Lower Flammability Limit: Not Determined

Extinguishing Media:
This material is non-flammable. Material will float and can be re-ignited on surface of water. Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water.

Fire Fighting Instructions:
Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure, NIOSH approved, self-contained breathing apparatus.

Unusual Fire Hazards:
Material may ignite when preheated.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures:
May burn although not readily ignitable.

Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8.

Spill Management:
FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

Reporting:
CERCLA: Product is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) petroleum exclusion. Releases to air, land, or water are not reportable under CERCLA (Superfund).

CWA: This product is an oil as defined under Section 311 of EPA's Clean Water Act (CWA). Spills into or leading to surface waters that cause a sheen must be reported to the National Response Center, 1-800-424-8802.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures:
Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet. Launder contaminated clothing before reuse. Properly dispose of contaminated leather articles such as shoes or belts that cannot be decontaminated. Avoid heat, open flames, including pilot lights, and strong oxidizing agents. Use explosion-proof ventilation to prevent vapor accumulation. Ground all handling equipment to prevent sparking.

Storage:
Do not store in open or unlabeled containers. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Container Warnings:
Keep containers closed when not in use. Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical	Limit	TWA	STEL	Ceiling	Notation
Oil mist, mineral	ACGIH TLV	5 mg/m3	10 mg/m3		
Oil mist, mineral	OSHA PEL	5 mg/m3			

Exposure Controls

Provide adequate ventilation to control airborne concentrations below the exposure guidelines/limits.

Personal Protection

Personal protective equipment (PPE) selections vary based on potential exposure conditions such as handling practices, concentration and ventilation. Information on the selection of eye, skin and respiratory protection for use with this material is provided below.

Eye Protection:
Chemical Goggles, or Safety glasses with side shields

Skin Protection:
Use protective clothing which is chemically resistant to this material. Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other items. The selection(s) should take

into account such factors as job task, type of exposure and durability requirements.

Published literature, test data and/or glove and clothing manufacturers indicate the best protection is provided by:
Neoprene, or Nitrile Rubber

Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Types of respirator(s) to be considered in the selection process include:
For Mist: Air Purifying, R or P style NIOSH approved respirator.
For Vapors: Air Purifying, R or P style prefilter & organic cartridge, NIOSH approved respirator. Self-contained breathing apparatus for use in environments with unknown concentrations or emergency situations.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Amber liquid. Petroleum oil odor.
Substance Chemical Family: Lubricants
Physical State: Liquid

Flash Point	> 430 ºF [Cleveland Open Cup]	**Odor**	Petroleum oil odor.
Specific Gravity	0.874	**Viscosity**	70 cSt - 90 cSt @ 40 ºC

Odor Threshold: Not Determined
Partition Coefficient: Not Determined
pH: Not Determined

SECTION 10 REACTIVITY AND STABILITY

Stability:
Material is stable under normal conditions.

Conditions to Avoid:
Avoid heat and open flames.

Materials to Avoid:
Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on combustion conditions. A complex mixture of airborne solids, liquids and gases will evolve when this material undergoes pyrolysis or combustion. Carbon Monoxide, Carbon Dioxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

TEST	Result	OSHA Classification	Material Tested
Dermal LD50	>5.0 g/kg(Rabbit)	Non-Toxic	Based on components(s)

Oral LD50	>5.0 g/kg(Rat)	Non-Toxic	Based on components(s)

Carcinogenicity Classification

Chemical Name	NTP	IARC	ACGIH	OSHA
Multigrade Motor Oil	Not Reviewed	Not Reviewed	No	No

SECTION 12 ECOLOGICAL INFORMATION

Environmental Impact Summary:
There is no ecological data available for this product. However, this product is an oil. It is persistent and does not readily biodegrade. However, it does not bioaccumulate.

SECTION 13 DISPOSAL CONSIDERATIONS

RCRA Information:

Under RCRA, it is the responsibility of the user of the material to determine, at the time of the disposal, whether the material meets RCRA criteria for hazardous waste. This is because material uses, transformations, mixtures, processes, etc. may affect the classification. Refer to the latest EPA, state and local regulations regarding proper disposal.

SECTION 14 TRANSPORT INFORMATION

US Department of Transportation Classification
This material is not subject to DOT regulations under 49 CFR Parts 171-180.

Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

International Air Transport Association
Not regulated under IATA rules.

International Maritime Organization Classification
Not regulated under International Maritime Organization rules.

SECTION 15 REGULATORY INFORMATION

Federal Regulatory Status

OSHA Classification:
Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

WHMIS Classification: Not a controlled substance.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Ozone Depleting Substances (40 CFR 82 Clean Air Act):

This material does not contain nor was it directly manufactured with any Class I or Class II ozone depleting substances.

Superfund Amendment & Reauthorization Act (SARA) Title III:
There are no components in this product on the SARA 302 list.

SARA Hazard Categories (311/312):

Immediate Health	Delayed Health	Fire	Pressure	Reactivity
NO	NO	NO	NO	NO

SARA Toxic Release Inventory (TRI) (313):
There are no components in this product on the SARA 313 list.

Toxic Substances Control Act (TSCA) Status:
All component(s) of this material is(are) listed on the EPA/TSCA Inventory of Chemical Substances.

Other Chemical Inventories:
Component(s) of this material is (are) listed on the Australian AICS, Canadian DSL, Chinese Inventory, European EINECS, Korean Inventory, Philippines PICCS,

State Regulation

This material is not regulated by California Prop 65, New Jersey Right-to-Know Chemical List or Pennsylvania Right-To-Know Chemical List. However for details on your regulation requirements you should contact the appropriate agency in your state.

SECTION 16 OTHER INFORMATION

Revision#: 3
Revision Date: 04/17/2008
Review Date: 04/17/2008
Revisions since last change (discussion): This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-2003). We encourage you to take the opportunity to read the MSDS and review the information contained therein.

SECTION 17 LABEL INFORMATION

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT. THIS LABEL COMPLIES WITH THE REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) FOR USE IN THE WORKPLACE. THIS LABEL IS NOT INTENDED TO BE USED WITH PACKAGING INTENDED FOR SALE TO CONSUMERS AND MAY NOT CONFORM WITH THE REQUIREMENTS OF THE CONSUMER PRODUCT SAFETY ACT OR OTHER RELATED REGULATORY REQUIREMENTS.

PRODUCT CODE(S): 2010, 2011, 2012, 3560, 3600, 3606, 3610, 3616, 3650, 3656, 5041969, 5041970, 5041971, 5044482, 5044491, 5047954, 5060206, 5065725, 5069624, 5070239, 5076150, 5076175, 59751, 62569, 62710

PENNZOIL™ Multi-Grade Motor Oil - All Grades

ATTENTION!

PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE OIL ACNE OR DERMATITIS. USED GASOLINE ENGINE OIL HAS BEEN SHOWN TO CAUSE CANCER IN LABORATORY ANIMALS.

Precautionary Measures:
Avoid prolonged or repeated contact with eyes, skin and clothing. Wash thoroughly after handling.

FIRST AID

Inhalation: Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.
Skin Contact: Remove contaminated clothing and shoes and wipe excess from skin. Flush skin with water, then wash with soap and water. If irritation occurs, get medical attention. Do not reuse clothing until cleaned.
Eye Contact: Flush with water. If irritation occurs, get medical attention.
Ingestion: Do not induce vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, get medical attention.

FIRE

In case of fire, Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water. Material will float and can be re-ignited on surface of water.

SPILL OR LEAK

Dike and contain spill.
FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

CONTAINS: Highly refined petroleum oils, Mixture; Proprietary additives (<1% zinc), Mixture

NFPA Rating (Health, Fire, Reactivity): 0, 1, 0

TRANSPORTATION

US Department of Transportation Classification
This material is not subject to DOT regulations under 49 CFR Parts 171-180.

Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flames or heat. Keep container closed and drum bungs in place.

Name and Address

SOPUS Products
P.O. Box 4427
Houston, TX 77210-4427

ADMINISTRATIVE INFORMATION	
MANUFACTURER ADDRESS:	SOPUS Products, P.O. Box 4427, Houston, TX. 77210-4427

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT : IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY

OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN AS A RESULT OF THAT DATA, IS THE PROPERTY OF SOPUS PRODUCTS AND IS NOT TO BE THE SUBJECT OF SALE OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF SOPUS PRODUCTS.

44419-11418-100R-04/17/2008

Material Safety Data Sheet
The Dow Chemical Company

Product Name: AQUCAR(TM) GA 15 Water Treatment Microbiocide

Issue Date: 08/16/2013

Print Date: 16 Aug 2013

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
AQUCAR™ GA 15 Water Treatment Microbiocide

COMPANY IDENTIFICATION
The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
United States

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400
Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview
Color: Clear
Physical State: Liquid.
Odor: Fruity
Hazards of product:

DANGER! Keep out of reach of children. Causes severe eye burns. Causes skin burns. May cause allergic skin reaction. Harmful if inhaled; heated material produces harmful vapors. Causes respiratory tract irritation. May be harmful if swallowed. Aspiration hazard. Can enter lungs and cause damage. Evacuate area. Keep upwind of spill. Highly toxic to fish and/or other aquatic organisms.

OSHA Hazard Communication Standard
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact: Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.
Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Skin Sensitization: Skin contact may cause an allergic skin reaction in a small proportion of individuals. Contains component(s) which have caused allergic skin sensitization in guinea pigs. Contains component(s) which have demonstrated the potential for contact allergy in mice.
Inhalation: Vapor may cause severe irritation of the upper respiratory tract (nose and throat). Vapor from heated material may cause serious adverse effects, even death. Case reports and medical surveys link asthma and respiratory irritation to glutaraldehyde exposure, primarily in medical personnel. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening. Asthma-like symptoms may occur in people prone to respiratory disorders or other allergies.
Respiratory Sensitization: May cause allergic respiratory response in a small proportion of individuals.
Ingestion: Low toxicity if swallowed. Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract. Swallowing may result in gastrointestinal irritation or ulceration. Excessive exposure may cause: Headache. Dizziness. Anesthetic effects. Drowsiness. Unconsciousness. Other central nervous system effects.
Aspiration hazard: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.
Effects of Repeated Exposure: Repeated skin contact may result in absorption of amounts which could cause death. May cause nausea and vomiting.
Birth Defects/Developmental Effects: For glutaraldehyde: Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
Glutaraldehyde	111-30-8	15.0 %
Water	7732-18-5	<= 85.0 %

4. First-aid measures

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.
Skin Contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be immediately available.
Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Ingestion: If the person is fully alert and cooperative, have the person rinse mouth with plenty of water. In cases of ingestion have the person drink 4 to 10 ounces (120-300 mL) of water. Do not induce vomiting. Do not attempt mouth rinse if the person has respiratory distress, altered mental

status, or nausea and vomiting. Call a physician and/or transport to emergency facility immediately. See "Indication of immediate medical attention and special treatment needed".

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Glutaraldehyde may transiently worsen reversible airways obstruction including asthma or reactive airways disease. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Probable mucosal damage may contraindicate the use of gastric lavage. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. Fire Fighting Measures

Suitable extinguishing media

To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.
Methods and materials for containment and cleaning up: Avoid making contact with spilled material, glutaraldehyde will be absorbed by most shoes. Always wear the correct protective equipment, consisting of splashproof monogoggles, or both safety glasses with side shields and a wraparound full-face shield, appropriate gloves and protective clothing. A self-contained breathing apparatus or respirator and absorbents may be necessary, depending on the size of the spill and the adequacy of ventilation. Small spills: Wear the correct protective equipment and cover the liquid with absorbent material. Collect and seal the material and the dirt that has absorbed the spilled material in polyethylene bags and place in a drum for transit to an approved disposal site. Rinse away the remaining spilled material with water to reduce odor, and discharge the rinsate into a municipal or industrial sewer. Large spills: In case of nasal and respiratory irritation, vacate the room immediately. Personnel cleaning up should be trained and equipped with a self-contained breathing apparatus, or an officially approved or certified full-face respirator equipped with an organic vapor cartridge, gloves, and clothing impervious to glutaraldehyde, including rubber boots or shoe protection. Deactivate with sodium bisulfite (2-3 parts (by weight) per part of active substance glutaraldehyde), collect the neutralized liquid and place in a drum for transit to an approved disposal site.

7. Handling and Storage

Handling
General Handling: Keep out of reach of children. Do not get in eyes, on skin, on clothing. Do not swallow. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wear goggles, protective clothing and butyl or nitrile gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Other Precautions: Do not spray or aerosolize the undiluted form of the product. Full personal protective equipment (including skin covering and full-face SCBA respirator) is required for dilutions or mixtures of the product used in a spray application.

Storage
Do not store in: Aluminum. Carbon steel. Copper. Mild steel. Iron. Please refer to Dow publication: GLUTARALDEHYDE. Safe Handling and Storage Guide; Form No. 253-01338.
Shelf life: Use within 18 Months

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Glutaraldehyde	ACGIH	Ceiling	0.05 ppm SEN

A "SEN" notation following the exposure guideline refers to the potential to produce sensitization, as confirmed by human or animal data.

Personal Protection
Eye/Face Protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator. Use a full-face respirator when material is heated or when aerosols/mists are generated. Eye wash fountain should be located in immediate work area.
Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. Use chemical protective clothing resistant to this material, when there is any possibility of skin contact. Remove contaminated clothing immediately, wash skin area

with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. This product is a respiratory irritant. If discomfort is experienced ventilation is not adequate and an approved full face air-purifying respirator is recommended. If vapors are strong enough to be irritating to the nose, or eyes, the OEL is probably being exceeded. Special ventilation or respiratory protection may be required. For operations such as spraying and other conditions such as emergencies where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus. For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Full-face Organic vapor cartridge with a particulate pre-filter.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance	
Physical State	Liquid.
Color	Clear
Odor	Fruity
Odor Threshold	< 1 ppb *Literature*
pH	3.1 - 4.5 *ASTM E70*
Melting Point	Not applicable to liquids
Freezing Point	-7 °C (19 °F) *OECD 102*
Boiling Point (760 mmHg)	100.7 °C (213.3 °F) *OECD 103* .
Flash Point - Closed Cup	*ASTM D56* None
Evaporation Rate (Butyl Acetate = 1)	0.8 *Calculated*
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	**Lower**: No test data available **Upper**: No test data available
Vapor Pressure	0.3 mmHg @ 20 °C *OECD 104* Active ingredient
Vapor Density (air = 1)	0.7 *Calculated*
Specific Gravity (H2O = 1)	1.042 *OECD 109*
Solubility in water (by weight)	100 % @ 20 °C *Calculated*
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	No test data available
Decomposition Temperature	No test data available
Kinematic Viscosity	No test data available
Explosive properties	Not explosive
Oxidizing properties	No
Molecular Weight	No test data available

10. Stability and Reactivity

Reactivity
No dangerous reaction known under conditions of normal use.
Chemical stability
Thermally stable at typical use temperatures.

Possibility of hazardous reactions
Polymerization will not occur.
Conditions to Avoid: Active ingredient decomposes at elevated temperatures.

Incompatible Materials: Avoid contact with: Amines. Ammonia. Strong acids. Strong bases. Strong oxidizers. Avoid contact with metals such as: Aluminum. Carbon steel. Copper. Iron. Mild steel.
Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials.

11. Toxicological Information

Acute Toxicity
Ingestion
Single dose oral LD50 has not been determined. Typical for this family of materials. LD50, rat > 900 mg/kg
Dermal
The dermal LD50 has not been determined. Typical for this family of materials. LD50, rabbit > 16,000 mg/kg
Inhalation
As product: The LC50 has not been determined.
Eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin corrosion/irritation
Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.
Sensitization
Skin
Skin contact may cause an allergic skin reaction in a small proportion of individuals. Contains component(s) which have caused allergic skin sensitization in guinea pigs. Contains component(s) which have demonstrated the potential for contact allergy in mice.
Respiratory
May cause allergic respiratory response in a small proportion of individuals.
Repeated Dose Toxicity
Repeated skin contact may result in absorption of amounts which could cause death. May cause nausea and vomiting.
Chronic Toxicity and Carcinogenicity
In a NTP chronic 2-year inhalation study on glutaraldehyde, no carcinogenicity was seen in rats or in mice. An increase in large granular lymphocytes in Fischer rats dosed with glutaraldehyde for two years was random or a secondary carcinogenic effect due to a modifying influence on the occurrence of this common neoplasm in this rat strain.
Developmental Toxicity
For glutaraldehyde: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For glutaraldehyde: Did not cause birth defects in laboratory animals.
Reproductive Toxicity
For glutaraldehyde: In animal studies, did not interfere with reproduction.
Genetic Toxicology

For glutaraldehyde: In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were predominantly negative.

12. Ecological Information

Toxicity

Data for Component: **Glutaraldehyde**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

Fish Acute & Prolonged Toxicity
For the active ingredient(s): LC50, Pimephales promelas (fathead minnow), 96 h: 5.4 mg/l
Aquatic Invertebrate Acute Toxicity
For the active ingredient(s): LC50, Daphnia magna (Water flea), 48 h, immobilization: 0.345 mg/l
Aquatic Plant Toxicity
For the active ingredient(s): ErC50, Pseudokirchneriella subcapitata (green algae), Growth rate inhibition, 72 h: 1.32 mg/l
Toxicity to Micro-organisms
EC50, OECD 209 Test; activated sludge: > 50 mg/l
EC50; Bacteria, 16 h: 17 - 25 mg/l
Aquatic Invertebrates Chronic Toxicity Value
water flea Daphnia magna, flow-through test, 21 d, number of offspring, For the active ingredient(s):, NOEC: 0.12 mg/l
Toxicity to Above Ground Organisms
oral LD50, Anas platyrhynchos (Mallard duck): 408 - 466 mg/kg
dietary LC50, Colinus virginianus (Bobwhite quail): > 5,000 ppm
dietary LC50, Anas platyrhynchos (Mallard duck): > 5,000 ppm

Persistence and Degradability

Data for Component: **Glutaraldehyde**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
83 %	28 d	OECD 301A Test	pass
73 %	28 d	OECD 306 Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
4.69E-11 cm3/s	2.74 h	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
28 %	57 - 63 %	72 - 74 %	

Theoretical Oxygen Demand: 1.92 mg/mg

Bioaccumulative potential

Data for Component: **Glutaraldehyde**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): -0.333 Measured

Mobility in soil

Data for Component: **Glutaraldehyde**

Mobility in soil: Potential for mobility in soil is high (Koc between 50 and 150)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient, soil organic carbon/water (Koc): 120 - 500 Estimated.
Henry's Law Constant (H): 3.3E-08 atm*m3/mole; 25 °C Measured

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. Transport Information

DOT Non-Bulk
Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, NOS
Technical Name: GLUTARALDEHYDE
Hazard Class: 8 **ID Number:** UN3265 **Packing Group:** PG III

DOT Bulk
Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, NOS
Technical Name: GLUTARALDEHYDE
Hazard Class: 8 **ID Number:** UN3265 **Packing Group:** PG III

IMDG
Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, NOS
Technical Name: GLUTARALDEHYDE
Hazard Class: 8 **ID Number:** UN3265 **Packing Group:** PG III
EMS Number: F-A,S-B

ICAO/IATA
Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, NOS
Technical Name: GLUTARALDEHYDE
Hazard Class: 8 **ID Number:** UN3265 **Packing Group:** PG III
Cargo Packing Instruction: 856
Passenger Packing Instruction: 852

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	Crude Oil, Sweet
SYNONYMS:	Sweet Crude
CHEMICAL NAME:	Petroleum
CHEMICAL FAMILY:	Petroleum Hydrocarbon
PRODUCT USE:	Refinery feedstock
SUPPLIER:	Plains Midstream Canada Suite 1400, 607 – 8th Avenue S.W. Calgary, AB, T2P 0A7
Emergency Telephone:	1-866-875-2554 Canutec (613) 996-6666 or *666 Cellular

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER!!

EXTREMELY FLAMMABLE- MAY EVOLVE TOXIC AND FLAMMABLE HYDROGEN SULPHIDE GAS - EYE, SKIN AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD.

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

HYDROGEN SULPHIDE (toxic gas) may be released. High concentration may cause immediate unconsciousness - death may result unless victim is promptly and successfully resuscitated.

Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects. Contains benzene, which can cause blood disease, including leukemia. Benzene and Toluene is readily absorbed through intact skin.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY

Eyes: Yes Skin: Yes Inhalation: Yes Ingestion: Yes

EYES

MODERATE TO SEVERE IRRITANT. Liquids and vapors may cause irritation to the eyes, conjunctiva, and mucous membranes, causing redness and tearing. Splashing of liquid into the eyes will cause smarting and pain.

SKIN

SLIGHT TO MODERATE IRRITANT. Contact may cause irritation to the skin and mucous membranes upon prolonged and/or repeated skin contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed. Prolonged or repeated contact to petroleum oil with skin may cause defatting of the skin leading to redness, itching, inflammation, cracking, dermatitis (rash), and possible secondary infection. High-pressure skin injections are serious medical emergencies. The appearance of injury may be delayed for a few hours, but may cause tissue to become swollen, discolored and extremely painful.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluids in the lungs), severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, such as irritation, nausea, vomiting and diarrhea, and central nervous system effects. Acute symptoms of ingestion are most common, including excitation, restlessness, euphoria, nausea, headache, dizziness, drowsiness, blurred vision, reduced coordination, and fatigue. In more severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Vapors may cause nose and throat irritation, anesthetic effects and central nervous system (CNS) depression. Inhalation may result in nausea, dizziness, drowsiness, headaches, and other symptoms similar to those listed under "Ingestion". Certain ingredients may produce systemic effects to the blood, liver, kidneys, central nervous system and cardiovascular system. Inhalation of high concentrations can cause rapid CNS depression, cardiac arrhythmia, unconsciousness, coma, and possibly death resulting from respiratory failure.

WARNING: Irritating and toxic hydrogen sulphide gas may be released. At high concentrations (500 - 1000 ppm), hydrogen sulphide acts as a systemic poison, causing unconsciousness and death. In lower concentrations (50 - 500 ppm), hydrogen sulphide acts as a respiratory irritant, and may cause fluid in the lungs or bronchial pneumonia. The rotten egg odor of hydrogen sulphide is not a reliable indicator for warning of exposure, since olfactory fatigue (loss of smell) readily occurs, especially at concentrations above 50 ppm.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS/CARCINOGENICITY
Contains carcinogens according to IARC, NTP, ACGIH and OSHA. Contains benzene; a regulated human carcinogen. Benzene is recognized as having the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash) conditions. Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	%	CAS #
Crude Oil	100	8002-05-9
Benzene	0.1 to1.5	71-43-2
Toluene	0.1 to 5	108-88-3
Ethylbenzene	0.1 to 5	100-41-4
Xylene, Mixed isomers	0.1 to 5	1330-20-7
Hydrogen Sulphide	0.1 to 5	7783-06-4

Crude oil is a mixture of naturally occurring paraffins; napthenes; aromatic hydrocarbons and small amounts of sulphur and nitrogen compounds. The composition and properties will vary significantly according to the source of the crude. Crude oil with sulphur content greater than 0.5 weight percent is considered sour. This product is a commingled stream from multiple petroleum facilities and is a complex mixture consistent with the definition within WHMIS regulation CPR section 2. The listed components are provided as guidance based on the available knowledge of the commingled stream.

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. High-pressure injections are serious medical emergencies - seek immediate medical attention.

INGESTION
DO NOT INDUCE VOMITING BECAUSE OF DANGER OF BREATHING LIQUID INTO LUNGS. Seek immediate medical attention. Rinse mouth with water. Administer 1 to 2 glasses of water or milk to drink. Never administer liquids to an unconscious person. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Seek medical attention. Monitor for breathing difficulty.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and administer CPR. If necessary, provide additional air or oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FIRE AND EXPLOSION HAZARDS
EXTREMELY FLAMMABLE. This is a commingled petroleum stream from various locations and producers the actual flammable characteristics are difficult to predict but this product should be considered as an extremely flammable liquid. Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard. Liquids will float on water. Liquid may accumulate static charge.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires - dry chemical, CO_2, water spray, fire foam, or Halon.

LARGE FIRES: Water spray, fog or fire foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Fire fighting activities that may result in potential exposure to high heat, smoke or toxic byproducts of combustion should require approved self-contained breathing apparatus (SCBA) with full-facepiece and full protective firefighting clothing.

Isolate area around container if involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. If leak or spill has not ignited, ventilate area and determine if water spray would assist in dispersing gas or vapor to protect personnel attempting to stop leak. Water may be useful in flushing spills away from ignition sources; however, do NOT flush petroleum products down public sewers or other drainage systems.

For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam. Refer to NAERG Guide 128.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE YOUR FACILITY'S SITE SPECIFIC EMERGENCY RESPONSE PLAN if available.

Evacuate nonessential personnel and remove or secure all ignition sources for 300m (1000ft). Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Hydrogen sulphide may be evolved during a release, ensure response personnel are adequately protected - see Section 8 for personal protection.

Carefully contain and stop the source of the spill, if safe to do so. Do not flush down sewer or drainage systems. Protect bodies of water by diking, if possible. The use of fire fighting foam may be useful in certain situations to reduce vapors.

SMALL SPILLS: Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Cleanup crews must be properly trained and must utilize proper protective equipment.

LARGE SPILLS: Dike far ahead of the spill. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas /equipment that require protection. Consideration should be given to environmental clean-up and waste material generation when determining if the use

of large volumes of water is appropriate for non-fire emergency situations. Cleanup crews must be properly trained and must utilize proper protective equipment. Notify regulatory authorities. Refer to NAERG Guide 128.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS

Handle as a flammable liquid. Keep away from heat, sparks, and open flame. No smoking or open flame in storage, use of handling areas. Keep containers closed and clearly labeled. Ground all drums and transfer vessels when handling. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Use only with adequate ventilation. Avoid breathing vapors. Wash thoroughly after handling. Electrical equipment should be approved for classified area. DO NOT siphon by mouth.

STORAGE PRECAUTIONS

Store in a well ventilated area. This storage area should comply with NFPA 30. Avoid storage near incompatible materials.

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the vicinity of any potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Do not use gasoline or solvents (naphtha, kerosene, etc) for washing this product from exposed skin areas. Waterless hand cleansers are effective.

Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

Ingredient Name	CAS #	Exposure Limit
Benzene	71-43-2	ACGIH TWA= 0.5 ppm (skin) ACGIH TLV-STEL= 2.5 ppm
Toluene	108-88-3	ACGIH TWA= 50 ppm (skin)
Ethylbenzene	100-41-4	ACGIH TWA= 100 ppm ACGIH STEL = 125 ppm
Xylene, mixed isomers	1330-20-7	ACGIH TWA= 100 ppm
Hydrogen Sulphide	7783-06-4	ACGIH TWA= 1 ppm ACGIH STEL= 5 ppm

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor and mist concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified/controlled areas.

EYE/FACE PROTECTION

Faceshield or chemical splash goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Avoid repeated or prolonged skin contact. Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of poly-coated or equivalent recommended based on degree of exposure.

Note: The resistance of specific materials may vary from product to product as well as degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
For hydrogen sulphide hazard (above H_2S permissible exposure limits): SCBA or a supplied air respirator must be used.

If exposure assessment indicates NO reduced oxygen content or hydrogen sulphide hazard (below H_2S exposure limit): NIOSH/MSHA - approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited and should not be considered especially when odor cannot be used to determine respirator effectiveness. Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Refer to CSA Standard "Selection, Use and Care of Respirators" (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

BASIC PHYSICAL PROPERTIES

APPEARANCE:	Generally a thick, dark yellow to brown or greenish black liquid.
ODOR:	A hydrocarbon odor. If present Hydrogen Sulphide (H_2S) has a rotten egg odor, but should not be used as warning property of toxic levels because H_2S can overwhelm and deaden the sense of smell. Therefore the smell of H_2S should not be used as an indicator of a hazardous condition - a calibrated H_2S meter can be used to determine the concentration of H_2S.
PHYSICAL STATE:	Liquid
FLASH POINT:	-20^{o}C to 93.3 ^{o}C (Flash point are in the flammable range but are highly dependent on crude oil source. This is a commingled stream of crude oils from various producers.
BOILING POINT:	-20 to 1100 ^{o}C
VAPOR PRESSURE:	varies
VAPOR DENSITY (Air = 1):	3 to 5
SPECIFIC GRAVITY	0.70 to 0.95 (water - 1.0):
SOLUBILITY (H_2O):	Insoluble to slightly soluble
PARTITION COEFFICIENT:	2 to 6

10. STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID (STABILITY)
Material is stable under normal conditions. Avoid high temperatures, open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS
Keep away from strong oxidizers, ignition sources and heat.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

HAZARDOUS POLYMERIZATION: Will Not Occur.

11. TOXICOLOGICAL INFORMATION

ACUTE EFFECTS
Potential short-term effects of exposure are: irritation eyes, skin, nose, mucous membrane, and respiratory system.

Repeated or prolonged skin exposure to petroleum oils may cause various skin disorders, such as contact or eczematous dermatitis, folliculitis, oil acne, lipid granuloma, melanosis, and rarely precancerous warts on the

forearms, backs of hands or scrotum. Contains Benzene and Toluene, which are readily absorbed through intact skin and have Skin Notations by ACGIH.

ACUTE ORAL EFFECTS

Ingredient	CAS No	LD50	LC50
Crude Oil	8002-05-9	Rat oral >5000mg/kg Dermal Toxicity > 2000 mg/kg	Not available
Toluene	108-88-3	Rat oral 5000 mg/kg Rat oral 3500 mg/kg	400 ppm/4hr
Ethyl benzene	100-41-4	Rabbit skin 17,800 mg/kg	Not available
Xylene, mixed isomers	1330-20-7	Mouse oral 1590 mg/kg	Rat inhalation: 6,350 ppm/4 hr
Benzene	71-43-2	Rat oral 3306 mg/kg	Rat ihl 10,000 ppm/7 hr Rat inhalation 380 mg/ cu m > 960 min
Hydrogen Sulphide	7783-06-4	Not applicable	

CHRONIC EFFECTS/CARCINOGENICITY

Product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood forming system (particularly bone marrow), and serious blood disorders, such as leukemia. Benzene is listed by the National Toxicology Program (NTP), International Agency For Research on Cancer (IARC), and ACGIH as carcinogenic in humans.

Product contains polynuclear aromatic hydrocarbons (PAHs). Animal studies have shown that prolonged and/or repeated exposure to certain PAHs may cause cancer of the skin, lung and other organs.

Other potential chronic effects of exposure are: irritation eyes, skin, nose, mucous membrane, respiratory system; dizziness, anorexia, vomiting, abdominal pain; dermatitis, excitement, confusion, euphoria, drowsiness, incoordination, staggered gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis; lassitude (weakness, exhaustion), headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; liver, kidney damage, bone marrow depression; [potential occupational carcinogen], narcosis, coma.

Similar products produced skin cancer and skin tumors in laboratory animals following repeated applications. Crude oils may contain some PAH's, which have been shown to be carcinogenic after repeated or prolonged skin contact in laboratory animals. Studies by API and others have shown that some crude oils produced skin cancer or skin tumors in laboratory animals following repeated applications without washing or removal between applications. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation. Potential risks to humans can be minimized by observing good work practices and personal hygiene procedures.

MUTAGENICITY (GENETIC EFFECTS)

Some crude oils and crude oil fractions have been positive in mutagenic assay tests.

REPRODUCTIVE EFFECTS

Contains ingredients identified as embryotoxic with the potential of fetal loss.

12. ECOLOGICAL INFORMATION

Keep out of sewage, drainage and waterways. Report spills and releases, as applicable, under federal, provincial and local regulations.

13. DISPOSAL CONSIDERATIONS

Maximize product recovery for reuse or recycling. Contaminated materials may be classified as a hazardous waste due to the low flash point and benzene. Empty containers can have residues that are subject to hazardous waste disposal requirements. Dispose of waste in accordance with all applicable federal, provincial, and/or local regulations.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME:	Petroleum Crude Oil
TDG CLASS:	3
TDG IDENTIFICATION NUMBER:	UN1267
TDG SHIPPING LABEL:	Flammable Liquid
SHIPPING DESCRIPTION:	Petroleum Crude Oil, 3, UN1267, PGII

15. REGULATORY INFORMATION

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

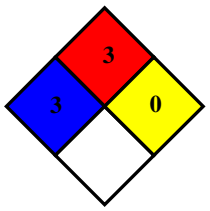
Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.
Class B, Division 2 (Flammable Liquid)
D1A - Very Toxic Material Causing Immediate and Serious Toxic Effects
Class D, Division 2, Subdivision A (Very toxic by other means)
Class D, Division 2, Subdivision B(Toxic by other means)

This substance is listed on the Canadian Domestic Substances List (DSL).

16. OTHER INFORMATION

Issued by: Health and Safety Department, Plains Midstream Canada Telephone 403-261-7466
Technical Development by Deerfoot Consulting Inc. Telephone 403-720-3700

NFPA HAZARD RATING -	HEALTH:	3	High
	FIRE:	3	High
	REACTIVITY:	0	Negligible



Acronyms:

ANSI	=	American National Standards Institute
ACGIH	=	American Conference of Governmental Industrial Hygienists
API	=	American Petroleum Institute
CSA	=	Canadian Standards Association
HMIS	=	Hazardous Materials Information System
MSHA	=	Mine Safety and Health Administration
NAERG	=	North American Emergency Response Guide
NFPA	=	National Fire Protection Association
NIOSH	=	National Institute of Occupational Safety and Health
NTP	=	National Toxicology Program
OSHA	=	U.S. Occupational Safety & Health Administration
PAH	=	Poly-Aromatic Hydrocarbons
ppm	=	parts per million (volume/volume)
SCBA	=	Self-Contained Breathing Apparatus
STEL	=	Short Term Exposure Limit
TLV	=	Threshold Limit Value
TWA	=	Time Weighted Average
WHMIS	=	Workplace Hazardous Materials Information System - Canadian

Disclaimer of Expressed and Implied Warranties

The information presented in the Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. However, neither Plains Midstream Canada Deerfoot Consulting Inc nor any of their subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use.

Analytix Technologies, LLC.

P.O. Box 590466, Houston, TX 77259-0466, Tel: (281) 286-7562

Date Prepared: 2/3/2003
Last Revision 11/29/2010

1. CHEMICAL IDENTIFICATION

Trade Name AN-310FG
Product Use ..... Scale Control in Remediation of Groundwater
Emergency Number ..... Infotrac 1-800-535-5053
Customer Service Hotline ..... 281-286-7562 (8 AM to 5 PM CST)

2. COMPOSITION INFORMATION ON INGREDIENTS

Chemical Name	CAS No.
Copolymer	Not Hazardous
Organic Phosphorus Compound	2809-21-4
Water	7732-18-5

3. HAZARD IDENTIFICATION

Appearance: Light straw color with slight odor
Primary Routes of Exposure: Eye, Skin
Potential Health Effects – Direct eye contact can cause eye burns. The product is slightly irritating to skin, and irritating to respiratory and gastrointestinal membranes.

4. FIRST AID

Eyes ..... Immediately flush with water for at least 15 minutes, lifting the upper and lower ..... eyelids intermittently. See a medical doctor or ophthalmologist immediately.

Skin ..... Immediate first aid is not likely to be required. Wash with plenty of soap and water. ..... Get medical attention if irritation occurs and persists.

Ingestion ..... Immediate first aid is not likely to be required. Rinse mouth with water. Dilute by ..... giving 2 glasses of water. Do not induce vomiting. Never give anything by ..... mouth to an unconscious person. A physician can be contacted for advice.

Inhalation ..... Immediate first aid is not likely to be required. Remove to fresh air. If breathing ..... difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: The product is corrosive to the eyes and is expected to be irritating to the mucous membranes of the respiratory and gastrointestinal tracts. Treatment is controlled removal of exposure with symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

Flash Point and Method ..... Not applicable
Flammable Limits ..... Not applicable
Autoignition Temperature ..... Not applicable
Extinguishing Media ..... Not applicable (aqueous solution)
Sensitivity to Static Discharge ..... No data available
Sensitivity to Impact ..... No data available

6. ACCIDENTAL RELEASE MEASURES

Release Notes - Keep spilled concentrated material out of drains and water courses. Absorb with sand or other absorbent material. Dispose of as solid waste in accordance with local regulations (e.g. incinerate). Flush the spill area with plenty of water.

7. HANDLING AND STORAGE

Handling – Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist and use approved splash goggles and vapor respirator fitted with approved organic cartridge if vaporization or misting occurs. Use with adequate ventilation.

Storage: Store at > 32 °F, away from nitrites, sulfites and alkaline materials. Do not store in mild steel, carbon steel or Aluminum. Suitable materials are: glass lining; PVC; polypropylene; polyethylene and glass-reinforced plastics. Keep containers tightly closed when not in use and when in transit.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT

Eye Protection: Wear safety glasses or chemical splash goggles meeting ANSI Z87.1 or approved equivalent.
Hand & Body Protection: Minimize skin contact by wearing protective PVC or Neoprene gloves, overalls or apron is also recommended.
Respiratory Protection: None required under normal handling and transfer conditions. An approved respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant use of a respirator. Where vapors or mist may occur, wear a properly fitted NIOSH-approved or equivalent half-mask, air-purifying respirator fitted with NIOSH-approved organic vapor cartridges.

Facilities storing or utilizing this material should be equipped adequate ventilation, eyewash and shower facility.

9. PHYSICAL AND CHEMICAL PROPERTIES

Odor.....Slight
pH.....~ 2.65
Vapor Density.....Not applicable
Freezing Point..... 0^0 C
Specific Gravity.....~ 1.1 @ 20^0C

Appearance .....Clear
Vapor Pressure.....17.5 mm Hg @ 20^0C
Boiling Point.....101^0C to 103^0C
Solubility in Water.....Complete

Note: The above physical data are typical values. They should not be construed as specification for the product.

10. STABILITY AND REACTIVITY

Stability .....Stable
Polymerization.....Will not occur
Hazardous Decomposition Products.....None

11. TOXICOLOGICAL INFORMATION

This is a blended product. No data on the neat product is available. The following data is available for the active components, which have been diluted to make this product.

Organic Phosphorus Component:

Eye Irritation.....Irritant (rabbit)	Dermal LD_{50}.....> 7940 mg/kg (rabbit)
Skin Irritation.....Non-irritant (rabbit)	Oral LD_{50} .....> 2350 mg/kg (rat)

Copolymer:

Eye Irritation.....Slight Irritant (rabbit)	Dermal LD_{50}.....> 5000 mg/kg (rabbit)
Skin Irritation.....Non-irritant (rabbit)	Oral LD_{50} .....> 5000 mg/kg (rat)

12. ECOLOGICAL INFORMATION

This is a blended product. No ecological information on the neat product is available. The following data is available for the active components, which have been diluted to make this product.

Organic Phosphorus Compound:

Algae (Selenastrum capricornutum), 96 Hour EC50:	=	3 mg/l
Daphnia magna, 48 Hour EC50:	>	500 mg/l
NOEC:	=	400 mg/l
Grass Shrimp (Palaemonetes Pugio), 96 Hour EC50:	>	1,700 mg/l
NOEC:	>	100 mg/l
Rainbow trout (Salmo gairdneri), 96 Hour LC50 Static:	>	300 mg/l
Bluegill sunfish (Lepomis macrochirus), 96 Hour LC50 Static:	>	800 mg/l

This component has low avian toxicity, is slightly toxic to oysters and is practically non-toxic to fish and invertebrates. Algal growth inhibition is due to ability of the product to complex materials and not to toxicity per se.

Copolymer:

Daphnia magna, 48 Hour EC50:	>	2,750 mg/l
NOEC:	=	2,200 mg/l
Rainbow trout (Salmo gairdneri), 96 Hour LC50:	>	4,850 mg/l
NOEC:	=	1,300 mg/l
Bluegill sunfish (Lepomis macrochirus), 96 Hour LC50:	>	10,000 mg/l
NOEC:	=	10,000 mg/l

13. DISPOSAL CONSIDERATION

Disposal Method : Absorb spillage onto sand or other absorbent material and dispose of as solid waste as per local regulations (e.g. incineration). Surplus product can be incinerated.

If the product was supplied in a single use container, care should be taken to dispose of the container in a responsible manner and in accordance with applicable regulations. Label precautions should be followed for any residual material in the container. Whenever possible, our company encourages recycling of containers.

14. TRANSPORT INFORMATION

U.S. DOT (Department of Transportation) Hazard Class: Nonregulated

Other Shipping Information – DOT Marking – Not applicable
Hazardous Substance/RQ – Not applicable
49 STCC Number – Not applicable

Keep container tightly closed. Protect against physical damage.

15. REGULATORY INFORMATION

Following information pertains to each active component in the product, when applicable.
UNITED STATES

SARA TITLE 3 (Superfund Amendments and Reauthorization Act) – Not listed
Section 302 Extremely Hazardous Substances (40 CFR 355) – Not listed
Section 311 Hazard Category (40 CFR 370) – Immediate (Acute) Health Hazard
Section 312 Threshold Planning Quantity (40 CFR 370) – 10,000 lbs
Section 313 Reportable Ingredients (40 CFR 372) – Not listed

CERCLA (Comprehensive Environmental Response Compensation and Liability Act) (40 CFR 302.4)-Not listed.

TSCA (Toxic Substance Control Act) (40 CFR 710) – Listed

16. OTHER INFORMATION

Suggested HMIS Ratings -	Health - 3	Flammability - 0	Reactivity - 0	Protection - C
NFPA Rating	Health - 3	Flammability - 0	Reactivity - 0	Special - None

HMIS Rating notes - Protection C = Safety goggles, gloves, synthetic apron

86061

R&L ONLY

Shipper (from) | Subject to BOL terms | Consignee (to)

Analytix Technologies LLC
17647 Foltz Industrial PKWY
Strongville, OH 44149
281/286.7562

NOVA Safety and Environmental, Inc.
2057 Commerce Drive
Midland, TX 79703

Attn: Curt Stanley 432.520.7720

Freight Terms:

Prepaid Bill to 3rd Party as shown on right

Sec. 7 Signed ? No
Single Shipment ? No

Bill To

Priority 1 Inc.
Accounts Payable (50110459201Q)
P.O. Box 398
North Little Rock, AR 72115
Tel: 501.371.9814 Fax: 501.374.5960

# of Packages	HM X	Kind of packaging, Description of Articles (as described in NMFC), NMFC Item #; Special Marks & Exceptions	Weight	Class
1 Drum		**NON-Hazardous Liquid** **One (1) 15-GAL, AN-310FG, NMFC # 48580-3**	**160**	**55**
		LIFTGATE		
Special Instructions: LIFTGATE				

Section 7 Conditions - The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Signature of Consignor_____

IN CASE OF CHEMICAL EMERGENCY CONTACT INFOTRAC (800) 535-5035

This is to certify that the above-named materials are properly classified, described, package, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Signature: _____ Carrier Signature_____ Date_____

Place
Pro Number Sticker
Here

TRUCK #	LOOSE PCS	TOTAL HANDLING UNITS
START	STOP	DATE

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of check No. _____ dated 12/3/08

or cash received on _____ in the amount of $ 2600 00

from Plains Pipeline LP

for GW-294

Submitted by: Laurence Romero Date: 12/10/08

Submitted to ASD by: Laurence Romero Date: 12/10/08

Received in ASD by: _____ Date: _____

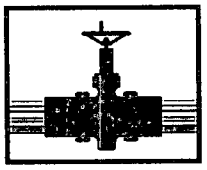
Filing Fee _____ New Facility _____ Renewal _____

Modification _____ Other Permit Fee

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment _____ or Annual Increment _____



PLAINS PIPELINE, L.P.

December 8, 2008

Mr. Wayne Price, Environmental Bureau Chief
In care of Mr. Jim Griswold
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Approval of Discharge Permit GW-294
TNM 97-04 Release Site (SE ¼ of SE ¼ [Unit P] of Sec. 11, T16S, R35E)
Lea County, New Mexico

Mr. Griswold:

Pursuant to Water Quality Control Commission (WQCC) Regulations 20.6.2.3104 - 20.6.2.3114 NMAC, and the Oil Conservation Division (OCD) approval/renewal of the subject discharge permit, Plains All American Pipeline, LP (Plains) hereby submits the signed copy of the Attachment to the Discharge Permit along with payment in the amount of $2,600.00 to cover the associated permit flat fee.

If you have any questions, please feel free to contact me at the numbers below or by email at weroberts@paalp.com.

On behalf of Plains, I wish to thank you and the OCD staff for your cooperation during this discharge permit review.

Sincerely,

Wayne E. Roberts

Wayne E. Roberts
Director, Environmental & Regulatory Compliance
S & SW Divisions - Plains All American
3705 E. Hwy. 158
Midland, TX 79706
432.686.1767 office
432.413.2574 cell
432.686.1770 fax

Attachments

Cc: OCD District I Office, Hobbs

ATTACHMENT- DISCHARGE PERMIT APPROVAL CONDITIONS

1. Payment of Discharge Plan Fees: All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application (new or renewal) will be assessed a filing fee of $100.00, plus a flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The flat fee for the abatement of groundwater and vadose zone contamination at oil and gas sites is $2,600.00. The Oil Conservation Division (OCD) has received the required filing fee but not the associated flat fee.

2. Permit Expiration, Renewal Conditions and Penalties: Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this renewal permit is valid for a period of five years. **The renewed permit will expire on May 28, 2013** and an application for renewal should be submitted no later than 120 days before the expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act {Chapter 74, Article 6, NMSA 1978} and civil penalties may be assessed accordingly.***

3. Permit Terms and Conditions: Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, the owner/operator must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38.

4. Owner/Operator Commitments: The owner/operator shall abide by all commitments submitted in its signed February 26, 2008 discharge plan renewal application, attachments and subsequent amendments including the *Enhanced Product Recovery Workplan* dated August 2008, and these conditions for approval. Permit applications that reference previously approved plans on file with the division shall be incorporated in this permit and the owner/operator shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C and 20.6.2.3109 NMAC addresses possible future modifications of a permit. The owner/operator (discharger) shall notify the OCD of any facility expansion, production increase, or process modification that would result in any significant modification in the potential discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is being or will be exceeded, or if a toxic pollutant as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: The owner/operator shall dispose of all wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class II well. RCRA non-hazardous, non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: The owner/operator shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. The owner/operator shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: The owner/operator must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. The owner/operator must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. The owner/operator must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: The owner/operator shall either pave and curb or have some type of spill collection device incorporated into the design at all process, maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: The owner/operator shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. The owner/operator shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: The owner/operator shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The owner/operator may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The owner/operator shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location,

foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed, and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety, and the environment for the foreseeable future. The owner/operator shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. The owner/operator shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. The owner/operator shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. The owner/operator shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. The owner/operator may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual inspection of cleaned tanks and/or sumps, or other OCD-approved methods. The owner/operator shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. The owner/operator shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more than a 1% loss/gain in pressure. The owner/operator may use other methods for testing if approved by the OCD.

B. The owner/operator shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. The owner/operator shall report any leaks or loss of integrity to the OCD within 15 days of discovery. The owner/operator shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. The owner/operator shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: The owner/operator shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V injection wells under the EPA UIC program. Class V wells that inject domestic waste only must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: The owner/operator shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be

emptied of fluids within 72 hours of discovery. The owner/operator shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: The owner/operator shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). The owner/operator shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on OCD inspections.

17. Storm Water: The owner/operator shall implement and maintain run-on and runoff plans and controls. The owner/operator shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater runoff. The owner/operator shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: The owner/operator shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application and approved herein. ***An unauthorized discharge is a violation of this permit.***

19. Vadose Zone and Water Pollution: The owner/operator shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the owner/operator to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site-Specific Conditions:

A. All groundwater effluent from the carbon vessels which is to be infiltrated into the subsurface will meet WQCC groundwater standards.

B. All groundwater effluent from the carbon vessels will be sampled and analyzed according to the following schedule:

Weekly for the first month of operation – dissolved concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by either Method 8260 or 8021, polyaromatic hydrocarbons (PAHs) by Method 8270, and WQCC metals by Method 6010.

Monthly thereafter -- BTEX by either Method 8260 or 8021, and PAHs by Method 8270.

Annually -- BTEX by either Method 8260 or 8021, PAHs by Method 8270, and WQCC metals by Method 6010.

C. Groundwater from all monitoring wells which do not contain free phase product will be sampled and analyzed according to the following schedule:

At system startup -- BTEX by either Method 8260 or 8021, PAHs by Method 8270, and WQCC metals by Method 6010.

Quarterly -- BTEX by either Method 8260 or 8021, and PAHs by Method 8270

Annually -- BTEX by either Method 8260 or 8021, PAHs by Method 8270, and WQCC metals by Method 6010.

D. An "as-built" report, summarizing installation and initial operational parameters for the air sparging system, total fluids pumping system, and manual or automated product recovery system installed in the monitoring wells, will be submitted to the OCD Environmental Bureau in Santa Fe with a copy to the OCD District 1 office in Hobbs within 30 days after the end of startup activities.

E. All monitoring wells will be checked for depth-to-product, depth-to-water, and total well depth on at least a quarterly basis.

F. An annual monitoring report will be submitted to the OCD Environmental Bureau in Santa Fe on April 1 of each year with a copy to the OCD District 1 office in Hobbs. Those reports will contain the following information:

a) Description of all remediation and monitoring activities which occurred since the last such report

b) Site map showing the locations of all wells, remediation systems, and other relevant site features.

c) Summary of all lab analyses and copies of all lab reports.

d) Maps showing the potentiometric surface on a quarterly basis.

e) Apparent product thickness on a quarterly basis.

f) Isoconcentration maps for contaminants of concern on a quarterly basis.

g) Table of total product recovery on a monthly basis.

h) Operational parameters for the various remedial systems including injection pressures, injection airflow, and total fluids pumping rates.

G. Infiltration test wells ITW-1, ITW-2, and ITW-3 shall be properly abandoned in place. A new downgradient monitoring well (MW-18) shall be installed and included in the regular sampling schedule. Information pertinent to the test well abandonments and new well installation shall be included in either the "as-built" or annual report.

H. Both the OCD Environmental Bureau and District 1 office shall be notified at least 72 hours in advance of all field activities.

21. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.3111 NMAC, prior to any transfer of ownership, control, or possession (whether by lease, conveyance or otherwise) of a facility with a discharge permit, the transferor shall notify the transferee in writing of the existence of the discharge permit, and shall deliver or send by certified mail to the department a copy of such written notification, together with a certification or other proof that such notification has in fact been received by the transferee.

Upon receipt of such notification, the transferee shall have the duty to inquire into all of the provisions and requirements contained in such discharge permit, and the transferee shall be charged with notice of all such provisions and requirements as they appear of record in the department's file or files concerning such discharge permit. The transferee (new owner/operator) shall sign and return an original copy of these permit conditions and provide a written commitment to comply with the terms and conditions of the previously approved discharge permit.

22. Closure Plan and Financial Assurance: Pursuant to 20.6.2.3107 NMAC an owner/operator shall notify the OCD when any operations of the facility are to be discontinued for a period in excess of six months. Prior to closure, or as a condition of this permit, or request from the OCD, the operator will submit an approved closure plan, modified plan, and/or provide adequate financial assurance.

23. Certification: (Owner/Operator), by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Owner/Operator** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Plains
Midland, TX
Company Name - print name above

Wayne E. Roberts
Company Representative - print name

Wayne E. Roberts
Company Representative - Signature

Title: Director, Environmental + Regulatory Compliance

Date: 12-08-2008

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Director
Oil Conservation Division

November 7, 2008

Mr. Wayne Roberts
Director, Environmental & Regulatory Compliance
Plains All American Pipeline, LP
3705 East Highway 158
Midland, Texas 79706

Re: Approval of Discharge Permit GW-294
TNM 97-04 Release Site (SE ¼ of SE ¼ [Unit P] of Sec. 11, T16S, R35E)
Lea County, New Mexico

Mr. Roberts:

Pursuant to Water Quality Control Commission (WQCC) Regulations 20.6.2.3104 - 20.6.2.3114 NMAC, the Oil Conservation Division (OCD) hereby approves renewal of the discharge permit to Plains All American Pipeline, LP (owner/operator) of the above referenced facility contingent upon the conditions specified in the enclosed **Attachment to the Discharge Permit**. Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 days of receipt of this letter along with payment in the amount of $2,600.00 to cover the associated permit flat fee.**

Please be advised that approval of this permit does not relieve the owner/operator of responsibility should operations result in additional pollution of surface water, ground water or the environment. Nor does approval of the permit relieve the owner/operator of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please feel free to contact Jim Griswold at (505) 476-3465 or by email at *jim.griswold@state.nm.us*. On behalf of the staff at the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

Attachment

LWP/jg
xc: OCD District I Office, Hobbs

ATTACHMENT- DISCHARGE PERMIT APPROVAL CONDITIONS

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application (new or renewal) will be assessed a filing fee of $100.00, plus a flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The flat fee for the abatement of groundwater and vadose zone contamination at oil and gas sites is $2,600.00. The Oil Conservation Division (OCD) has received the required filing fee but not the associated flat fee.

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6. **Waste Disposal and Storage:** The owner/operator shall dispose of all wastes at an OCD-approved facility. Only oil field RCRA-exempt wastes may be disposed of by injection in a Class II well. RCRA non-hazardous, non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

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10. **Labeling:** The owner/operator shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. The owner/operator may use a tank code numbering system, which is incorporated into their emergency response plans.

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A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. The owner/operator shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location,

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19. Vadose Zone and Water Pollution: The owner/operator shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require the owner/operator to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

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D. An "as-built" report, summarizing installation and initial operational parameters for the air sparging system, total fluids pumping system, and manual or automated product recovery system installed in the monitoring wells, will be submitted to the OCD Environmental Bureau in Santa Fe with a copy to the OCD District 1 office in Hobbs within 30 days after the end of startup activities.

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Upon receipt of such notification, the transferee shall have the duty to inquire into all of the provisions and requirements contained in such discharge permit, and the transferee shall be charged with notice of all such provisions and requirements as they appear of record in the department's file or files concerning such discharge permit. The transferee (new owner/operator) shall sign and return an original copy of these permit conditions and provide a written commitment to comply with the terms and conditions of the previously approved discharge permit.

22. Closure Plan and Financial Assurance: Pursuant to 20.6.2.3107 NMAC an owner/operator shall notify the OCD when any operations of the facility are to be discontinued for a period in excess of six months. Prior to closure, or as a condition of this permit, or request from the OCD, the operator will submit an approved closure plan, modified plan, and/or provide adequate financial assurance.

23. Certification: (Owner/Operator), by the officer whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Owner/Operator** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

_____
Company Name - print name above

_____
Company Representative - print name

_____
Company Representative - Signature

Title:_____

Date:_____

Affidavit of Publication

STATE OF NEW MEXICO)

) ss.

COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that she is Advertisting Director of **THE LOVINGTON LEADER**, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

was published in a regular and entire issue of **THE LOVINGTON LEADER** and not in any supplement thereof, for one (1) day, beginning with the issue of July 19, 2008 and ending with the issue of July 19, 2008.

And that the cost of publishing said notice is the sum of $ 95.20 which sum has been (Paid) as Court Costs.

Joyce Clemens

Subscribed and sworn to before me this 13th day of August 2008

Debbie Schilling

Debbie Schilling

Notary Public, Lea County, New Mexico

My Commission Expires June 22, 2010

LEGAL NOTICE
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 Water Quality Control Commission Regulations (20.6.2.3106 NMAC), the following discharge permit application has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(GW-294) Plains Pipeline LP, 333 Clay Street, Suite 1600, Houston, Texas 77210-4648 has submitted an application for renewal of a discharge plan for their Townsend Remediation Site located within Unit P of Section 11, Township 16 South, Range 35 East approximately two miles southwest of Lovington, New Mexico (Lea County) south of Highway 82. An uncontrolled release of crude oil from a ruptured pipeline occurred at the site in 1997. At present, approximately 400 gallons of recovered crude oil and 250 gallons of contaminated groundwater are brought to the surface on an annual basis. The discharge plan addresses the manner in which these materials are properly handled, temporarily stored on-site and properly disposed off-site, including how spills, leaks, and other accidental discharges to the surface will be managed. Groundwater in the area is at a depth of approximately 50 feet below ground surface with a concentration of total dissolved solids between 500 and 2,000 milligrams per liter.

The NMOCD has determined this application is administratively complete and has prepared a draft permit for the facility. The NMOCD will accept comments and statements of interest regarding these applications and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on the facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or may also be viewed at the NMOCD web site http://www.emnrd.state.nm.us/ocd/. Persons interested in obtaining a copy of the application and draft permit may contact the NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice during which interested persons may submit comments or request that NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed permits based on information available, including all comments received. If a public hearing is held, the director will approve or disapprove the proposed permit based on information in the permit application and information submitted at those hearings.

Para obtener más información sobre esta solicitud en espanol, sirvase comunicarse por favor New Mexico Energy, Minerals and Natural Resources Department (Depto. Del Energia, Minerals y Recursos Naturales de Nuevo México) Oil Conservation Division (Depto. Conservacio n Del Petróleo) 1220 South St. Francis Drive, Santa Fe, New Mexico (Contacto: Dorothy Phillips, 505-476-3461).

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 17th day of July 2008.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

THE SANTA FE
NEW MEXICAN
Founded 1849

VED
PM 3 26

NM EMNRD Oil Conserv Div.
Jim Griswold
1220 S. St. Francis Drive
Santa Fe, NM 87505

ALTERNATE ACCOUNT: 56689
AD NUMBER: 00262050 ACCOUNT: 00002212
LEGAL NO: 85693 P.O. #: 52100-00000137

361 LINES 1 TIME(S)	314.16
AFFIDAVIT:	7.00
TAX:	25.49
TOTAL:	346.65

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 Water Quality Control Commission Regulations (20.6.2.3106 NMAC), the following discharge permit applications have been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE

I, L. Paquin, being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily newspaper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication # 85693 a copy of which is hereto attached was published in said newspaper 1 day(s) between 07/23/2008 and 07/23/2008 and that the notice was published in the newspaper proper and not in any supplement; the first date of publication being on the 23rd day of July, 2008 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ L. Paquin
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 23rd day of July, 2008

Notary Pamela Anne Beach

Commission Expires: May 31, 2011

OFFICIAL SEAL
Pamela Anne Beach
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 5-31-11

(GW-97) BJ Services Company USA, 11211 FM 2920 Tomball, Texas 77375 has submitted an application for renewal of a discharge plan for their Farmington Service Facility, 3250 Southside River Road in Farmington, NM, located in Sections 13 and 14, Township 29 North, Range 13 West, NMPM (San Juan County). The facility provides oil field services including cementing, acidizing, and fracturing services at oil and gas well sites. Materials generated and/or stored at the facility include but are not limited to cement, acids, detergents, salts, biocides, solvents, used oil, scrap metal, tires, batteries, antifreeze, and wastewater in various quantities. The aquifer most likely to be affected by an accidental leak from this facility is 25 feet in depth and the total dissolved solids concentration of this aquifer is approximately 1,500 to 2,000 milligrams per liter. The nearest surface watercourse is the Animas River located approximately one mile to the northwest. The San Juan River is situated approximately 1.5 miles to the south. The discharge plan addresses how oilfield products and waste will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh water.

(GW-156) Key Energy Services, 6 Desta Drive, Suite 400, Midland, Texas 79705 has submitted an application for renewal of a discharge plan for their Farmington Service Facility, 5651 US Highway 64 in Farmington, NM, located in the NE 1/4 of the NE 1/4 (Unit A) of Section 29, Township 29 North, Range 12 West, NMPM (San Juan County). The facility is used for dispatch and maintenance of petroleum exploration and production equipment. Materials generated and/or stored at the facility include but are not limited to: motor and gear oils, filters, solvents, and fuels. The aquifer beneath this facility lies at a depth between 8 and 23 feet below ground surface with a concentration of total dissolved solids ranging between 1,500 to 8,500 milligrams per liter. The nearest surface water lies within the San Juan River flowing near the southern property boundary. The discharge plan addresses how oilfield products and waste will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh water.

(GW-294) Plains Pipeline, LP, 333 Clay Street, Suite 1600, Houston, Texas 77210-4648 has submitted an application for renewal of a discharge plan for their Townsend Remediation Site located within Unit P of Section 11, Township 16 South, Range 35 East approximately two miles southwest of Lovington, New Mexico (Lea County) south of Highway 82. An uncontrolled release of crude oil from a ruptured pipeline occurred at the site in 1997. At present, approximately 400 gallons of recovered crude oil and 250 gallons of contaminated groundwater are brought to the surface on an annual basis. The discharge plan addresses the manner in which these materials are properly handled, temporarily stored on-site, and properly disposed off-site, including how spills, leaks, and other accidental discharges to the surface will be managed. Groundwater in the area is at a depth of approximately 50 feet below ground surface with a concentration of total dissolved solids between 500 and 2,000 milligrams per liter.

(GW-379) El Paso Natural Gas Company, 3300 North A Street, Building 2 Suite 200, Midland, Texas 79705 has submitted an application for a new discharge plan for their planned Eunice C Compressor Station, near Oil Center, NM, located in the SE 1/4 of the NW 1/4 of Section 5, Township 21 South, Range 36 East, NMPM (Lea County). The facility will be used for the compression of pipeline quality natural gas. Materials generated and/or stored at the facility include but may not be limited to: new and used lubricating oils, coolant water, filters, paints, detergents, and cleaning supplies. The aquifer beneath this facility lies at a depth of 160 feet below ground surface with a concentration of total dissolved solids ranging between 707 to 4,230 milligrams per liter. The discharge plan addresses how oilfield products and waste will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh water.

The NMOCD has determined that these applications are administratively complete and has prepared draft permits for each facility. The NMOCD will accept comments and statements of interest regarding these applications and will create facility-specific mailing lists for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determinations and draft permits may be viewed at the above address between 8:00 a.m. and 4:00 p.m. Monday through Friday, or may also be viewed at the NMOCD web site http://www.emnrd.state.nm.us/ocd/. Persons interested in obtaining a copy of the applications and draft permits may contact the NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice during which interested persons may submit comments or request that NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearings are held, the Director will approve or disapprove the proposed permits based on information available, including all comments received. If individual public hearings are held, the director will approve or disapprove the proposed permits based on information in the permit application and information submitted at those hearings.

Para obtener más información sobre esta solicitud en espan ol, sírvase comunicarse por favor: New Mexico Energy, Minerals and Natural Resources Department (Depto. Del Energia, Minerals y Recursos Naturales de Nuevo México), Oil Conservation Division (Depto. Conservacio n Del Petróleo), 1220 South St. Francis Drive, Santa Fe, New México (Contacto: Dorothy Phillips, 505-476-3461).

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 17th day of July 2008.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L
Mark Fesmire,
Director
Legal No. 85693
Pub July 23, 2008

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor
Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Director
Oil Conservation Division

June 9, 2008

Mr. Wayne E. Roberts
Director, Environmental & Regulatory Compliance
S & SW Divisions – Plains All American
3705 East Highway 158
Midland, Texas 79706

Re: Application for Renewal of Discharge Permit GW-294

Mr. Roberts:

The Oil Conservation Division (OCD) received Plains Pipeline, L.P.'s (Plains) application dated February 26, 2008 to renew discharge permit GW-294 for the Townsend Remediation Site located within Unit P of Section 11 in Township 16 South, Range 35 East, NMPM, in Lea County near Lovington, New Mexico. The initial submittal along with the revisions submitted in your email of June 3, 2008 has provided the required information in order to deem the application "administratively complete".

Therefore, the New Mexico Water Quality Control Commission (WQCC) regulations notice requirements of 20.6.2.3108 NMAC must be satisfied and demonstrated to the OCD. The OCD will provide public notice pursuant to the WQCC notice requirements of 20.6.2.3108 NMAC to determine if there is any public interest.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3465 or by email at *jim.griswold@state.nm.us*. Please refer to permit GW-294 in all future communication. On behalf of the OCD, I wish to thank you and your staff for your continued cooperation during the review process.

Respectfully,

Jim Griswold
Hydrologist

JG/jg
cc: OCD District I Office, Hobbs

Griswold, Jim, EMNRD

From: Griswold, Jim, EMNRD
Sent: Friday, May 23, 2008 10:09 AM
To: 'weroberts@paalp.com'
Subject: Discharge Plan GW-294 Renewal Application

Mr. Roberts

I am reviewing the Plains renewal application of Discharge Plan GW-294 for your Townsend Remediation Site. The first milestone in the process is determining if the application is "administratively complete". The criteria for the determination are detailed in WQCC Regulations 20.6.2.3108 NMAC. The OCD has determined the application is not administratively complete. I need additional information/clarification from Plains on or before Friday, June 6th.

- The site location provided is the SW ¼ of the SW ¼ (Unit M) of Section 11 T16S R35E. However, the attached report gives a location in the same section but in Unit P. I believe the Unit P location is correct, but I need formal confirmation from Plains.

- Plains must provide an estimate of the actual volumes of skimmed NAPL and produced groundwater based on recent history from corrective action and monitoring.

- Plains must provide the concentration of total dissolved solids (TDS) contained in the local groundwater.

I will continue to review all other information made available to the OCD with the hopeful outcome of permit renewal as soon as possible. Thank you for your efforts in this regard, and please feel free to contact me at any time with questions or comments.

Jim Griswold
Hydrologist
Environmental Bureau
ENMRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
direct: 505.476.3465
email: jim.griswold@state.nm.us

Griswold, Jim, EMNRD

From: Wayne E Roberts [weroberts@paalp.com]
Sent: Tuesday, June 03, 2008 6:43 AM
To: Griswold, Jim, EMNRD
Subject: RE: Discharge Plan GW-294 Renewal Application

Jim:

Here is the info from the latest Annual Monitoring Report:

Unit Letter P (confirmed through GIS Department)

Actual volumes of skimmed NAPL - 386 gallons (~9 bbl) oil recovered in 2007; 6839 gallons (163 bbl) recovered total since release

Produced groundwater – appr. 250 gallons per year, or 6 bbls (calculated based on info provided in Annual Report)

Concentration of total dissolved solids (TDS) contained in the local groundwater:

Research indicates average TDS in vicinity of Lovington ranges from 200-2000 mg/L. No TDS data have been developed at the Townsend site.

Hope this helps. Thank you for your patience and assistance-- please contact me at any time with further questions or concerns.

Thanks & Best Regards,
Wayne E. Roberts
Director, Environmental & Regulatory Compliance
S & SW Divisions - Plains All American
3705 E. Hwy. 158
Midland, TX 79706
432.686.1767 office
432.413.2574 cell
432.686.1770 fax

From: Griswold, Jim, EMNRD [mailto:Jim.Griswold@state.nm.us]
Sent: Friday, May 23, 2008 11:09 AM
To: Wayne E Roberts
Subject: Discharge Plan GW-294 Renewal Application

Mr. Roberts

I am reviewing the Plains renewal application of Discharge Plan GW-294 for your Townsend Remediation Site. The first milestone in the process is determining if the application is "administratively complete". The criteria for the determination are detailed in WQCC Regulations 20.6.2.3108 NMAC. The OCD has determined the

application is not administratively complete. I need additional information/clarification from Plains on or before Friday, June 6th.

• The site location provided is the SW ¼ of the SW ¼ (Unit M) of Section 11 T16S R35E. However, the attached report gives a location in the same section but in Unit P. I believe the Unit P location is correct, but I need formal confirmation from Plains.

• Plains must provide an estimate of the actual volumes of skimmed NAPL and produced groundwater based on recent history from corrective action and monitoring.

• Plains must provide the concentration of total dissolved solids (TDS) contained in the local groundwater.

I will continue to review all other information made available to the OCD with the hopeful outcome of permit renewal as soon as possible. Thank you for your efforts in this regard, and please feel free to contact me at any time with questions or comments.

Jim Griswold

Hydrologist

Environmental Bureau

ENMRD/Oil Conservation Division

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

direct: 505.476.3465

email: jim.griswold@state.nm.us

PLAINS
PIPELINE, L.P.

RECEIVED
2008 JUN 30 PM 1 28

June 27, 2008

Mr. Jim Griswold, Hydrologist
Oil Conservation Division
1220 S. Saint Francis
Santa Fe, NM 87505

Re: Groundwater Discharge Plan Renewal Submittal, Townsend Remediation Site
GW-294 Public Notice Affidavits
Lea County, New Mexico

Dear Mr. Griswold:

In accordance with Subsection F of 20.6.2.3108 NMAC, Plains Pipeline, LP (Plains) hereby submits proof of notice (affidavits of publication) to OCD. Plains published a synopsis of notice in English and Spanish, in a display ad at least 3 x 4 inches not in the classified or legal advertisement section, in the *Hobbs Daily News-Sun*, a newspaper of general circulation in the location of the Townsend Remediation site.

If you have any questions or comments about this information, please do not hesitate to call me at 432.686.1767 or 432.413.2574.

Thanks & Best Regards,

Wayne E. Roberts

Wayne E. Roberts
Director, Environmental & Regulatory Compliance
S & SW Divisions - Plains All American
3705 E. Hwy. 158
Midland, TX 79706
432.686.1767 office
432.413.2574 cell
432.686.1770 fax
email:weroberts@paalp.com

Advertising Receipt

Hobbs Daily News-Sun
201 N Thorp
P O Box 936
Hobbs, NM 88241-0850
Phone: (575) 393-2123
Fax: (575) 397-0610

WAYNE E. ROBERTS
PLAINS ALL AMERICAN
3705 EAST HIGHWAY 158
MIDLAND, TX 79706

Customer #:	49101441-000
Ad #:	49696786
Job #:	29246
Phone:	(432)686-1767
Date:	06/18/08
Description:	PUBLIC

Run Date	Insertion Number	Sales Person	Description	Ad Type	Size	Rate Code	Total Cost
06/18/08	49696787	02	07 07 Daily News-Sun	RP	3.00 x 4.00	RE	134.16

ORIGINAL

Total:	134.16
Tax:	8.97
Prepayment:	0.00
Total Due	143.13

PAID

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, KATHI BEARDEN

PUBLISHER

of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published in the regular and entire issue of said paper, and not a supplement thereof for a period

of 1 issue(s).
Beginning with the issue dated
JUNE 18, 2008
and ending with the issue dated
JUNE 18, 2008

PUBLISHER
Sworn and subscribed to before me this 18 TH day of JUNE, 2008

Notary Public.

My Commission expires
February 07, 2009
(Seal)

OFFICIAL SEAL
DORA MONTZ
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: _____

PUBLIC NOTICE

Plains Pipeline, L.P., Wayne Roberts, Southern Division Director of Environmental and Regulatory Compliance, P.O. Box 3119, Midland, Texas 79702, has submitted a renewal application for the previously approved discharge plan (GW-294) for the Plains Pipeline Townsend Site, located in Unit Letter P of Section 11, Township 16 South, Range 35 East, NMPM, Lea County, New Mexico, approximately two miles southwest of Lovington, New Mexico. Up to 500 gallons of crude oil and hydrocarbon-impacted groundwater are generated on site annually, which are collected and temporarily stored in containment vessels prior to transport and disposal at an NMOCD-approved facility. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 50 feet below ground surface, with a total dissolved solids concentration of approximately 500 to 2000 mg/l. The discharge plan addresses how impacted groundwater and recovered crude oil will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh water. Any interested person may obtain information; submit comments or request to be placed on a facility specific mailing list for future notices by contacting Mr. Jim Griswold at the New Mexico OCD at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505; Telephone (505) 476-3465. The OCD will accept comments and statements of interest regarding the renewal and will create a facility-specific mailing list for persons who wish to receive future notices.

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

49101441-000 49696786
PLAINS ALL AMERICAN
3705 EAST HIGHWAY 158
MIDLAND, TX 79706

Advertising Receipt

Hobbs Daily News-Sun
201 N Thorp
P O Box 936
Hobbs, NM 88241-0850
Phone: (575) 393-2123
Fax: (575) 397-0610

WAYNE E. ROBERTS
PLAINS ALL AMERICAN
3705 EAST HIGHWAY 158
MIDLAND, TX 79706

Customer #:	49101441-000
Ad #:	49696788
Job #:	29247
Phone:	(432)686-1767
Date:	06/18/08
Description:	PUBLIC

Run Date	Insertion Number	Sales Person	Description	Ad Type	Size	Rate Code	Total Cost
06/18/08	49696789	02	07 07 Daily News-Sun	RP	3.00 x 4.00	RE	134.16

Total:	134.16
Tax:	8.97
Prepayment:	0.00
Total Due	143.13

PAID

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, KATHI BEARDEN

PUBLISHER

of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published in the regular and entire issue of said paper, and not a supplement thereof for a period

of 1 issue(s).
Beginning with the issue dated
JUNE 18, 2008
and ending with the issue dated
JUNE 18, 2008

PUBLISHER

Sworn and subscribed to before me this 18 TH day of JUNE, 2008

Notary Public.

My Commission expires
February 07, 2009
(Seal)

OFFICIAL SEAL
DORA MONTZ
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: _____

NOTA PUBLICA

Plains Pipeline, L.P., Wayne Roberts, El sur de Director de División de la Conformidad Ambientall y Regulativa, P.O. La caja 3119, la Región Central, Tejas 79702, se han sometido una aplicación de la renovación para el plan anteriormente aprobado de la descarga (GW-294) para el Sitio de Plains Pipeline Townsend, situado en la Carta P de la Unidad de la Sección 11, Municipio 16 al sur, la Gama 35 al este, NMPM, Condado de Lea, Nuevo México, aproximadamente dos suroeste de millas de Lovington, Nuevo Méxoco. Hasta 500 gálones de agua subterránea de petróleo crudo e hidrocarburo-impresionó son engendrados en el sitio anualmente, que es reundio y es almacenado temporalmente en buques de contención antes del transporte y la disposición en una facilidad de NMOCD-APROBO. La agua subterránea más probable de ser afectada por un rocía, la filtración o la descargo accidental estánen una profundidad de aproximadamente 50 pies debajo de superficie de suelo, on un suma la concentración disuelta de sólidos de aproximadamente 500 a 2000 mt/L. El plan de la descarga dirige agua subterránea cómo impresionada y petróleo crudo recuperado serán manejado apropiadamente, serán almacenados, y serán deshecho de, inclusive cómo rociá, las filtraniones, y otras descargas accidentales a la supericie serán logradas proteger agua dulce. Alguna persona interesada puede obtener información; sométase los comentarios o petición para ser colocada en una facilidad lista de envio especifica para futuras notas contactando a St. Jim Griswold en el Nuevo México OCD en 1220 S. del sur. Francis Conduce, Santa Fe, Nuevo México 87505, el Teléfono (505) 476-3465. El OCD aceptará que los comentarios y las declaraciones del interés con respecto a la renovación y crearán una lista de envio facilidad-especifico para personas que desea recibir futuras notas.

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

49101441-000 49696788
PLAINS ALL AMERICAN
3705 EAST HIGHWAY 158
MIDLAND, TX 79706

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. _____ dated 2/27/08

or cash received on _____ in the amount of $ 100 00

from Plains Marketing LP

for GW-294

Submitted by: Lawrence Romero Date: 3/6/08

Submitted to ASD by: Lawrence Romero Date: 3/6/08

Received in ASD by: _____ Date: _____

Filing Fee ✓ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment _____ or Annual Increment _____

PLAINS
PIPELINE, L.P.

RECEIVED
2008 MAR 5 PM 2 57

Date

Mr. Wayne Price-Environmental Bureau Chief
Oil Conservation Division
1220 S. Saint Francis
Santa Fe, NM 87505

Re: Groundwater Discharge Plan Renewal Submittal, Townsend Remediation Site
GW-294 (TNM-97-04-KNOWN)
Lea County, New Mexico

Dear Mr. Price:

Enclosed please find the Discharge Plan Renewal Application for Plains Pipeline's Townsend Remediation Site in Lea County, NM. Also enclosed is the Discharge Plan Application form, the draft public announcements, and the $100 filing fee.

If you have any questions or comments about this information, please do not hesitate to call me at 432-686-1767. Alternatively, you can contact Rebecca Esparza at 713-646-4625.

Thanks & Best Regards,

Wayne E Roberts

Townsend

Wayne E. Roberts
Director, Environmental & Regulatory Compliance
S & SW Divisions - Plains All American
3705 E. Hwy. 158
Midland, TX 79706
432.686.1767 office
432.413.2574 cell
432.686.1770 fax
email:weroberts@paalp.com

Cc: Camille Reynolds
Rebecca Esparza

wer/Enclosures

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised June 10, 2003

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES,GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☒ Renewal ☐ Modification

1. Type: **GW Discharge Plan for Remediation Site**

2. Operator: **Plains Pipeline, L. P.**

   Address: **P. O. Box 4648, Houston, TX 77210-4648**

   Contact Person: **Wayne E. Roberts, Director, Env/Reg Compliance; Phone: (432) 686-1767**

3. Location: **SW ¼, SW ¼** Section **11** Township **16** Range **35E**

   Submit large-scale topographic map showing exact location.

4. Attach the name, telephone number and address of the landowner of the facility site.

5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.

6. Attach a description of all materials stored or used at the facility.

7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.

8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.

9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.

10. Attach a routine inspection and maintenance plan to ensure permit compliance.

11. Attach a contingency plan for reporting and clean-up of spills or releases.

12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.

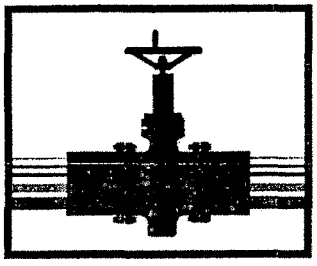
13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

14. CERTIFICATION I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Wayne E. Roberts Title: Director, Env/Reg Compliance

Signature: Wayne E Roberts Date: February 26, 2008

E-mail Address: weroberts@paalp.com



PLAINS
PIPELINE, L.P.

Discharge Plan
Townsend Site
TNM-97-04-KNOWN
Lea County, New Mexico

Plains Pipeline, LP
333 Clay Street, Suite 1600
Houston, Texas

February 2008

Table of Contents

1.0 Introduction

Plains Pipeline, LP, owns a crude oil release remediation site located near Lovington, New Mexico. The Townsend Site (Spill ID TNM-97-04-Known) consists of 15 groundwater monitoring wells, six with automated skimmer pumps to remove crude oil, drums, two clean inactive tanks, and a 500-gallon poly tank for storage of removed oil. This Discharge Plan has been prepared under the authority of the New Mexico Oil Conservation Division (NMOCD), who administers the New Mexico Water Quality Control Commission standards.

2.0 Operator Information

Owner/Operator	Plains Pipeline, LP 333 Clay Street, Suite 1600 Houston, TX 77002 (713) 646-4100
Local Representative	Camille Reynolds 3112 West Highway 82 Lovington, NM 88260 (505) 396-3341

3.0 Facility Location

The Townsend Site is located south of Highway 82, approximately 2 miles southwest of Lovington, New Mexico. The station is situated in Unit Letter P, Section 11, Township 16 South, Range 35 East, in Lea County. A site location map is included in Appendix A.

4.0 Landowner

The landowner is the same as the facility owner/operator.

5.0 Facility Description

The Townsend Site is a crude oil release remediation site. According to records from the previous owner, the release occurred or was discovered in 1997. There are currently 15 groundwater monitoring wells onsite. Six of the 15 wells have exhibited phase-separated hydrocarbons in the last year. Oil is skimmed off the top of these wells, then piped to a poly tank for storage prior to reinjection into the pipeline system. A small earthen berm surrounds the tank. Groundwater sampling is conducted on a quarterly basis. Water removed from the wells is stored onsite in drums prior to disposal. The site is fenced. A facility diagram is included in Appendix A.

6.0 Materials Stored or Used at the Facility

Materials stored or used at the facility include crude oil and groundwater. Material Safety Data Sheets (MSDSs) for the crude oil are available through the company intranet, and are available upon request. No other materials or chemicals are stored or used at the site.

7.0 Waste Generated and Procedures

No wastes, other than impacted groundwater, are generated at the facility. Small amounts of hydrocarbon-impacted groundwater are produced while sampling the wells. This water is drummed and properly disposed as needed. Oil recovered from the wells is not considered a waste.

8.0 Waste Collection, Storage, and Disposal Procedures

All wastes are managed in accordance with applicable state and federal laws. Nonhazardous hydrocarbon impacted groundwater is stored in closed, labeled drums at the site until a sufficient quantity is accumulated to pick up and dispose of it.

9.0 Proposed Modifications

No modifications are proposed at the Townsend Site.

10.0 Inspections and Maintenance

10.1 Routine Inspections

The site is inspected on a weekly basis by a third party contractor. The site is monitored for any change in conditions, including leaks and spills. Any releases are promptly cleaned up. Since the initial release, no spills have occurred.

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The site is inspected weekly, and any necessary maintenance is addressed during the weekly visits. All wells, piping, and storage containers are kept in good condition to prevent releases, and to prevent any contamination of stormwater.

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The Townsend Site is inspected on a weekly basis. The site is maintained to prevent releases. Any releases would immediately be reported to Plains by phone. Procedures for spill response are as follows.

In the event that a minor spill did occur, the site contractors are trained in spill response and appropriate spill response equipment is kept in their vehicles. If a spill occurs that cannot be handled with available personnel and equipment, additional trained and experienced local contractors are on call to handle spill response. The contractors'

equipment may include vacuum trucks, dump trucks, backhoes, hand tools, and absorbent materials. Additional controls, such as curbing, diking, and other acceptable measures may also be implemented to control potential releases and prevent any additional impact to groundwater. During spill response, all contaminated material is stockpiled, stored in rainproof containers (or inside plastic sheeting for large volumes of soil), characterized, and disposed in accordance with applicable state and federal laws.

In the event of a reportable release, notification will be provided to the NMOCD in accordance with Rule 116, and any other applicable regulations. The facility will also follow the methods descried in WQCC section 3107.A11, and will use NMOCD-accepted methods for remediation of releases. Plains also maintains in-house reporting and response procedures for all spills, regardless of volumes released.

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12.1 Physical Setting

The facility is situated at an elevation of approximately 3200 feet above mean sea level. The site is located near the Townsend Oil Field. The surface topography slopes gently to the southeast.

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Surface geology at the site consists of the Tertiary Ogallala Formation, which consists mostly of eolian sediments, primarily sand and silt. The Ogallala formation ranges in thickness from 0 to approximately 700 feet in southeast New Mexico. It appears the Ogallala formation in New Mexico was deposited under arid to subhumid climate conditions, under which alluvial sediments partially filled paleovalleys in the pre-Ogallala erosional surface while thick eolian sands and silts covered most of the pale highs and the fluvial sections.

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Appendix A - Figures

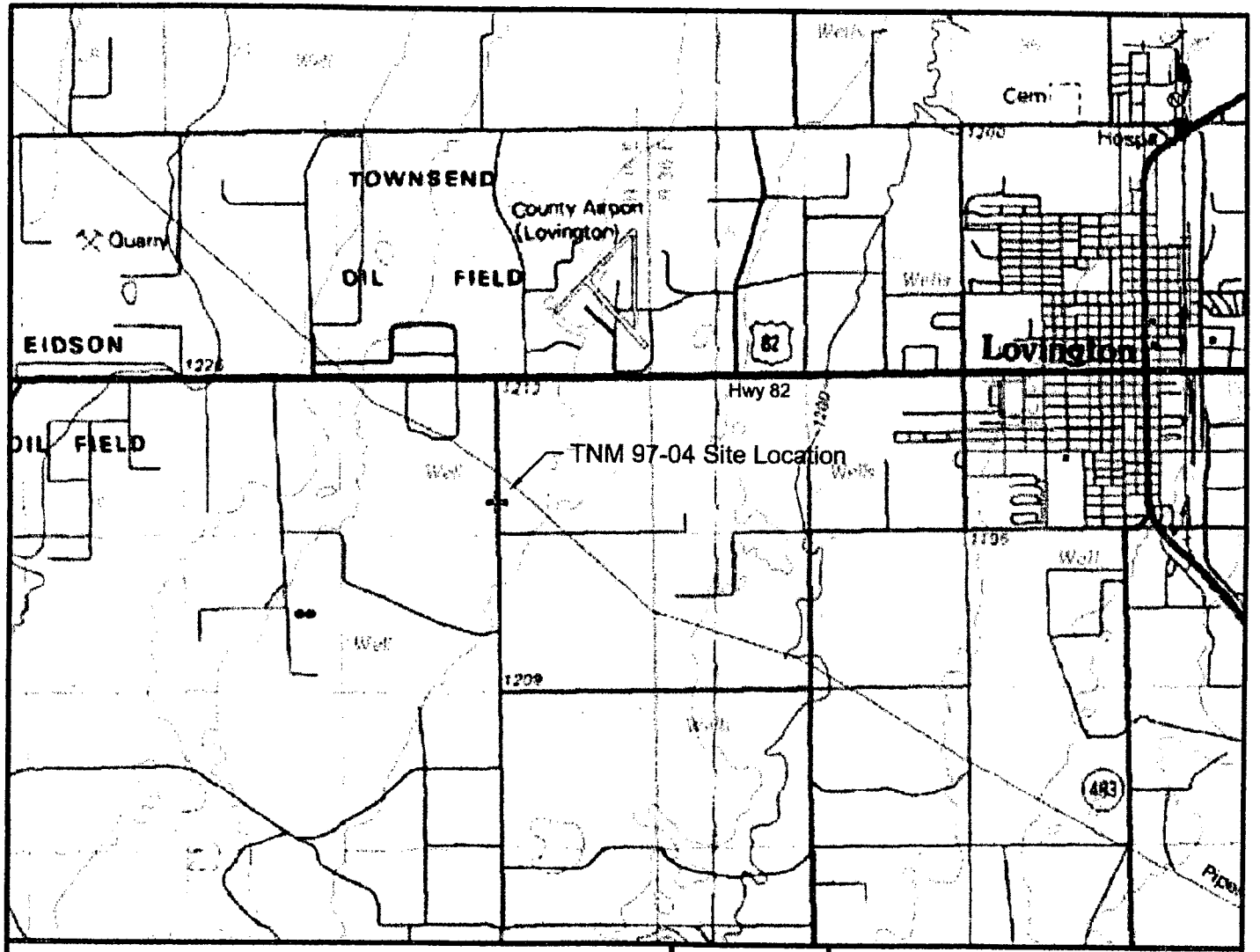
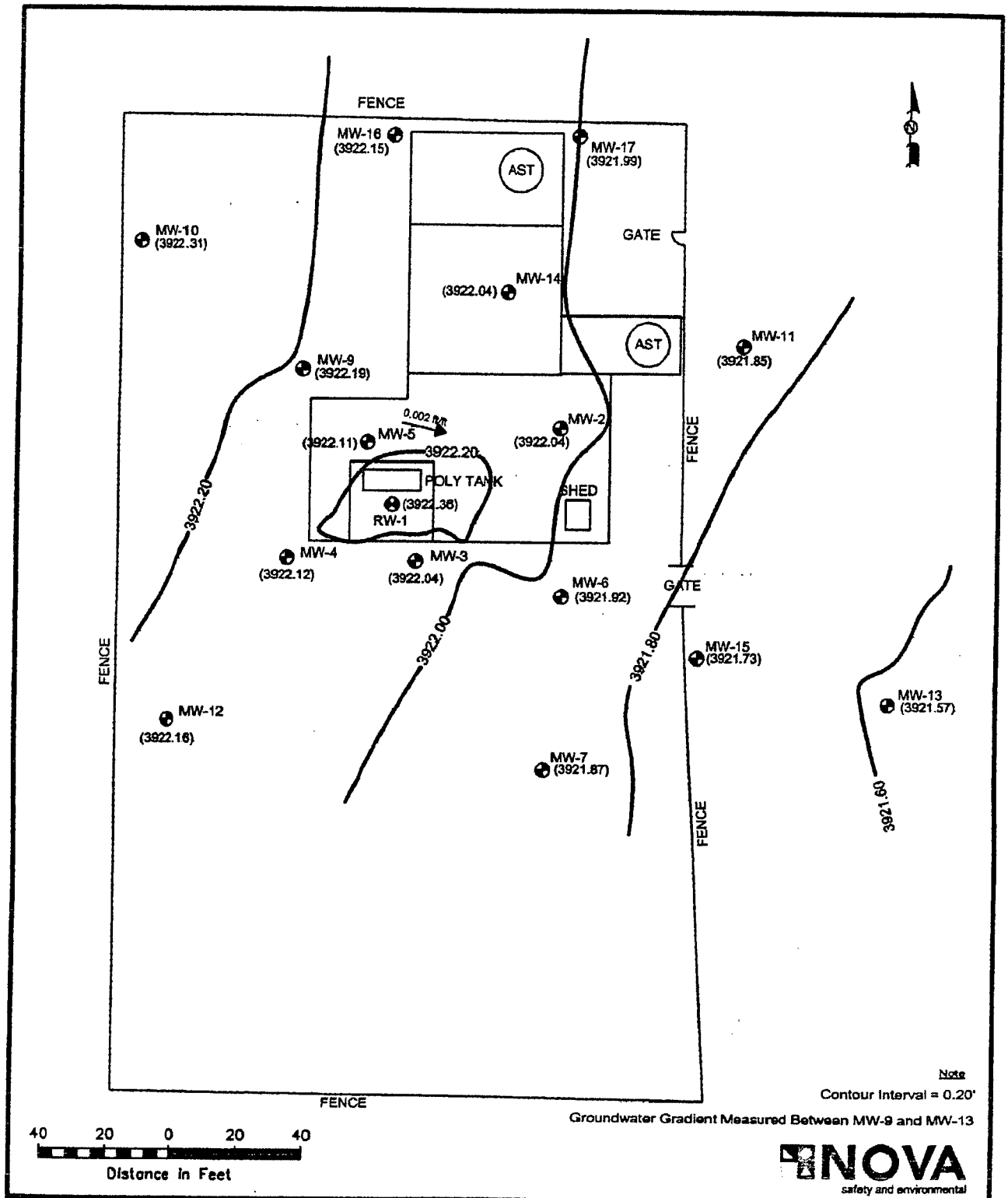


Figure 1
Site Location Map
Plains Marketing, L.P.
TNM 97-04
Lea County, NM

NOVA Safety and Environmental

Scale: 1" = 1000'	Prep By: CDS	Checked By: CDS
February 28, 2005	SE 1/4, SE 1/4, Sec 11 T16S R35E	
Lat. N32° 55' 57.1" Long. W103° 23' 12.3"		


FENCE
MW-16
(3922.15)
MW-17
(3921.99)
AST
MW-10
(3922.31)
GATE
MW-14
(3922.04)
AST
MW-11
(3921.85)
MW-9
(3922.19)
0.002 ft/ft
MW-5
(3922.11)
3922.20
MW-2
(3922.04)
FENCE
POLY TANK
SHED
(3922.36)
RW-1
3922.20
MW-4
(3922.12)
MW-3
(3922.04)
MW-6
(3921.92)
GATE
3922.00
3921.80
MW-15
(3921.73)
FENCE
MW-12
(3922.16)
MW-13
(3921.57)
MW-7
(3921.87)
3921.60
FENCE
FENCE
Note
Contour Interval = 0.20'
Groundwater Gradient Measured Between MW-9 and MW-13
40 20 0 20 40
Distance in Feet
NOVA
safety and environmental
LEGEND:
Monitor Well Location
Groundwater Contour Lines
(3921.20) Groundwater Elevation in Feet
0.001 ft/ft Groundwater Gradient and Magnitude
Figure 2A
Inferred Groundwater Gradient Map
(3/20/08)
Plains Marketing, L.P.
TNM 97-04
Lea County, NM
NOVA Safety and Environmental
Scale: 1" = 40'
CAD By: DGC
Checked By: CDS
May 24, 2008
NW1/4 SE1/4 Sec 18 T18S R36E
Lat. N32° 44' 50.3" Long. W103° 23' 38.5"

PUBLIC NOTICE

Plains Pipeline, L.P., Wayne Roberts, Southern Division Director of Environmental and Regulatory Compliance, P. O. Box 3119, Midland, Texas 79702, has submitted a renewal application for the previously approved discharge plan (GW-294) for the Plains Pipeline Townsend Site, located in Unit Letter P of Section 11, Township 16 South, Range 35 East, NMPM, Lea County, New Mexico, approximately two miles southwest of Lovington, New Mexico. Up to 500 gallons of crude oil and hydrocarbon-impacted groundwater are generated on site annually, which are collected and temporarily stored in containment vessels prior to transport and disposal at an NMOCD-approved facility. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 50 feet below ground surface, with a total dissolved solids concentration of approximately 500 to 2000 mg/l. The discharge plan addresses how impacted groundwater and recovered crude oil will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh water. Any interested person may obtain information; submit comments or request to be placed on a facility specific mailing list for future notices by contacting Wayne Price at the New Mexico OCD at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3489. The OCD will accept comments and statements of interest regarding the renewal and will create a facility-specific mailing list for persons who wish to receive future notices.

To be published in the Hobbs News Sun, which has a circulation of approximately 20,000 subscribers (online and in print).

NOTA PUBLICA

Plains Pipeline, L.P., Wayne Roberts, Director Meridional de División de la Conformidad Ambiental y Regulativa, P. O. La caja 3119, la Región Central, Tejas 79702, se han sometido una aplicación de la renovación para el plan previamente aprobado de la descarga (GW-294) para el Sitio de Plains Pipeline Townsend, localizado en la Carta P de la Unidad de la Sección 11, Municipio 16 al sur, la Gama 35 al este, NMPM, Condado de Lea, Nuevo México, aproximadamente dos millas oí Lovington del sudoeste, Nuevo México. Hasta 500 galones de agua subterránea de petróleo crudo e hidrocarburo-impresionó son engendrados en el sitio anualmente, que es reunido y es almacenado temporalmente en naves de contención antes del transporte y la disposición en una facilidad de NMOCD-APROBO. La agua subterránea muy probable de ser afectada por un rociá, el escape o la descarga accidental está en un oí aproximátela de la profundidad 50 pies debajo de superficie de suelo, con un suma la concentración disuelta de sólidos de aproximadamente 500 a 2000 mg/L. El plan de la descarga dirige agua subterránea cómo impresionada y petróleo crudo recuperado serán manejado apropiadamente, serán almacenados, y serán deshechos de, inclusive cómo rociá, los escapes, y otras descargas accidentales a la superficie serán manejadas de proteger agua dulce. Alguna persona interesada puede obtener información, se somete los comentarios o el pedido para ser colocado en una facilidad lista de envío específica para notas futuras contactando el Wayne Price en el Nuevo México OCD en 1220 S. del sur. Francis Maneja, Santa Fe, Nuevo México 87505, el Teléfono (505) 476-3489. El OCD aceptará los comentarios y las declaraciones del interés con respecto a la renovación y creará una lista de envío facilidad-específico para personas que desea recibir notas futuras.

Ser publicado en el Sol de Noticias de Hobbs, que tiene una circulación aproximadamente 20,000 suscriptores (en línea y en la impresión).

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. _____ dated 9/5/07

or cash received on _____ in the amount of $ 2600 00

from Plains Pipeline

for GW-294

Submitted by: Laurence Romero Date: 9/24/07

Submitted to ASD by: Lauren Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee _____ New Facility _____ Renewal ✓

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment _____

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of check No. _____ dated 9/5/07

or cash received on _____ in the amount of $ 100.00

from Plains Pipeline

for GW-294

Submitted by: Lawrence Romero Date: 9/24/07

Submitted to ASD by: Lawrence Romero Date: 9/24/07

Received in ASD by: _____ Date: _____

Filing Fee ✓ New Facility _____ Renewal _____

Modification _____ Other _____

Organization Code 521.07 Applicable FY 2004

To be deposited in the Water Quality Management Fund.

Full Payment _____ or Annual Increment _____

PLAINS PIPELINE, L.P.

RECEIVED
SEP 12 07

September 11, 2007

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Sante Fe, NM 87505

Re: Transmittal, Discharge Plan Renewal GW-294
Plains Pipeline's Townsend Remediation Station (TNM-97-04-KNOWN)
Lea County, New Mexico

Dear Mr. Price:

Enclosed please find a new Discharge Plan for Plains Pipeline's Townsend Remediation Site in Lea County, NM. Also enclosed is the Discharge Plan Application form, the draft public announcement, and the $100 filing fee, and the $2600 permit fee. If you have any questions or comments about this information, please do not hesitate to call me at 713-646-4625. Alternatively, you can contact Camille Reynolds at 505-396-3341.

Sincerely,

Rebecca Esparza

Rebecca E. Esparza
Environmental and Regulatory Compliance Specialist

Cc: Camille Reynolds
Wayne Roberts

Enclosures

DRAFT

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District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised June 10, 2003

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES,GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☐ New ☒ Renewal ☐ Modification GW-294

1. Type: **GW Discharge Plan for Remediation Site**
2. Operator: **Plains Pipeline, LP**

   Address: **PO Box 4648, Houston, TX 77210**

   Contact Person: **Camille Reynolds** Phone: **(505) 396-3341**
3. Location: **SW**/4 **SW**/4 Section **11** Township **16** Range **35E**
   Submit large scale topographic map showing exact location.
4. Attach the name, telephone number and address of the landowner of the facility site.
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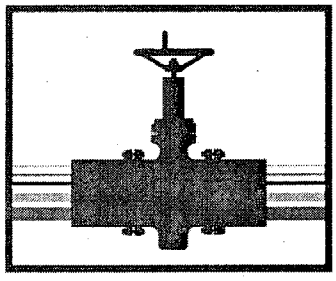
Name: Rebecca Esparza Title: Env. and Regulatory Compliance Specialist

Signature: Rebecca Esparza Date: August 30, 2007

E-mail Address: reesparza@paalp.com



PLAINS
PIPELINE, L.P.

Discharge Plan
Townsend Site
TNM-97-04-KNOWN
Lea County, New Mexico

Plains Pipeline, LP
333 Clay Street, Suite 1600
Houston, Texas

September 13, 2007

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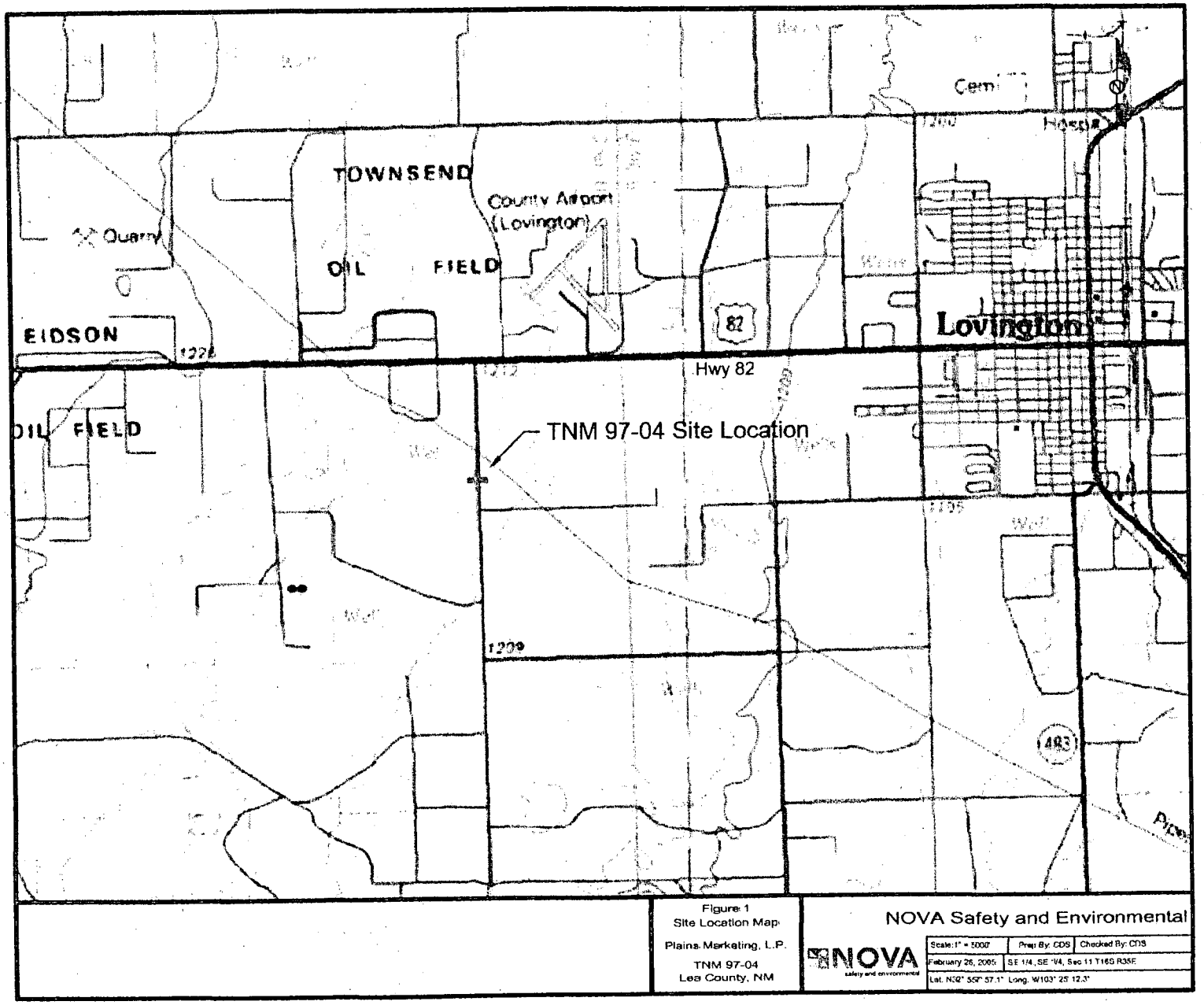

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TNM 97-04
Lea County, NM

NOVA Safety and Environmental

Scale: 1" = 5000'	Prep By: CDS	Checked By: CDS
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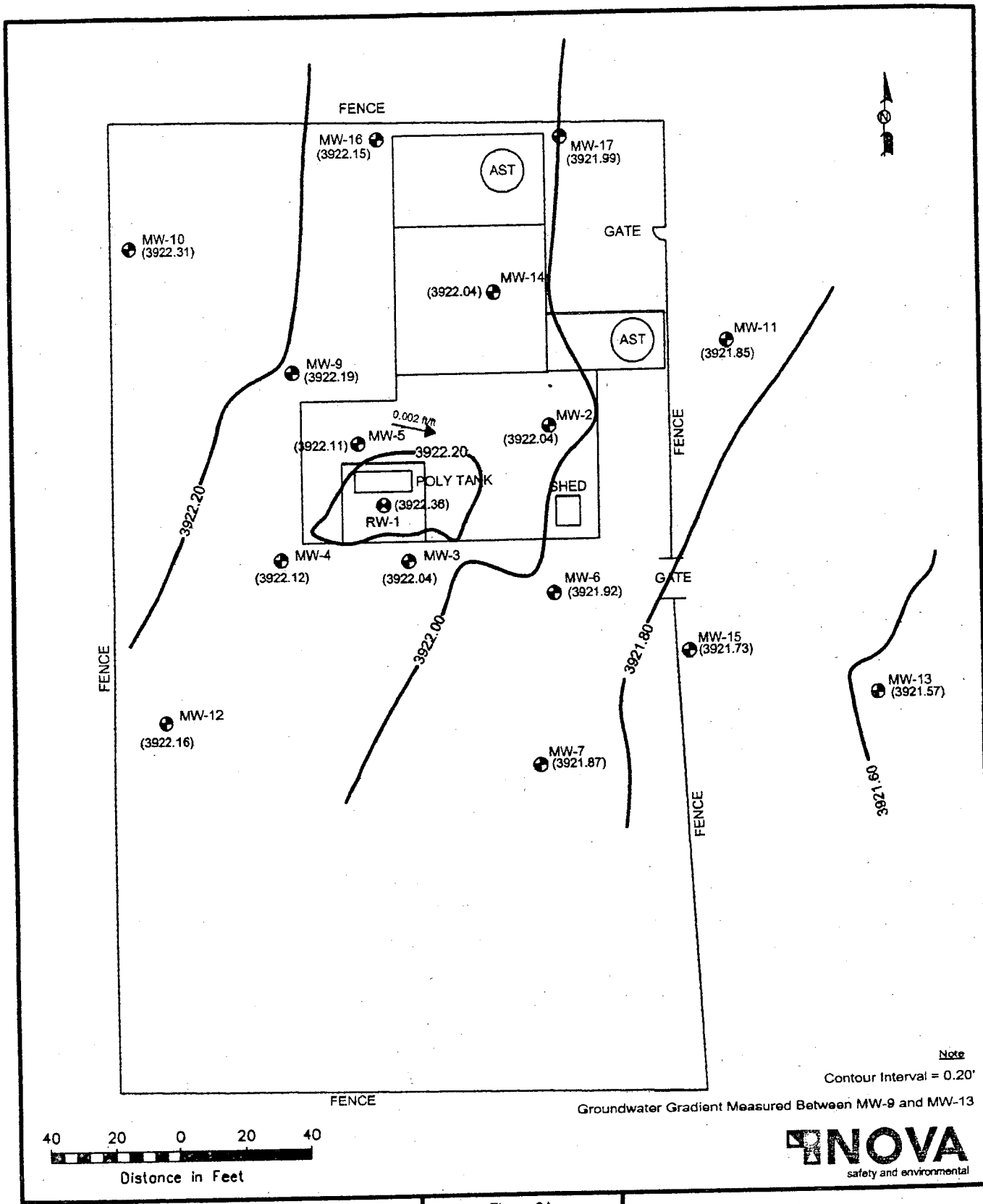


LEGEND:

- Monitor Well Location
- Groundwater Contour Lines
- (3921.20) Groundwater Elevation in Feet
- 0.001 ft/ft Groundwater Gradient and Magnitude

Figure 2A
Inferred Groundwater Gradient Map
(3/20/06)
Plains Marketing, L.P.
TNM 97-04
Lea County, NM

NOVA Safety and Environmental

Scale: 1" = 40'	CAD By: DGC	Checked By: CDS
May 24, 2006	NW1/4 SE1/4 Sec 18 T18S R36E	
	Lat. N32° 44' 50.3" Long. W103° 23' 38.5"	

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

January 12, 2000

CERTIFIED MAIL
RETURN RECEIPT NO. Z-559-572-894

Ms. Lennah Frost
EOTT Energy Pipeline Limited Partnership
P.O. Box 1660
Midland, Texas 79702

RE: DISCHARGE PLAN GW-294
TOWNSEND SITE (TNM-97-04) GROUND WATER REMEDIATION PROJECT
LEA COUNTY, NEW MEXICO

Dear Ms. Frost:

The New Mexico Oil Conservation Division (OCD) has completed a review of EOTT Energy Pipeline Limited Partnership's December 3, 1999 "MODIFIED STAGE 2 ABATEMENT PLAN, TNM-97-04, LEA CO., NEW MEXICO". This document contains EOTT's proposal to modify the remediation system associated with ground water remediation discharge plan GW-294 for the Townsend (TNM-97-04) site.

For your information, the remediation and monitoring activities at the site are being conducted under a New Mexico Water Quality Control Commission (WQCC) discharge plan which was previously submitted by the Texas-New Mexico Pipe Line Company, the prior operator of the site. The above referenced requested modification of the previously approved ground water discharge plan, GW-294 for the Townsend (TNM-97-04) site **is hereby approved under the conditions contained in the enclosed attachment**.

Discharge plan GW-294 was originally approved on May 28, 1998. The modification does not significantly alter the discharge streams, therefore, public notice was not issued.

The application for modification was submitted pursuant to WQCC Regulation 3109.G and is approved pursuant to WQCC Regulation 3109.

Please note that Section 3104 of the WQCC regulations requires that "When a plan has been approved, discharges must be consistent with the terms and conditions of the plan". Pursuant to Section 3107.C, you are required to notify the Director of any facility expansion, production increase or process modification that would result in a significant modification in the discharge of potential ground water contaminants.

Please be advised that approval of this plan does not relieve EOTT of liability should their operation fail to adequately remediate and monitor contamination at the site, or if contamination exists which is outside the scope of the discharge plan. In addition, OCD approval does not relieve EOTT of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please contact William Olson of my staff at (505) 827-7154.

Sincerely,

for Roger C. Anderson
Environmental Bureau Chief

Attachment

xc: Chris Williams, OCD Hobbs District Supervisor
Jesse Taylor, Environmental Technology Group, Inc.

DISCHARGE PLAN GW-294
APPROVAL CONDITIONS

EOTT ENERGY PIPELINE LIMITED PARTNERSHIP
TOWNSEND GROUND WATER REMEDIATION PROJECT

(January 12, 2000)

1. Below Grade Piping

Any below grade piping used to convey contaminated fluids to the treatment system shall be pressure tested to three psi above operating pressure prior to operation.

2. Product and Waste Disposal

All recovered product, waste filters and recovery system waste products shall be recycled and/or disposed of at an OCD approved facility.

3. Tank Berming

All above ground tanks used to contain fluids other than non-contaminated fresh water shall be bermed such that they can contain one and one-third times the volume of the largest tank or all interconnected tanks.

4. Monitor Well Sampling Schedule

Ground water from all monitor wells which do not contain free phase product shall be sampled and analyzed using appropriate EPA methods and quality assurance/quality control (QA/QC) procedures according to the following schedule:

a. Quarterly Sampling

EOTT shall sample and analyze ground water from all monitor wells on a quarterly basis for concentrations of benzene, toluene, ethylbenzene and xylene (BTEX).

b. Annual Sampling

EOTT shall sample and analyze ground water from all monitor wells on an annual basis for concentrations of polynuclear aromatic hydrocarbons (PAH) and WQCC metals.

5. Annual Monitoring Report

An annual monitoring report will be submitted to the OCD Santa Fe Office on April 1 of each year with a copy provided to the OCD Hobbs District Office. The report will contain the following information:

a. A description of all remediation and monitoring activities which occurred during the past calendar year.

b. A site map showing the locations of all wells, remediation systems and other relevant site features.

c. A summary of the laboratory analytic results of water quality sampling of monitor wells including the laboratory analytical data and associated QA/QC for samples taken within the past calendar year. The summary data from each monitoring point will be presented in tabular form and will list all past and present sampling results.

d. A quarterly water table elevation map showing the direction and magnitude of the hydraulic gradient.

e. A quarterly product thickness map based on the thickness of free phase product on ground water in all monitor and recovery wells.

f. Isopleth maps for contaminants of concern (ie. BTEX, etc.)

g. The total monthly volume of product recovered in the treatment system and the total volume of product recovered to date.

h. The results of any below grade line testing.

6. Notification

EOTT will notify the OCD at least one week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 28, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-276

Mr. Tony Savoie
Texas-New Mexico Pipe Line Company
P.O. Box 1030
Jal, New Mexico 88252

RE: DISCHARGE PLAN GW-294
TOWNSEND SITE GROUND WATER REMEDIATION PROJECT
LEA COUNTY, NEW MEXICO

Dear Mr. Savoie:

The ground water remediation discharge plan application GW-294 for the Texas-New Mexico Pipe Line Company's (TNMPLC) Townsend Remediation site **is approved under the conditions in the enclosed attachment**. The discharge plan application consists of the following documents:

- May 21, 1998 "TOWNSEND SITE TNM-97-04, GROUND WATER REMEDIATION PROJECT, LOVINGTON, NEW MEXICO, JOB NO. 710016-1".

- January 27, 1998 "DISCHARGE PLAN, TEXAS - NEW MEXICO PIPE LINE COMPANY, TNM-97-04 (AKA TOWNSEND REMEDIATION SITE), LOVINGTON, NEW MEXICO, KEI JOB NO. 710016-1".

- January 20, 1998 "DISCHARGE PLAN FOR THE ABATEMENT OF GROUND WATER IMPACTS, TEXAS - NEW MEXICO PIPE LINE COMPANY, TNM-97-04 (AKA TOWNSEND REMEDIATION SITE) LOVINGTON, NEW MEXICO".

The discharge plan was submitted pursuant to section 3106 of the Water Quality Control Commission (WQCC) Regulations. It is approved pursuant to section 3109. Please note Section 3109.G., which provides for possible future amendment of the plan.

Please be advised that all exposed pits, including lined pits and open top tanks (exceeding 16 feet in diameter) shall be screened, netted, or otherwise rendered nonhazardous to wildlife including migratory birds.

Please note that Section 3104 of the regulations requires that "when a plan has been approved, discharges must be consistent with the terms and conditions of the plan." According to Section

3107.C. you are required to notify the Director of any expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3109.H.4., this approval is for a period of five years. This discharge plan approval will expire on May 28, 2003 and you should submit an application for renewal in ample time before that date.

The discharge plan application for the TNMPLC Townsend Site is subject to the WQCC Regulation 3114 discharge plan fees. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of fifty (50) dollars plus the flat rate of thirteen hundred and eighty dollars ($1380.00) for a ground water remediation discharge plan.

The fifty (50) dollar filing fee is due upon receipt of this approval. The flat fee for an approved discharge plan may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the plan, with the first payment due upon receipt of this approval. Please make all checks payable to: **NMED-Water Quality Management Fund** and addressed to the OCD Santa Fe Office.

Please be advised that approval of this plan does not relieve TNMPLC of liability should their operation result in additional pollution of surface waters, ground waters or the environment which may be actionable under other laws and/or regulations. In addition, OCD approval does not relieve TNMPLC of responsibility for compliance with any other federal, state or local laws and regulations.

On behalf of the staff of the Oil Conservation Division, I wish to thank you for your cooperation during this discharge plan review.

If you have any questions, please contact William Olson of my staff at (505) 827-7154.

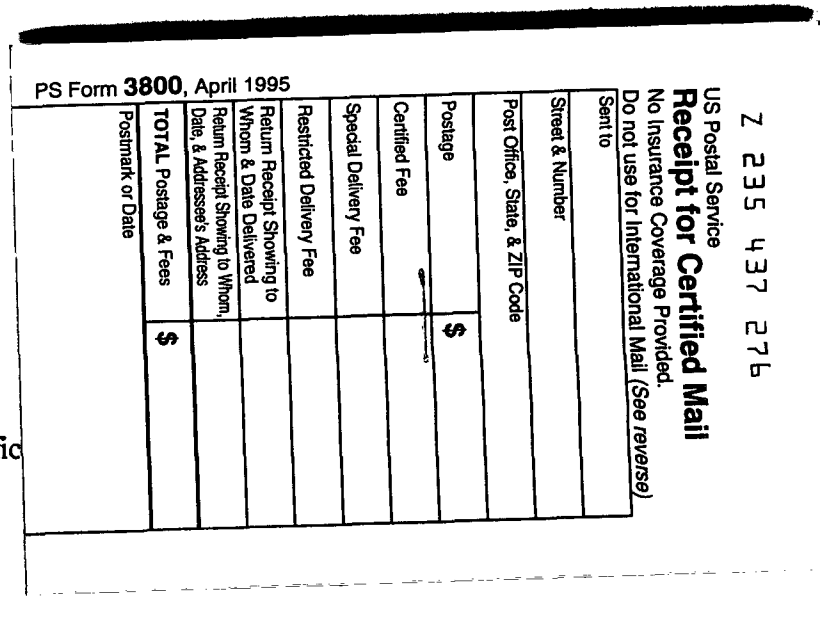
Sincerely,

Lori Wrotenbery

Lori Wrotenbery
Director

Attachment

xc: Wayne Price OCD Hobbs District Offic
Jim Mosley, KEI



DISCHARGE PLAN GW-294
APPROVAL CONDITIONS

TEXAS-NEW MEXICO PIPE LINE COMPANY
TOWNSEND GROUND WATER REMEDIATION PROJECT

(May 28, 1998)

1. Discharge Quality

All effluent from the air stripper which is reinjected will meet the WQCC ground water standards as found in WQCC regulation 3103.

2. Below Grade Piping

Any below grade piping used to convey contaminated fluids to the treatment system will be pressure tested to three psi above operating pressure prior to operation.

3. Treatment System Sampling Schedule

Effluent from the air stripper will be sampled and analyzed using appropriate EPA methods and quality assurance/quality control (QA/QC) according to the following schedule:

Initially	Monthly	Annually
BTEX PAH's WQCC Metals	BTEX PAH's	BTEX PAH's WQCC Metals

4. Monitor Well Sampling Schedule

Ground water from all monitor wells which do not contain free phase product will be sampled and analyzed using appropriate EPA methods according to the following schedule:

Initially	Quarterly	Annually
BTEX PAH's WQCC Metals	BTEX	BTEX PAH's WQCC metals

5. Annual Monitoring Report

An annual monitoring report will be submitted to the OCD Santa Fe Office on April 1 of each year with a copy provided to the OCD Hobbs District Office. The report will contain the following information:

a. A description of all remediation and monitoring activities which occurred during the past calendar year.

b. A site map showing the locations of all wells, remediation systems and other relevant site features.

c. A summary of the laboratory analytic results of water quality sampling of monitor wells and the treatment system including the laboratory analytical data and associated QA/QC for samples taken within the past calendar year. The summary data from each monitoring point will be presented in tabular form and will list all past and present sampling results.

d. A quarterly water table elevation map showing the direction and magnitude of the hydraulic gradient.

e. A quarterly product thickness map based on the thickness of free phase product on ground water in all monitor and recovery wells.

f. Isoconcentration maps for contaminants of concern (ie. BTEX, etc.)

g. The total monthly volume of fluid pumped from the recovery well and the total volume recovered to date.

h. The total monthly volume of product recovered in the treatment system and the total volume recovered to date.

i. The total monthly volume of treated effluent reinjected and the total volume reinjected to date.

j. As built construction details of the recovery and injection system (for the first report only).

k. The results of any below grade line testing.

6. Product and Waste Disposal

All recovered product, waste filters, recovery system or treatment system waste products will be recycled and/or disposed of at an OCD approved facility.

7. Tank Berming

All above ground tanks used to contain fluids other than non-contaminated fresh water will be bermed such that they can contain one and one-third times the volume of the largest tank or all interconnected tanks.

8. Notification

TNMPLC will notify the OCD at least one week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.

DISCHARGE PLAN
FOR THE
ABATEMENT OF GROUND WATER IMPACTS

TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-04(AKA TOWNSEND REMEDIATION SITE)
LOVINGTON, NEW MEXICO

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

DISCHARGE PLAN
FOR THE
ABATEMENT OF GROUND WATER IMPACTS

TEXAS - NEW MEXICO PIPE LINE COMPANY
TNM-97-04 (AKA TOWNSEND REMEDIATION SITE)
LOVINGTON, NEW MEXICO

PREPARED FOR:

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

Mr. Tony Savoie

PREPARED BY:

KEI

Jim Mosley, P.E.
Senior Engineer

J. Michael Hawthorne, P.G., REM
Senior Geologist

KEI Job No. 710016

January 20, 1998

INTRODUCTION

The Texas - New Mexico Pipe Line Company (TNMPL) site TNM-97-04 is located approximately two miles west of Lovington, New Mexico in Section 16, Township 11 South, Range 35 East. The site is the result of a crude oil release from a pipeline. A 500 barrel crude oil tank and a 210 barrel diesel tank are located within an earthen containment berm on the northern portion of the site. A diesel dispensing unit is located outside the southeast corner of the containment berm. Approximately 30 feet south of the containment area, 4-inch diameter and 6-inch diameter crude oil pipelines cross the site from east to west. The release occurred from the 4-inch line. The 6-inch line is currently out-of-service. During initial release response activities, the area of the release was excavated to a maximum of 12 feet below grade. The 4-inch pipeline was subsequently repaired, and the line was then placed back in service.

A site location map is presented as FIG. 1. Specific site details are presented on FIG. 2. This report presents the proposed discharge plan for the abatement of ground water including recovery, treatment, and discharge systems. The discharge plan is based on previous subsurface investigation activities and aquifer and infiltration pump testing performed at the project site.

SITE ASSESSMENT HISTORY

Previous assessment activities at site TNM-97-04 consist of subsurface investigations in June and September 1997 (reports dated September 22, 1997 and January 9, 1998, respectively). Investigative activities included the installation of nine monitoring wells and one recovery well.

Results of the investigations indicated the presence of soil and ground water impact, as well as light non-aqueous phase liquids (LNAPL) on groundwater in the vicinity of the release.

Based on analytical data, the constituents detected above the New Mexico Oil Conservation Division (OCD) base target clean-up levels in soil are benzene, total benzene, toluene, ethylbenzene, and xylenes (BTEX); and total petroleum hydrocarbon (TPH). The base clean-up levels for these constituents are as follows:

CONSTITUENT	CLEAN-UP LEVEL (mg/kg)
BENZENE	10
BTEX	50
TPH	100 + Background Concentration

A lateral area of approximately 2,650 ft^2 of subsurface soil in the area investigated contained hydrocarbon concentrations greater than the target clean-up levels. These concentrations were observed at depths ranging from near ground surface to 50 feet below ground surface.

Based on ground water analytical data, the constituents detected above the target clean-up levels in ground water as presented in 20 NMAC 6.2.III.3103 are benzene, toluene, xylene, and naphthalene. The clean-up levels for these constituents are as follows:

CONSTITUENT	CLEAN-UP LEVEL (mg/l)
BENZENE	0.01
TOLUENE	0.75
XYLENE	0.62
NAPHTHALENE	0.03

The extent of impact to ground water above the target clean-up standards was approximately 14,500 ft^2 in the area investigated.

An estimated 4,050 ft^2 of the area investigated was impacted with LNAPL on groundwater. Field observation identified the LNAPL as crude oil. Based on current gauging data, crude oil thicknesses ranging from approximately 1 foot to 9.35 feet are present in monitoring wells MW-2, MW-3, MW-4, MW-5, MW-9, and RW-1. The approximate extent of the crude oil plume is presented on FIG. 4. A summary of current LNAPL thicknesses as measured on December 4, 1997 is presented below:

MONITORING WELL	LNAPL (feet)
MW-1	—
MW-2	0.47
MW-3	8.19
MW-4	7.05
MW-5	8.30
MW-6	—
MW-7	—
MW-8	—
MW-9	0.07
RW-1	9.35

The general soil profile consists of caliche encountered to a depth of approximately 5 feet below ground surface, limestone encountered below the caliche to depths ranging from approximately 10 to 25 feet, and a fine to medium grained sand encountered to the maximum depth investigated, 61 feet. The average measured depth to groundwater is currently 50 feet below ground surface. The groundwater gradient is approximately 0.003 ft/ft to the southeast.

REGIONAL GEOLOGY AND HYDROGEOLOGY

The surficial geology at the site and surrounding area consists of the Tertiary Ogallala Formation, which consists mostly of eolian sediments, primarily sand and silt. The Ogallala Formation ranges in thickness from 0 to approximately 700 feet. It appears that the Ogallala Formation in southwestern New Mexico was deposited under arid to subhumid

climate conditions under which alluvial sediments partially filled paleovalleys in the pre-Ogallala erosional surface while thick eolian sands and silts covered most of the pale highs and the fluvial sections.

Calcic paleosols occur throughout the eolian sediments, usually near or at the top of the Ogallala Formation (Gustarson and Winkler, 1990). These cemented zones are resistant to weathering and form ledges in outcrops within the Ogallala Formation. The Ogallala cap rock (caliche) is the most distinctive of these layers and it marks the top of the Ogallala Formation. The cap rock may be as thick as 60 feet.

The Ogallala Formation is the principal hydrogeologic unit in the High Plains aquifer which consists of one or more hydraulically connected geologic units of late Tertiary or Quaternary age.

PILOT TESTING

An aquifer pump test was conducted on September 4, 1997, to determine the aquifer yield characteristics. An injection test was conducted on December 16, 1997. The tests were conducted to determine subsurface hydrologic characteristics and provide information to optimize the design of a remediation system.

AQUIFER PUMP TEST

An aquifer pump test was conducted on September 4, 1997. Recovery well RW-1 was utilized as the pumping well. Monitoring wells MW-3, MW-4, and MW-5 were selected as observation points to record drawdown in the wells surrounding the pumping well. Prior to conducting the test, static water levels were measured in all existing monitoring wells. Monitoring well locations are shown on FIG. 2.

A 4" diameter Grundfos submersible pump was temporarily installed in well RW-1 for ground water recovery. The recovered ground water was stored in a frac tank. The flow rate of the pump was measured using a volumetric meter. The pump was operated at discharge rates of 1.0 gallon per minute (gpm), 2.6 gpm, and 7.0 gpm. Water levels in the monitoring wells selected as monitoring points were recorded throughout the test using an In-Situ Inc. Hermit 2000 Environmental Data Logger Model #SE2000. The test was terminated after approximately 7 hours of pumping.

The pump test was evaluated using the Jacob-Cooper method. The analysis procedure involved semi-log plotting of drawdown versus time to obtain estimates of transmissivity and storativity. Transmissivity is defined by Driscoll (1986) as the rate at which water flows through a vertical strip of the aquifer 1-foot wide and extending through the full saturated thickness, under a hydraulic gradient of 1 ft/ft. Storativity is defined as the volume of water released from storage or taken into storage, per unit of aquifer storage area per unit change in hydraulic head.

The pumping well reached a maximum drawdown of 3.37 feet during the test and the drawdown at the observation points varied from approximately 0.223 to 0.362 feet. Analysis of the test data indicated an average transmissivity of 13,800 gpd/ft (1,845 ft^2/day) and an average storativity of 0.0058.

The hydraulic conductivity may be estimated by the following equation:

$$K = T/b$$

Where: K = Hydraulic Conductivity (feet/day)
b = Aquifer Thickness (feet)
T = Transmissivity ($feet^2$/day)

Using an aquifer thickness of 110 feet, the hydraulic conductivity was estimated to be approximately 184 ft/day (1.28 ft/min).

The average linear ground water velocity may be estimated using the following equation:

$$v = Ki/n$$

Where: v = Average Linear Velocity (ft/day)
K = Hydraulic Conductivity (ft/day)
i = Ground Water Gradient (ft/feet)
n = Soil Porosity

Based on the above conductivity, a gradient of 0.003 ft/ft, and a soil porosity of 20%, the average linear ground water velocity was estimated to be approximately 2.76 ft/day.

Aquifer pump test field data, pump test analysis, and transmissivity and storativity spreadsheet calculations are presented in APPENDIX A.

AQUIFER MODELING

A capture zone model was developed using Quickflow. Based on the pump test data and the modeling results, a pumping rate of approximately 5 gpm should be maintained to control the gradient across the impacted area and to enhance the PSH recovery.

Additionally, the capture zone was estimated using equations derived from Darcy's Law presented by Javendel and Tsang (1986). Based on this calculation, the maximum upgradient width of the expected capture zone was estimated to be 174 feet. The stagnation point is defined as the point directly down gradient of the recovery well beyond which ground water will not be recovered. The stagnation point was estimated to be 28 feet down gradient.

INFILTRATION TEST

Test wells TW-1, TW-2, and TW-3 were installed to depths of 12, 17, and 25 feet, respectively, for the purpose of conducting an infiltration test.

The infiltration test was conducted on December 16, 1997. Monitoring well MW-7 was utilized as the pumping well. A 2" diameter Grundfos submersible pump was temporarily installed in well MW-7 for ground water recovery. The flow rate of the pump was measured using a dynamic flowmeter. The pump was operated at discharge rates between 1 gallon per minute (gpm) and 3 gpm. Water levels in the selected test well and in monitoring well MW-8 were recorded throughout the test using an In-Situ Inc. Hermit 2000 Environmental Data Logger Model #SE2000. The test was terminated after approximately 3.5 hours of pumping.

Water levels in TW-1 continued to rise throughout the testing using that well. Water levels in TW-2 stabilized with the depth to water greater than 10 feet below ground surface at infiltration rates of up to 2.75 gpm.

Using an infiltration rate of 2.0 gpm and a safety factor of 1.5, it was calculated that an infiltration gallery 3 feet in width installed at a depth of 17 feet should be 32 feet in length to accept a re-infiltration flowrate of 20 gpm.

ABATEMENT OBJECTIVES AND STRATEGY

ABATEMENT OBJECTIVES

Based on evaluation of the assessment data, a remediation system capable of meeting the following objectives is recommended:

- Reduce the potential for the migration of LNAPL and recover LNAPL from the site to the maximum extent practical.
- Reduce adsorbed-phase concentrations to below the clean-up standard or to the maximum extent practical.
- Reduce dissolved phase concentrations to below the clean-up standard or to the maximum extent practical.

ABATEMENT STRATEGY

Initially the system will be operated in a manner to optimize LNAPL recovery while minimizing ground water recovery. Once the LNAPL has been removed to an appropriate level, the system operating parameters will be adjusted to recover residual LNAPL and dissolved phase constituents.

ALTERNATE STANDARDS

The clean-up standards in 20 NMAC 6.2.III.3103 for ground water and in Guidelines for Remediation of Leaks, Spills, and Releases (August 13, 1993) for soil were used to develop the corrective action plan. Alternative abatement standards determined from a site-specific assessment of the present and future hazard to public health will be proposed in a future report. If approved, these alternative standards will be utilized to determine and adjust system operating parameters, and ultimately, they will be used to determine when site closure is appropriate.

ABATEMENT SYSTEM DESIGN

The soil and ground water remediation system will be a multi-phase recovery system consisting of a **GeoVac**^{TM} 1500 series mobile system designed to simultaneously extract hydrocarbons from the subsurface in three phases (free liquid, dissolved phase, and vapor phase). In general, the system consists of a liquid ring pump, extensive liquid/solid/vapor separation equipment, a vapor abatement unit, and water treatment system.

PHYSICAL APPARATUS

The **GeoVac**™ 1500 series mobile remediation system will be constructed on two 24 foot x 8 foot gooseneck flatbed trailers. Each trailer will be equipped with two 7000 lb. axles and four 15,000 lb. leveling jacks.

The **GeoVac**™ 1500 extraction system will consist of primary and secondary bulk separators on the inlet side of the liquid ring pump system, a secondary air/water/particulate separator, a closed loop heat exchanger cooling system for the liquid ring pump, a 5-hp industrial air compressor, a double diaphragm transfer pump, a control panel, and a main breaker panel.

The liquid treatment system will contain a fractionation tank for LNAPL separation, a centrifugal transfer pump, and an air stripper. LNAPL collected during remediation will be pumped directly to a storage tank. The system will be equipped with a high level shutoff switch in the storage tank to terminate system operation in the event of a high level condition.

Vapors from both the liquid ring pump and the air stripper will be treated by combustion in a thermal oxidizer. Propane will be used as assist fuel for the thermal oxidizer.

RECOVERY SYSTEM

The liquid ring pump system will be a Travini Model TRO200 Dynaseal oil cooled liquid ring pump equipped with a 15-hp explosion proof motor, solenoid valve, and temperature switch. The Model TRO200 is capable of approximately 200 scfm at 26 inches of mercury. This pump uses a synthetic oil in a closed loop system which is cooled with an integral heat exchanger rather than seal water which must be constantly replaced as it evaporates.

Initially, recovery well RW-1 will be utilized as the extraction well. Subsequently, additional wells may be utilized as extraction points, based on site response to the extraction system. Each well utilized as an extraction point will be fitted with a vacuum pipe extending through a sealed well cap to an initial depth approximately 40% into the LNAPL thickness to maximize the recovery of PSH while minimizing the recovery of ground water (FIG. 7). Assuming the specific gravity of the LNAPL is approximately 0.8, the water level will equilibrate at a level above or near the bottom of the vacuum pipe during recovery. Each vacuum pipe will be plumbed independently to the liquid ring pump. A gate valve and vacuum gauge will be installed on each line to independently control the vacuum exerted on each well. Sample ports will be installed to monitor the hydrocarbon concentrations at the inlet from each line.

A site plan indicating the generalized system layout is presented on FIG. 5. A generalized system schematic is presented on FIG. 6.

SEPARATION EQUIPMENT

The piping from the inlet manifold will be connected to a primary bulk separator. In all, four different separators (a primary bulk separator, a secondary solids separator, a high efficiency solids separator, and a fractionation tank separator) will be installed on the system for maximum liquid/air/solid separation efficiency. The solids separation has been augmented with secondary solids separator and a high efficiency fine particulate separator.

Primary Bulk Separator and Secondary Solids Separator

Groundwater, LNAPL, soil vapors, and entrained particulates will be drawn through the primary bulk separator by the vacuum applied from the liquid ring pump. The primary bulk separator was designed to remove greater than 99% of the water, LNAPL, and particulates from the influent stream. Separated fluids from the primary bulk separator will flow by gravity to the secondary solids separator. The secondary solids separator was designed to allow additional retention time to facilitate separation of finer particles. Solids may be removed from the bulk and secondary separators through 3-inch access ports at the bottom of each vessel.

The secondary solids separator will be equipped with level controls for automatic operation of a double diaphragm pump to transfer the water/LNAPL to the fractionation tank. A high level switch will also be installed in the secondary solids separator for system shutdown in case of a high liquid level condition. The double diaphragm pump will be operated by a 5-hp industrial air compressor capable of 20 cfm at 125 psi. The compressor was designed to be capable of operating downhole pneumatic pumps simultaneously, if necessary.

High Efficiency Separator

The separated vapors from the primary bulk separator will be drawn by the liquid ring pump from the primary separator to a tertiary high efficiency air/water/particulate separator. The vapors drawn from the primary bulk separator will have entrained water vapor, mineralized particles from the ground water, and fine soil particles. The high efficiency separator will be installed prior to the liquid ring pump system to assist in reducing the potential for fine particulate matter entering the liquid ring pump. The separator was designed to reduce all particles 15 microns and larger within the air stream by 100% (the efficiency is 98% for 10 micron particles). This separator will significantly increase the life of the synthetic oil (used for the seal) and liquid ring pump by reducing the particulate matter entering the intake under harsh operating conditions without the need for an intake particulate filter.

LNAPL Fractionation Tank

The LNAPL fractionation tank will be constructed of 10 gauge steel and will be epoxy coated to inhibit rust and primed and painted with an industrial white paint. The fractionation tank will be designed with four compartments with three baffles. The first, second, and third compartment dividers will be designed with a flow through bottom weir. The fourth compartment will be equipped with level sensors for automatic pumping and a high level switch for termination of pumping in the event of a high level condition due to transfer pump failure. The fractionation tank will include coalescing media to enhance separation of LNAPL and ground water.

GROUND WATER TREATMENT SYSTEM

A Gorman Rupp model 81, ¾hp, explosion proof, 3 phase, self priming centrifugal pump will be used for effluent transfer to the ground water treatment unit. This industrial pump will be equipped with buna seals and 0-rings and will be capable of pumping solids, if encountered. LNAPL recovered in the fractionation tank will be pumped to the product storage tank.

The ground water treatment system will consist of a QED Environmental Systems 4 tray, low profile air stripper. The stripper will be designed for a maximum flow rate of approximately 30 gpm. Based on conservative assumptions regarding influent hydrocarbon

concentrations, the effluent from the air stripper will be below the applicable discharge standards for surface discharge or re-injection, which are presented below:

CONSTITUENT	EFFLUENT (mg/l)
BENZENE	0.01
TOLUENE	0.75
ETHYLBENZENE	0.75
XYLENES	0.62
PAHs	0.03

DISPOSITION OF TREATED EFFLUENT

The treated effluent from the ground water treatment system will be discharged to an infiltration gallery in accordance with 20 NMAC 6.2. The infiltration gallery will be installed to a depth of approximately 17 feet. The trench will be approximately 3 feet wide and 32 feet long. The bottom 3 feet of the trench will be backfilled with clean gravel less than 1.5 inches in diameter. Perforated 4-inch diameter PVC pipe will be installed in the gravel 12 inches from the bottom of the trench. Five well points constructed of 4-inch diameter PVC will be connected to the horizontal pipe to provide even flow into all sections of the gallery. A high level float switch will be installed in the well casing of the center well point.

VAPOR ABATEMENT SYSTEM

Under the vacuum induced in the subsurface, volatile hydrocarbon constituents will partition from the adsorbed, dissolved, and free phases to the vapor phase and will be extracted by the liquid ring pump. In addition, the remaining volatile constituents in the ground water will be removed by the air stripper.

VAPOR TREATMENT SYSTEM

To evaluate the potential need for treatment of emissions from the air stripper and liquid ring pump, preliminary estimates for the expected emissions have been prepared. Emissions from the liquid ring pump have been derived from estimates of vapor recovery from similar systems in similar applications.

Estimated emissions from the air stripper are based on the maximum ground water concentrations in the expected area of treatment. Assuming conservation of mass with respect to the recovered hydrocarbons, the quantity of hydrocarbons flowing from the air stripper in the form of vapor emissions will equal the quantity of hydrocarbons entering the air stripper in the influent stream or untreated ground water.

Three available options for reducing hydrocarbon emissions to within allowable levels were evaluated. The options are a thermal oxidizer, a conventional activated carbon system, and a steam regenerative carbon system. Based on the high maintenance and replacement costs associated with activated carbon and regenerative carbon systems, a thermal oxidizer will be utilized. Vapor abatement will be provided by an EPCON thermal oxidizer. The oxidizer will have a maximum design process flow rate of approximately 1500 scfm. The projected abatement efficiency of the oxidizer is >95%. Based on this conservatively low

efficiency estimate, controlled VOC emissions from the system are estimated at a maximum of 6 lbs./hr. and 24.09 tons/year.

MISCELLANEOUS

All electrical wiring will be in accordance with the National Electric Code. All electrical motors and intrinsically safe controls will be wired into a NEMA 4 control panel located at the front of the gooseneck trailer. A 3-phase breaker panel will also be located adjacent to the control panel.

All high level and latching float switches on the secondary bulk separator and fractionation tank were designed for use in harsh environments. They will be constructed of stainless steel for corrosion resistance, and they are larger with greater buoyancy than typical float switches (therefore the potential for failure is less when covered with biogrowth from recovery wells). The switches will be externally accessible for inspection, adjustment, and/or replacement.

The equipment trailers will be weather proofed against winter conditions. The weather proofing activities and materials will be determined and implemented on site.

A site plan indicating the general system layout and generalized system schematic are presented on FIGs. 5 and 6, respectively.

CLOSED-LOOP TESTING

Upon completion of system installation, a closed-loop test will be conducted on the ground water treatment system to ensure the treatment system can reduce dissolved hydrocarbons in ground water to acceptable levels prior to discharge. The test will be conducted by pumping approximately 500 to 1000 gallons of ground water from the recovery wells through the air stripping unit to a portable storage tank. Water samples will be collected before and after the air stripper to determine removal efficiencies.

In addition, emission samples will be obtained from the stack of the air stripping unit and liquid ring pump to determine vapor phase hydrocarbon recovery efficiencies and from the stack of the oxidizer to verify compliance with the requirements of the New Mexico Environment Department (NMED) regarding emission rates. Upon confirming compliance with respect to effluent discharge and hydrocarbon emissions, the system will be turned on for continuous operation.

PERMITTING REQUIREMENTS

Permits will be obtained for the installation and/or operation of the recovery wells and emissions according to the requirements of OCD, NMED, and the State Engineer's office.

RECOVERY WELL PERMIT

Ground water recovery wells require permitting under the Rules and Regulations of the State Engineer, Article I, Section 17 titled Applications for Pollution Plume Control Wells and Pollution Recovery Wells. Prior to operation of the ground water recovery system, a permit application will be submitted for recovery well RW-1.

AIR PERMIT

Hydrocarbon emissions are regulated by NMED. Prior to on-site construction, a permit application will be completed and transmitted to the NMED for hydrocarbon emissions from the system.

SYSTEM MONITORING

Influent monitoring, effluent monitoring, emissions monitoring, and routine maintenance will be conducted by a technician on a regularly scheduled basis.

Emissions samples will be obtained from the system to verify compliance with standards specified in the NMED air permit (to be obtained) as specified in that permit.

INFLUENT MONITORING

Water samples will be obtained from the influent to the treatment system to evaluate system treatment efficiency. Influent samples will be analyzed for BTEX and PAH concentrations by EPA Method SW846-8020 and 8270, respectively. Analytical data will be used to quantify dissolved phase hydrocarbon recovery.

EFFLUENT MONITORING

The effluent from the ground water treatment system will be monitored as necessary in accordance with guidelines outlined in this discharge plan and in 20 NMAC 6.2.III.3107. Representative samples of the effluent will be obtained at a point prior to entering the discharge conduit extending to the injection gallery and will be analyzed by a certified laboratory for the constituents listed in TABLE I.

EMISSIONS MONITORING

After installation and testing, pre-treatment and post-treatment hydrocarbon emissions will be monitored on a weekly basis using portable field screening equipment. Once a month, the samples will be analyzed by a certified laboratory for constituents of concern as specified in the NMED air permit for the system. The monitoring and sampling data from the liquid ring pump emissions will be used to help quantify total hydrocarbon recovery.

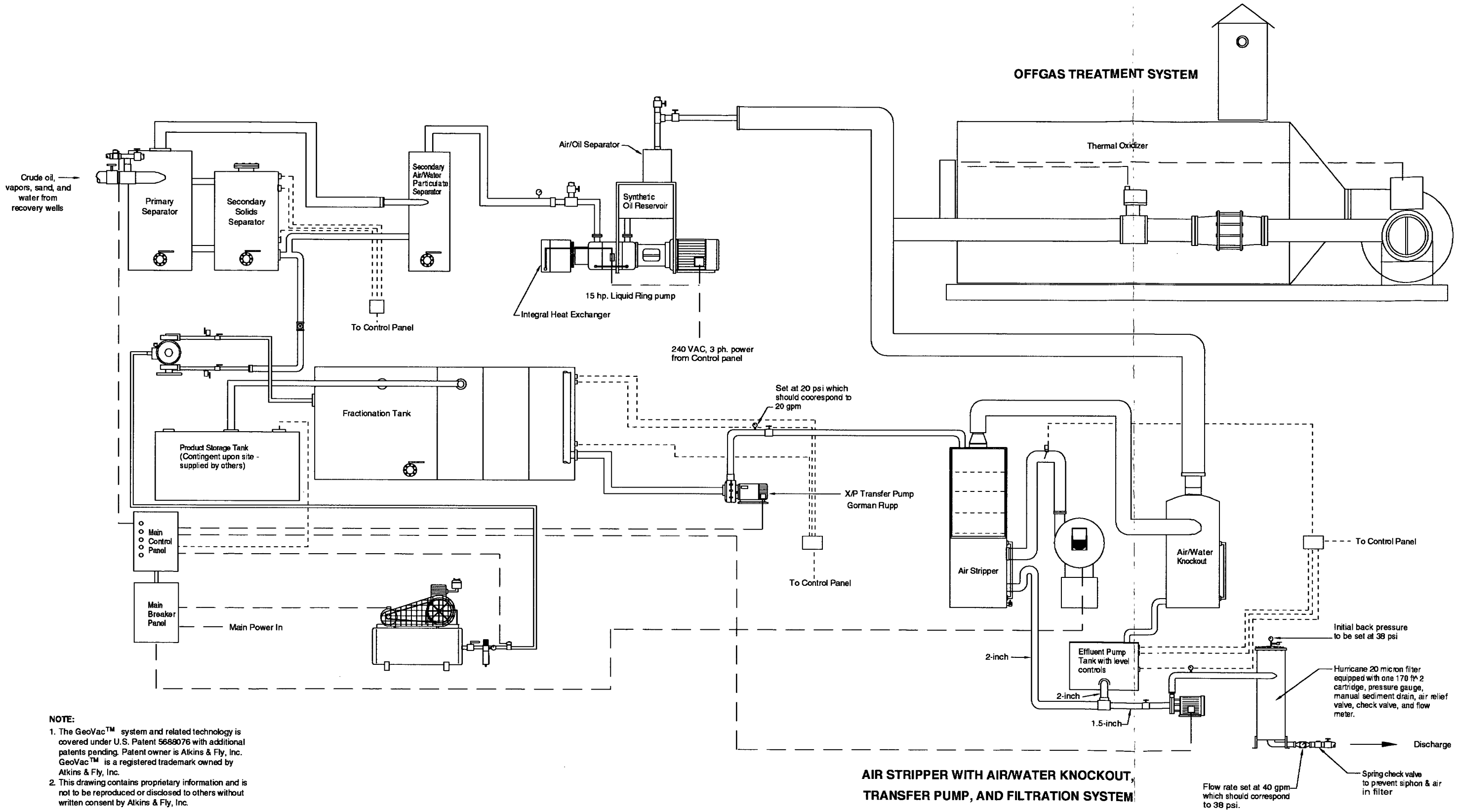
SYSTEM OPERATION AND MAINTENANCE

Maintenance of the remediation system will be conducted at least weekly by a trained field technician. Maintenance will consist of inspecting the recovery wells, injection wells, vacuum pump, separation equipment, air stripping unit, influent and effluent flow meters, gauges, manway covers, discharge hoses and conduits, and control panels. The technician will use site-specific data sheets to check all system components for proper operation. The equipment will be inspected thoroughly and cleaned or repaired as necessary. Filters will be cleaned or changed regularly to assure proper system operation. Readings will be taken of all pressure gauges, vacuum gauges, and flow meters, and necessary adjustments will made to the system. Operations and maintenance may be conducted in conjunction with system monitoring and sampling activities.

REPORTING SCHEDULE

Final construction details and appropriate documentation will be presented in a Remediation System As-Built Report. The As-Built Report will include as-built diagrams and closed-loop testing results.

Remediation Evaluation Reports summarizing the monitoring activities will be prepared and transmitted monthly. The reports will include laboratory results for influent, treated effluent, pre treatment emissions monitoring, post treatment emissions monitoring, and information obtained during operations and maintenance activities. Additional recommendations will be made, if necessary, to enhance the effectiveness of the recovery system.



NOTE:

1. The GeoVac™ system and related technology is covered under U.S. Patent 5688076 with additional patents pending. Patent owner is Atkins & Fly, Inc. GeoVac™ is a registered trademark owned by Atkins & Fly, Inc.
2. This drawing contains proprietary information and is not to be reproduced or disclosed to others without written consent by Atkins & Fly, Inc.

AIR STRIPPER WITH AIR/WATER KNOCKOUT, TRANSFER PUMP, AND FILTRATION SYSTEM

01/20/98-RM G:\711\eFIG6\

k·e·i

GENERALIZED SYSTEM SCHEMATIC

TEXAS - NEW MEXICO PIPELINE COMPANY **TNM-97-04** **LOVINGTON, NEW MEXICO**

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FIG 6

Tables

TABLE I

SAMPLING SCHEDULE - PHASE I TREATMENT SYSTEM
TEXAS-NEW MEXICO PIPE LINE COMPANY
TNM-97-04 (aka TOWNSEND REMEDIATION SITE)
LOVINGTON, NEW MEXICO

CONTAMINANT	SAMPLING FREQUENCY*	SAMPLE LOCATION	TOTAL NO. OF SAMPLES	EPA METHOD	CLOSURE CONCENTRATION (mg/l)
Arsenic	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.1
Barium	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	1.0
Cadmium	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.01
Chromium	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.05
Cyanide	Initial testing (closed loop test) Every 3 years	System Effluent	1 1 per 3 yrs	335.2	0.2
Fluoride	Initial testing (closed loop test) Every 3 years	System Effluent	1 1 per 3 yrs	300	1.6
Lead	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.05
Total Mercury	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	7470	0.002
Nitrate (NO_3 as N)	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	353.2	10.0
Selenium	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.05
Silver	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.05
Uranium	Initial testing (closed loop test) Every 3 years	System Effluent	1 1 per 3 yrs	6020	5.0
Radioactivity: Combined Radium-226 & Radium-228	Initial testing (closed loop test) Every 3 years	System Effluent	1 1 per 3 yrs	903.1 904	30.0
Benzene	Initial testing (closed loop test) Monthly	System Effluent	1 1 per mo.	8020	0.01
Polychlorinated biphenyls (PCBs)	Initial testing (closed loop test) Every 3 years	System Effluent	1 1 per 3 yrs	8080	0.001
Toluene	Initial testing (closed loop test) Monthly	System Effluent	1 1 per mo.	8020	0.75
Carbon Tetrachloride	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.01
1,2-Dichloroethane	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.01

TABLE I
(continued)

SAMPLING SCHEDULE - PHASE I TREATMENT SYSTEM
TEXAS-NEW MEXICO PIPE LINE COMPANY
TNM-97-04 (aka TOWNSEND REMEDIATION SITE)
LOVINGTON, NEW MEXICO

CONTAMINANT	SAMPLING FREQUENCY*	SAMPLE LOCATION	TOTAL NO. OF SAMPLES	EPA METHOD	MAX EFFLUENT CONCENTRATION (mg/l)
1,1-Dichloroethylene	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.005
1,1,2,2-Tetrachloroethylene	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.02
1,1,2-Trichloroethylene	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.1
Ethylbenzene	Initial testing (closed loop test) Monthly	System Effluent	1 1 per mo.	8020	0.75
Total Xylenes	Initial testing (closed loop test) Monthly	System Effluent	1 1 per mo.	8020	0.62
Methylene Chloride	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.1
Chloroform	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.1
1,1-Dichloroethane	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.025
Ethylene Dibromide	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.0001
1,1,1-Trichloroethane	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.06
1,1,2-Trichloroethane	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.01
1,1,2,2-Tetrachloroethane	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.01
Vinyl Chloride	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8260	0.001
PAHs: Total Naphthalene plus monomethylnaphthalenes	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8270	0.03
Benzo-a-pyrene	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	8270	0.0007
Chloride	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	300	250.0
Copper	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	1.0
Iron	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	1.0
Manganese	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.2
Phenols	Initial testing (closed loop test) Every 3 years	System Effluent	1 1 per 3 yrs	8270	0.005

TABLE I
(continued)

SAMPLING SCHEDULE - PHASE I TREATMENT SYSTEM
TEXAS-NEW MEXICO PIPE LINE COMPANY
TNM-97-04 (aka TOWNSEND REMEDIATION SITE)
LOVINGTON, NEW MEXICO

CONTAMINANT	SAMPLING FREQUENCY*	SAMPLE LOCATION	TOTAL NO. OF SAMPLES	EPA METHOD	MAX EFFLUENT CONCENTRATION (mg/l)
Sulfate	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	300.0	600.0
Total Dissolved Solids (TDS)	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	160.1	1000.0
Zinc	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	10.0
pH	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	150.1	between 6 and 9
Aluminum	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	5.0
Boron	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.75
Cobalt	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.05
Molybdenum	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	1.0
Nickel	Initial testing (closed loop test) Annually	System Effluent	1 1 per year	6010	0.2

Appendix A

[redacted]

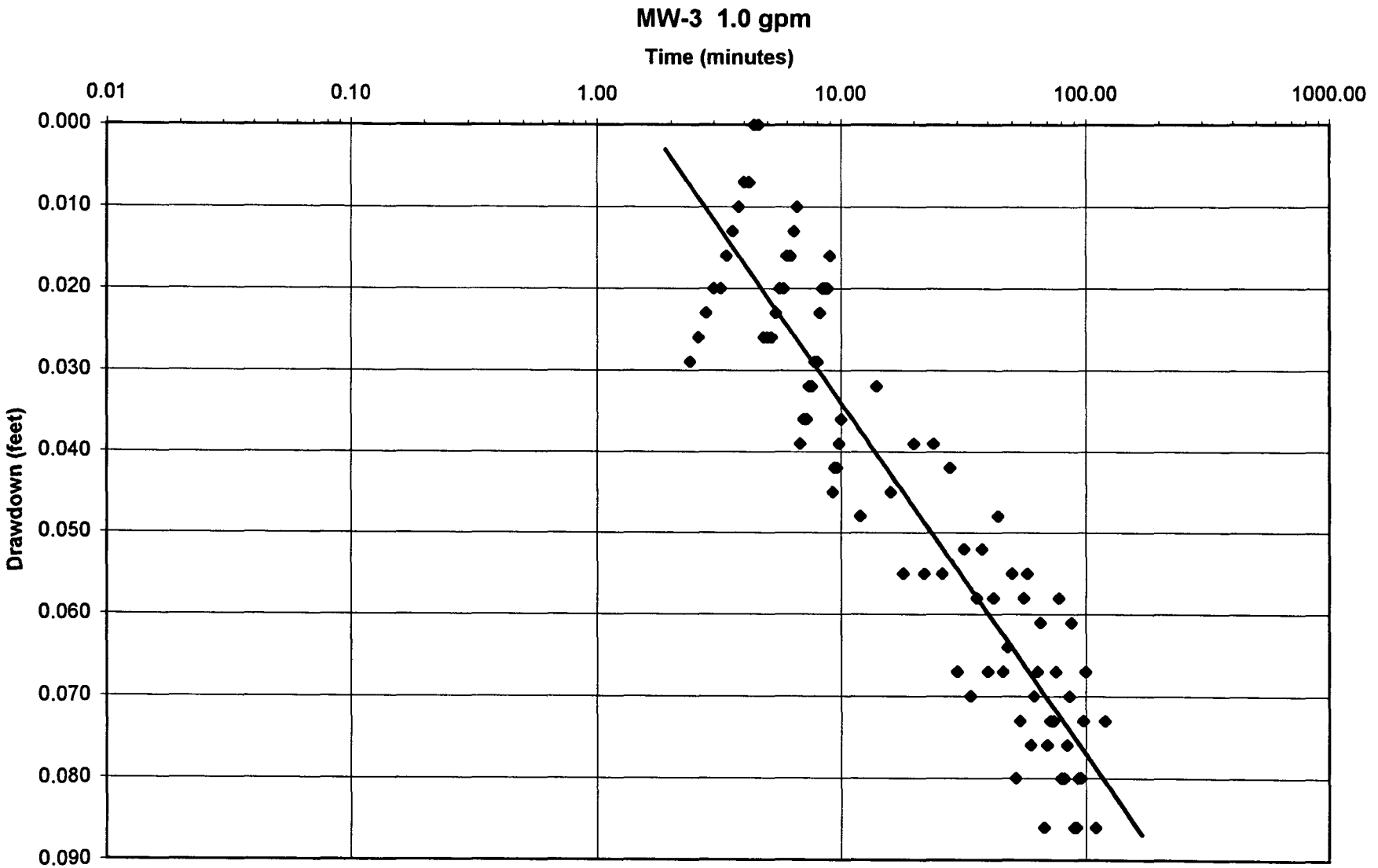
AQUIFER PROPERTIES CALCULATIONS
JACOB METHOD
TNMPL, LOVINGTON

$$T = \frac{264Q}{s_{log}} \qquad S = \frac{0.3Tt_o}{r^2}$$

Piezometer	Q (gpm)	slog (feet)	r (feet)	to (MINUTES)	T (gpd/ft)	T (ft2/day)	S
MW-3							
	1.00	0.0431	15.1	1.40	6,131	820	0.00784
	2.60	0.0834	15.1	1.90	8,235	1,101	0.01430
	7.00	0.2144	15.1	2.00	8,621	1,152	0.01575
				Avg. (i)	**7,662**	**1,024**	**0.01263**
MW-4	1.00	0.0228	33.3	1.00	11,581	1,548	0.00218
	2.60	0.0336	33.3	0.20	20,418	2,730	0.00077
	7.00	0.0744	33.3	0.10	24,848	3,322	0.00047
				Avg. (i)	**18,949**	**2,533**	**0.00114**
MW-5	1.00	0.0325	23.7	2.50	8,131	1,087	0.00754
	2.60	0.0357	23.7	0.17	19,232	2,571	0.00121
	7.00	0.1087	23.7	0.34	17,004	2,273	0.00214
				Avg. (i)	**14,789**	**1,977**	**0.00363**
				Overall Avg.	**13,800**	**1,845**	**0.00580**

T = aquifer transmissivity
S = storage coefficient
Q = pumping rate

t_o = time value at intersection of straight line with zero drawdown.
s_{log} = drawdown indicated by straight line over one log cycle
r = distance from piezometer to pumping well



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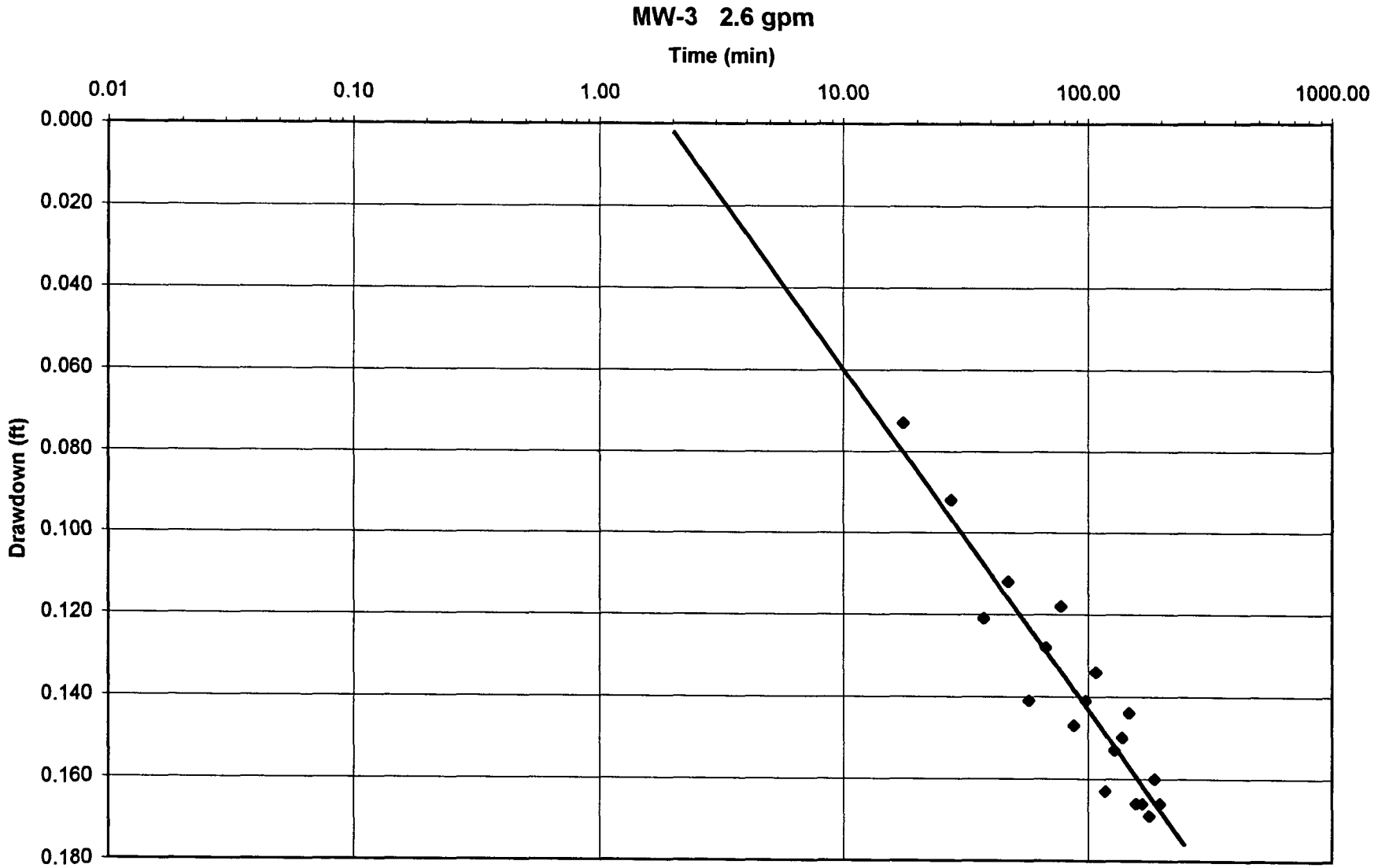

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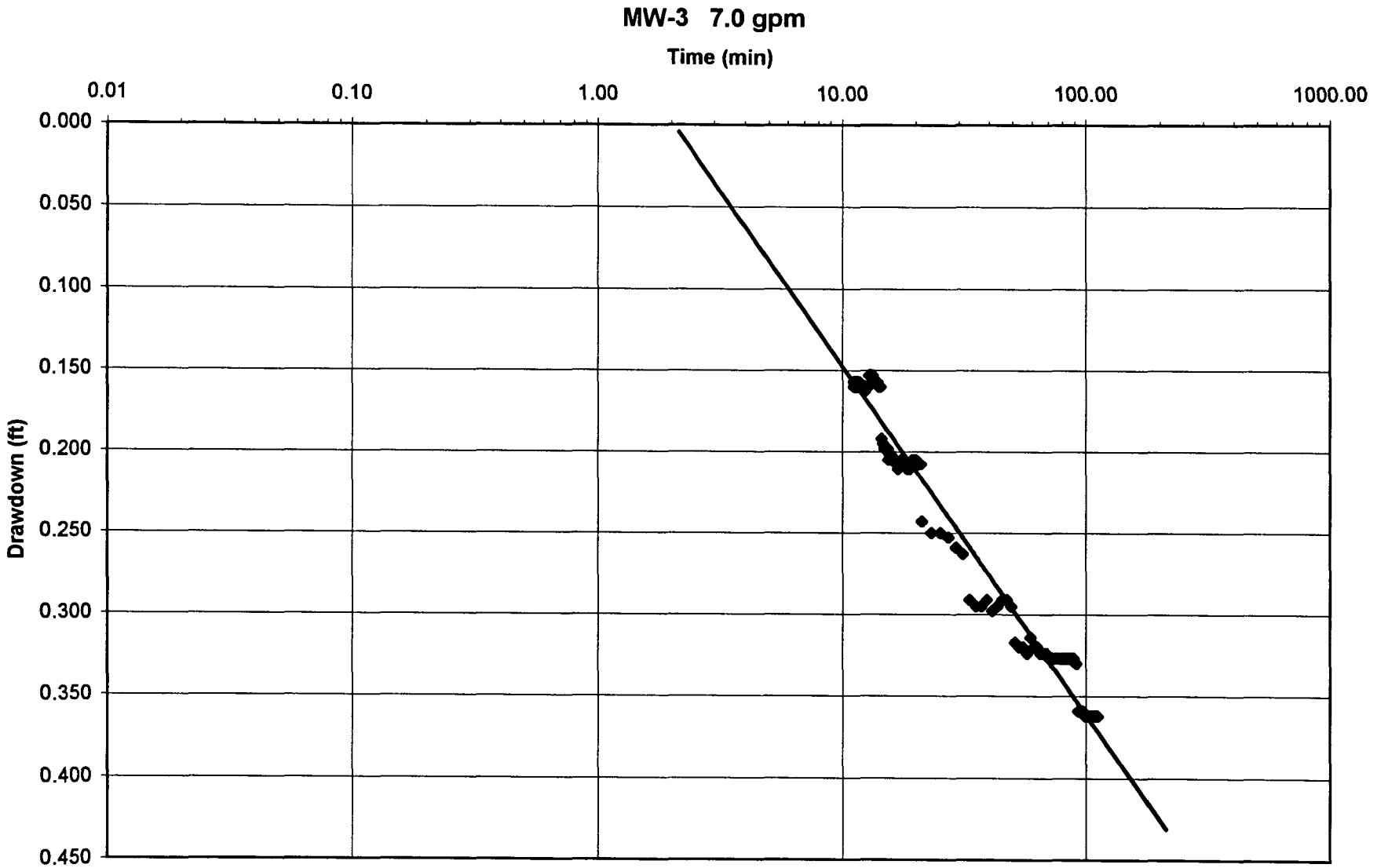

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MW-3
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
0.00	0.000	17.53	0.073	11.15	0.160
0.01	0.000	27.53	0.092	11.16	0.157
0.02	0.000	37.53	0.121	11.17	0.157
0.03	0.000	47.53	0.112	11.18	0.157
0.03	0.000	57.53	0.141	11.18	0.157
0.04	0.000	67.53	0.128	11.19	0.157
0.05	0.000	77.53	0.118	11.20	0.157
0.06	0.000	87.53	0.147	11.21	0.157
0.07	0.000	97.53	0.141	11.22	0.160
0.08	0.000	107.53	0.134	11.23	0.157
0.08	0.000	117.53	0.163	11.23	0.157
0.09	0.000	127.53	0.153	11.24	0.157
0.10	0.000	137.53	0.150	11.25	0.157
0.11	0.000	147.53	0.144	11.26	0.157
0.12	0.000	157.53	0.166	11.27	0.157
0.13	0.036	167.53	0.166	11.28	0.157
0.13	0.032	177.53	0.169	11.28	0.157
0.14	0.029	187.53	0.160	11.29	0.160
0.15	0.029	197.53	0.166	11.30	0.160
0.16	0.029			11.31	0.157
0.17	0.029			11.32	0.160
0.18	0.029			11.33	0.160
0.18	0.029			11.33	0.160
0.19	0.026			11.34	0.157
0.20	0.029			11.35	0.160
0.21	0.029			11.36	0.160
0.22	0.029			11.37	0.157
0.23	0.029			11.38	0.160
0.23	0.026			11.38	0.160
0.24	0.029			11.39	0.160
0.25	0.026			11.40	0.157
0.26	0.026			11.41	0.160
0.27	0.026			11.42	0.160
0.28	0.026			11.43	0.160
0.28	0.026			11.43	0.160
0.29	0.026			11.44	0.160
0.30	0.026			11.45	0.160
0.31	0.026			11.46	0.160
0.32	0.026			11.47	0.160
0.33	0.026			11.48	0.160
0.33	0.026			11.48	0.160
0.35	0.026			11.50	0.160
0.37	0.026			11.52	0.160
0.38	0.026			11.53	0.160
0.40	0.026			11.55	0.160
0.42	0.023			11.57	0.160
0.43	0.026			11.58	0.160

MW-3
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

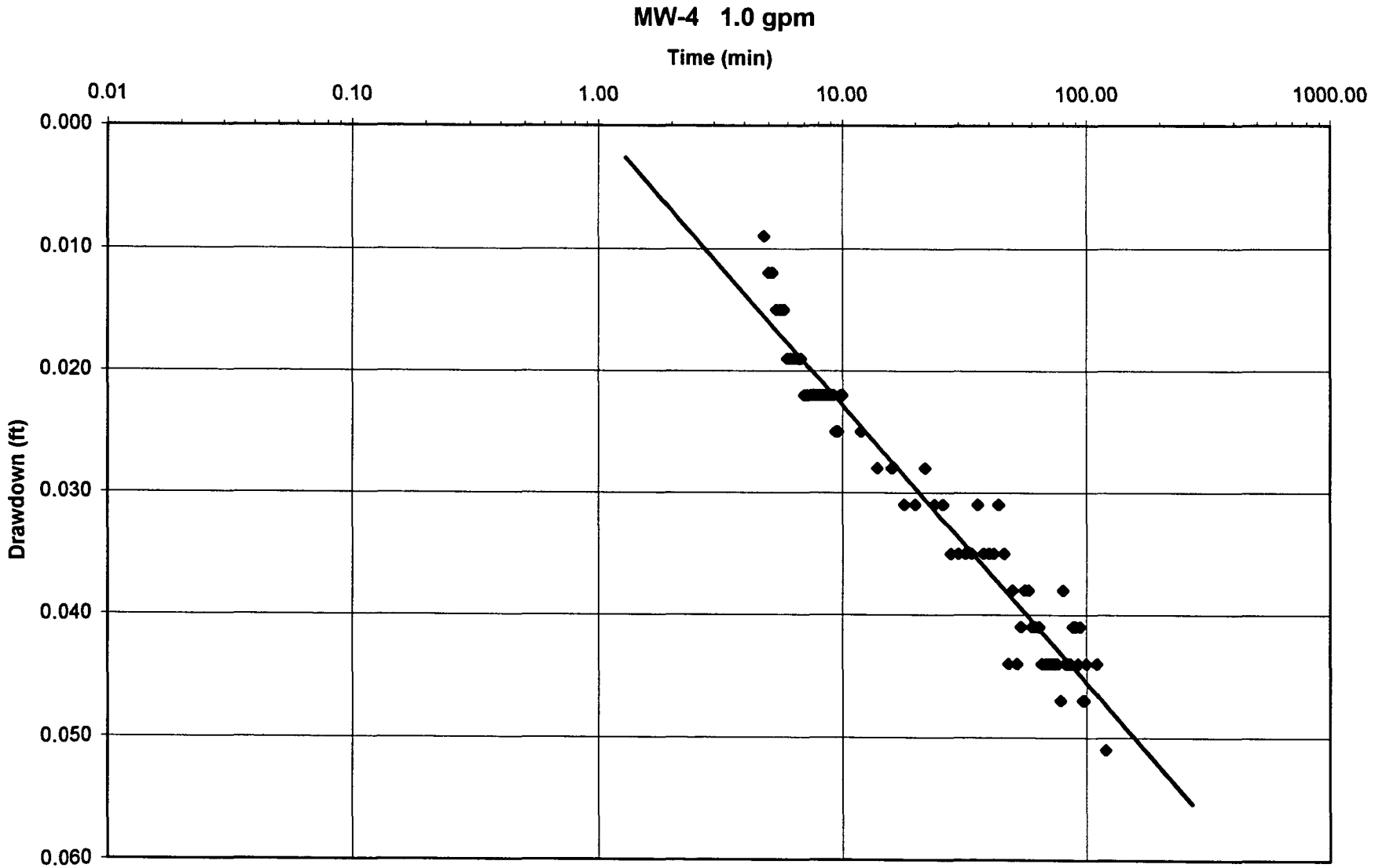
STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
0.45	0.023			11.60	0.160
0.47	0.023			11.62	0.160
0.48	0.023			11.63	0.160
0.50	0.023			11.65	0.157
0.52	0.023			11.67	0.160
0.53	0.023			11.68	0.160
0.55	0.023			11.70	0.160
0.57	0.023			11.72	0.160
0.58	0.023			11.73	0.160
0.60	0.023			11.75	0.157
0.62	0.020			11.77	0.160
0.63	0.020			11.78	0.160
0.65	0.020			11.80	0.160
0.67	0.020			11.82	0.160
0.68	0.020			11.83	0.160
0.70	0.020			11.85	0.160
0.72	0.020			11.87	0.160
0.73	0.020			11.88	0.160
0.75	0.020			11.90	0.160
0.77	0.020			11.92	0.160
0.78	0.020			11.93	0.160
0.80	0.016			11.95	0.160
0.82	0.016			11.97	0.160
0.83	0.016			11.98	0.160
0.85	0.016			12.00	0.160
0.87	0.016			12.02	0.160
0.88	0.016			12.03	0.160
0.90	0.016			12.05	0.160
0.92	0.016			12.07	0.160
0.93	0.016			12.08	0.160
0.95	0.016			12.10	0.160
0.97	0.016			12.12	0.160
0.98	0.013			12.13	0.160
1.00	0.016			12.15	0.160
1.20	0.013			12.35	0.163
1.40	0.010			12.55	0.160
1.60	0.007			12.75	0.160
1.80	0.007			12.95	0.153
2.00	0.000			13.15	0.153
2.20	0.000			13.35	0.153
2.40	0.029			13.55	0.157
2.60	0.026			13.75	0.157
2.80	0.023			13.95	0.157
3.00	0.020			14.15	0.160
3.20	0.020			14.35	0.160
3.40	0.016			14.55	0.192
3.60	0.013			14.75	0.195

MW-3
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
3.80	0.010			14.95	0.198
4.00	0.007			15.15	0.198
4.20	0.007			15.35	0.198
4.40	0.000			15.55	0.205
4.60	0.000			15.75	0.202
4.80	0.026			15.95	0.202
5.00	0.026			16.15	0.205
5.20	0.026			16.35	0.205
5.40	0.023			16.55	0.205
5.60	0.020			16.75	0.208
5.80	0.020			16.95	0.211
6.00	0.016			17.15	0.208
6.20	0.016			17.35	0.208
6.40	0.013			17.55	0.205
6.60	0.010			17.75	0.205
6.80	0.039			17.95	0.208
7.00	0.036			18.15	0.208
7.20	0.036			18.35	0.208
7.40	0.032			18.55	0.211
7.60	0.032			18.75	0.211
7.80	0.029			18.95	0.211
8.00	0.029			19.15	0.208
8.20	0.023			19.35	0.205
8.40	0.020			19.55	0.205
8.60	0.020			19.75	0.205
8.80	0.020			19.95	0.205
9.00	0.016			20.15	0.205
9.20	0.045			20.35	0.208
9.40	0.042			20.55	0.208
9.60	0.042			20.75	0.208
9.80	0.039			20.95	0.208
10.00	0.036			21.15	0.243
12.00	0.048			23.15	0.250
14.00	0.032			25.15	0.250
16.00	0.045			27.15	0.253
18.00	0.055			29.15	0.259
20.00	0.039			31.15	0.263
22.00	0.055			33.15	0.291
24.00	0.039			35.15	0.295
26.00	0.055			37.15	0.295
28.00	0.042			39.15	0.291
30.00	0.067			41.15	0.298
32.00	0.052			43.15	0.295
34.00	0.070			45.15	0.291
36.00	0.058			47.15	0.291
38.00	0.052			49.15	0.295
40.00	0.067			51.15	0.317

MW-3
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
42.00	0.058			53.15	0.320
44.00	0.048			55.15	0.320
46.00	0.067			57.15	0.324
48.00	0.064			59.15	0.314
50.00	0.055			61.15	0.320
52.00	0.080			63.15	0.320
54.00	0.073			65.15	0.324
56.00	0.058			67.15	0.324
58.00	0.055			69.15	0.324
60.00	0.076			71.15	0.327
62.00	0.070			73.15	0.327
64.00	0.067			75.15	0.327
66.00	0.061			77.15	0.327
68.00	0.086			79.15	0.327
70.00	0.076			81.15	0.327
72.00	0.073			83.15	0.327
74.00	0.073			85.15	0.327
76.00	0.067			87.15	0.327
78.00	0.058			89.15	0.327
80.00	0.080			91.15	0.330
82.00	0.080			93.15	0.359
84.00	0.076			95.15	0.359
86.00	0.070			97.15	0.359
88.00	0.061			99.15	0.362
90.00	0.086			101.15	0.362
92.00	0.086			103.15	0.362
94.00	0.080			105.15	0.362
96.00	0.080			107.15	0.362
98.00	0.073			109.15	0.362
100.00	0.067			111.15	0.362
110.00	0.086				
120.00	0.073				



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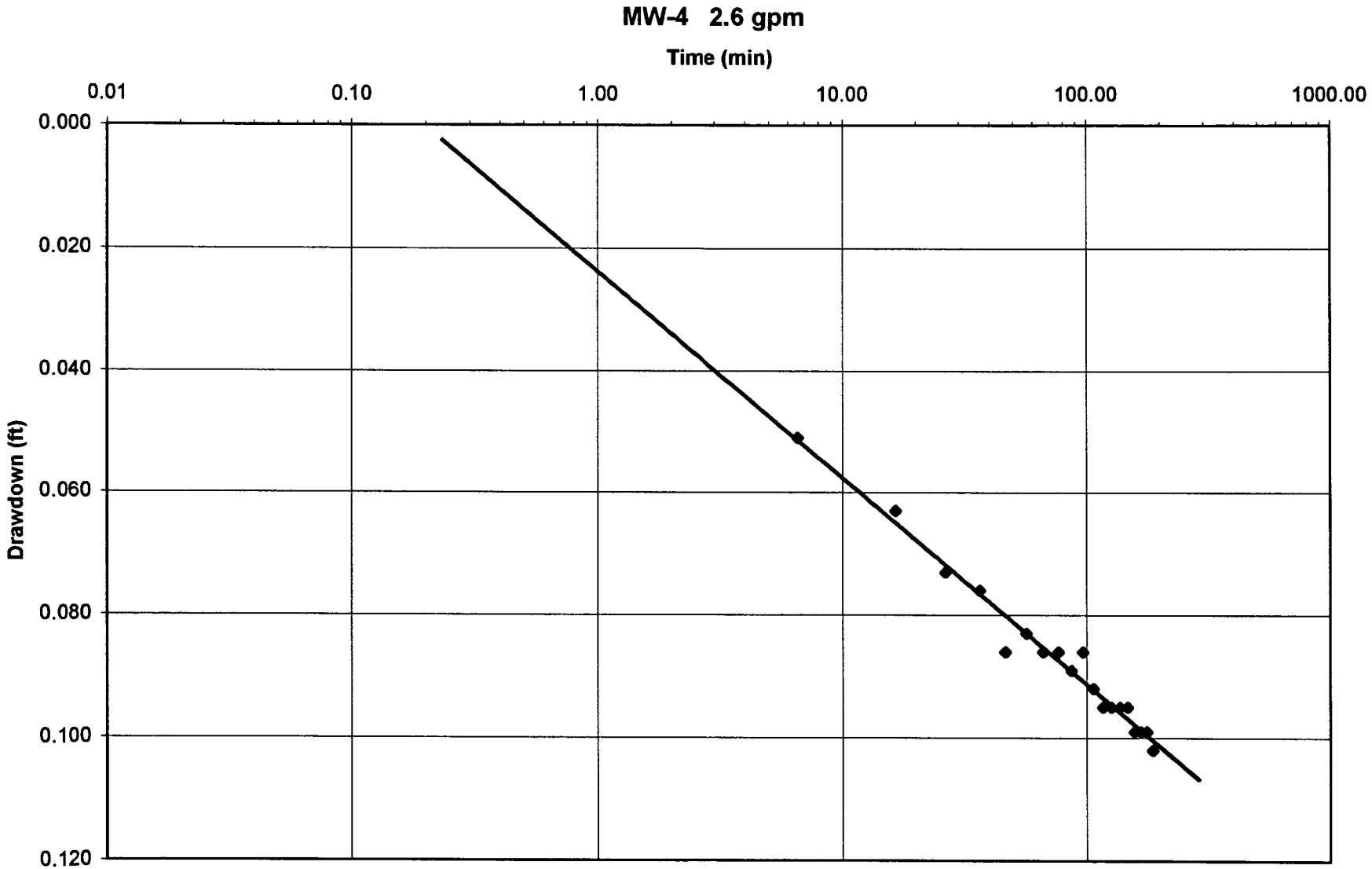

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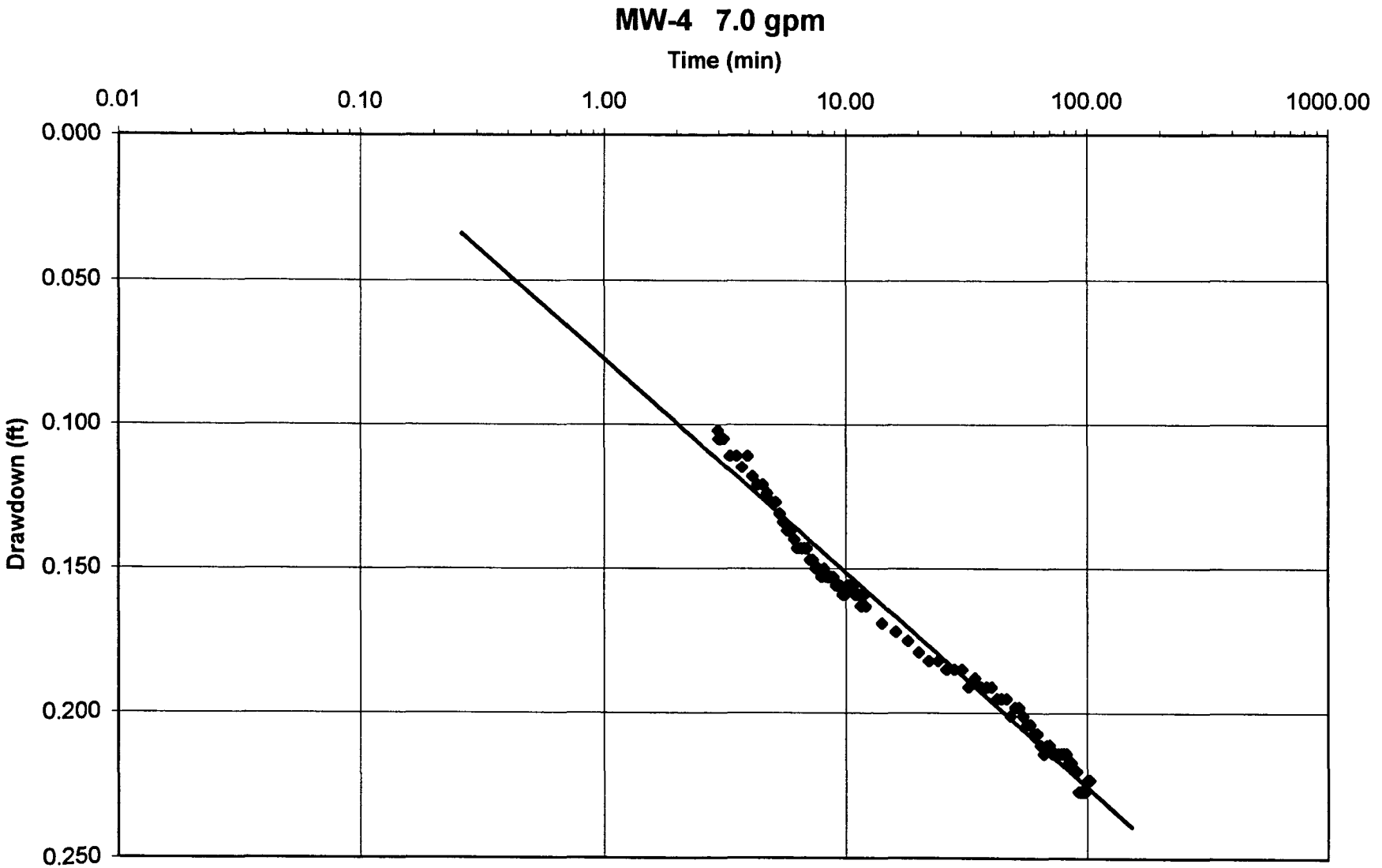

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MW-4
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
0.00	0.006	6.59	0.051	2.14	0.099
0.01	0.009	16.59	0.063	2.15	0.102
0.02	0.006	26.59	0.073	2.16	0.102
0.03	0.009	36.59	0.076	2.17	0.102
0.03	0.006	46.59	0.086	2.17	0.102
0.04	0.009	56.59	0.083	2.18	0.102
0.05	0.009	66.59	0.086	2.19	0.102
0.06	0.006	76.59	0.086	2.20	0.102
0.07	0.009	86.59	0.089	2.21	0.102
0.08	0.006	96.59	0.086	2.22	0.102
0.08	0.009	106.59	0.092	2.22	0.102
0.09	0.006	116.59	0.095	2.23	0.102
0.10	0.009	126.59	0.095	2.24	0.102
0.11	0.009	136.59	0.095	2.25	0.102
0.12	0.006	146.59	0.095	2.26	0.102
0.13	0.009	156.59	0.099	2.27	0.102
0.13	0.006	166.59	0.099	2.27	0.102
0.14	0.006	176.59	0.099	2.28	0.102
0.15	0.006	186.59	0.102	2.29	0.102
0.16	0.006			2.30	0.102
0.17	0.009			2.31	0.102
0.18	0.009			2.32	0.102
0.18	0.006			2.32	0.102
0.19	0.009			2.33	0.102
0.20	0.006			2.34	0.102
0.21	0.006			2.35	0.102
0.22	0.006			2.36	0.102
0.23	0.006			2.37	0.102
0.23	0.006			2.37	0.102
0.24	0.009			2.38	0.102
0.25	0.009			2.39	0.102
0.26	0.006			2.40	0.102
0.27	0.009			2.41	0.102
0.28	0.006			2.42	0.102
0.28	0.006			2.42	0.102
0.29	0.006			2.43	0.102
0.30	0.006			2.44	0.099
0.31	0.006			2.45	0.102
0.32	0.006			2.46	0.099
0.33	0.006			2.47	0.102
0.33	0.006			2.47	0.102
0.35	0.006			2.49	0.102
0.37	0.006			2.51	0.099
0.38	0.006			2.52	0.102
0.40	0.006			2.54	0.102
0.42	0.006			2.56	0.102
0.43	0.006			2.57	0.102

MW-4
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

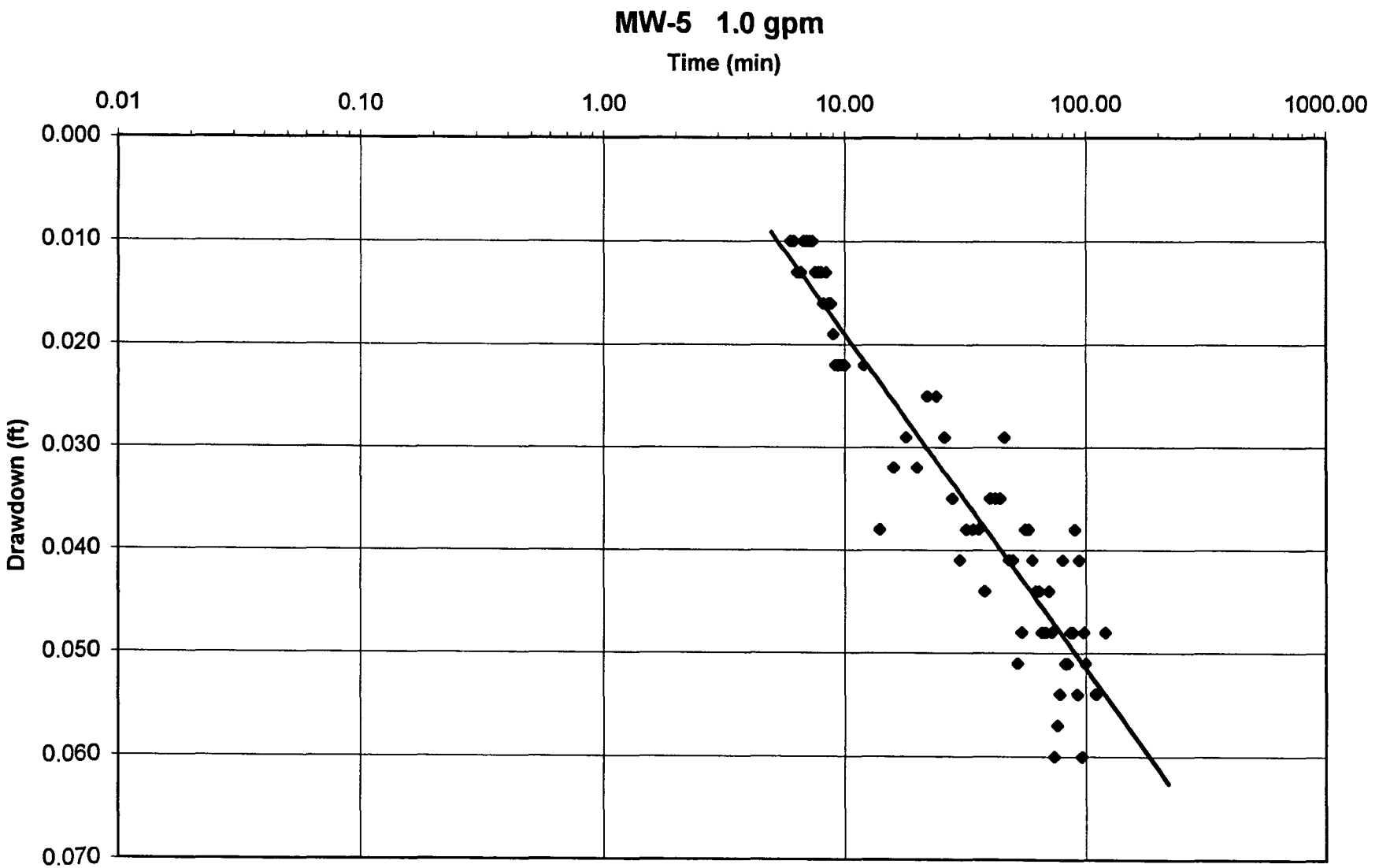
STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
0.45	0.006			2.59	0.102
0.47	0.006			2.61	0.102
0.48	0.006			2.62	0.102
0.50	0.006			2.64	0.102
0.52	0.006			2.66	0.102
0.53	0.006			2.67	0.102
0.55	0.006			2.69	0.102
0.57	0.006			2.71	0.102
0.58	0.006			2.72	0.102
0.60	0.006			2.74	0.102
0.62	0.006			2.76	0.102
0.63	0.006			2.77	0.102
0.65	0.006			2.79	0.102
0.67	0.006			2.81	0.102
0.68	0.006			2.82	0.102
0.70	0.006			2.84	0.102
0.72	0.006			2.86	0.102
0.73	0.006			2.87	0.102
0.75	0.006			2.89	0.102
0.77	0.009			2.91	0.102
0.78	0.009			2.92	0.102
0.80	0.009			2.94	0.102
0.82	0.006			2.96	0.102
0.83	0.006			2.97	0.102
0.85	0.009			2.99	0.102
0.87	0.006			3.01	0.105
0.88	0.006			3.02	0.105
0.90	0.009			3.04	0.105
0.92	0.006			3.06	0.105
0.93	0.006			3.07	0.105
0.95	0.009			3.09	0.105
0.97	0.009			3.11	0.105
0.98	0.006			3.12	0.105
1.00	0.009			3.14	0.105
1.20	0.006			3.34	0.111
1.40	0.009			3.54	0.111
1.60	0.009			3.74	0.115
1.80	0.009			3.94	0.111
2.00	0.006			4.14	0.118
2.20	0.006			4.34	0.121
2.40	0.006			4.54	0.121
2.60	0.009			4.74	0.124
2.80	0.009			4.94	0.127
3.00	0.006			5.14	0.127
3.20	0.009			5.34	0.131
3.40	0.006			5.54	0.134
3.60	0.009			5.74	0.137

MW-4
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
3.80	0.009			5.94	0.137
4.00	0.006			6.14	0.140
4.20	0.009			6.34	0.143
4.40	0.006			6.54	0.143
4.60	0.009			6.74	0.143
4.80	0.009			6.94	0.143
5.00	0.012			7.14	0.147
5.20	0.012			7.34	0.147
5.40	0.015			7.54	0.150
5.60	0.015			7.74	0.150
5.80	0.015			7.94	0.153
6.00	0.019			8.14	0.150
6.20	0.019			8.34	0.153
6.40	0.019			8.54	0.153
6.60	0.019			8.74	0.153
6.80	0.019			8.94	0.153
7.00	0.022			9.14	0.156
7.20	0.022			9.34	0.156
7.40	0.022			9.54	0.156
7.60	0.022			9.74	0.159
7.80	0.022			9.94	0.159
8.00	0.022			10.14	0.156
8.20	0.022			10.34	0.156
8.40	0.022			10.54	0.156
8.60	0.022			10.74	0.156
8.80	0.022			10.94	0.159
9.00	0.022			11.14	0.159
9.20	0.022			11.34	0.159
9.40	0.025			11.54	0.163
9.60	0.025			11.74	0.159
9.80	0.022			11.94	0.159
10.00	0.022			12.14	0.163
12.00	0.025			14.14	0.169
14.00	0.028			16.14	0.172
16.00	0.028			18.14	0.175
18.00	0.031			20.14	0.179
20.00	0.031			22.14	0.182
22.00	0.028			24.14	0.182
24.00	0.031			26.14	0.185
26.00	0.031			28.14	0.185
28.00	0.035			30.14	0.185
30.00	0.035			32.14	0.191
32.00	0.035			34.14	0.188
34.00	0.035			36.14	0.191
36.00	0.031			38.14	0.191
38.00	0.035			40.14	0.191
40.00	0.035			42.14	0.195

MW-4
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
42.00	0.035			44.14	0.195
44.00	0.031			46.14	0.195
46.00	0.035			48.14	0.201
48.00	0.044			50.14	0.198
50.00	0.038			52.14	0.198
52.00	0.044			54.14	0.201
54.00	0.041			56.14	0.204
56.00	0.038			58.14	0.204
58.00	0.038			60.14	0.207
60.00	0.041			62.14	0.207
62.00	0.041			64.14	0.211
64.00	0.041			66.14	0.214
66.00	0.044			68.14	0.211
68.00	0.044			70.14	0.211
70.00	0.044			72.14	0.214
72.00	0.044			74.14	0.214
74.00	0.044			76.14	0.214
76.00	0.044			78.14	0.214
78.00	0.047			80.14	0.214
80.00	0.038			82.14	0.214
82.00	0.044			84.14	0.217
84.00	0.044			86.14	0.217
86.00	0.044			88.14	0.220
88.00	0.041			90.14	0.220
90.00	0.041			92.14	0.227
92.00	0.044			94.14	0.227
94.00	0.041			96.14	0.227
96.00	0.047			98.14	0.227
98.00	0.047			100.14	0.223
100.00	0.044			102.14	0.223
110.00	0.044				
120.00	0.051				



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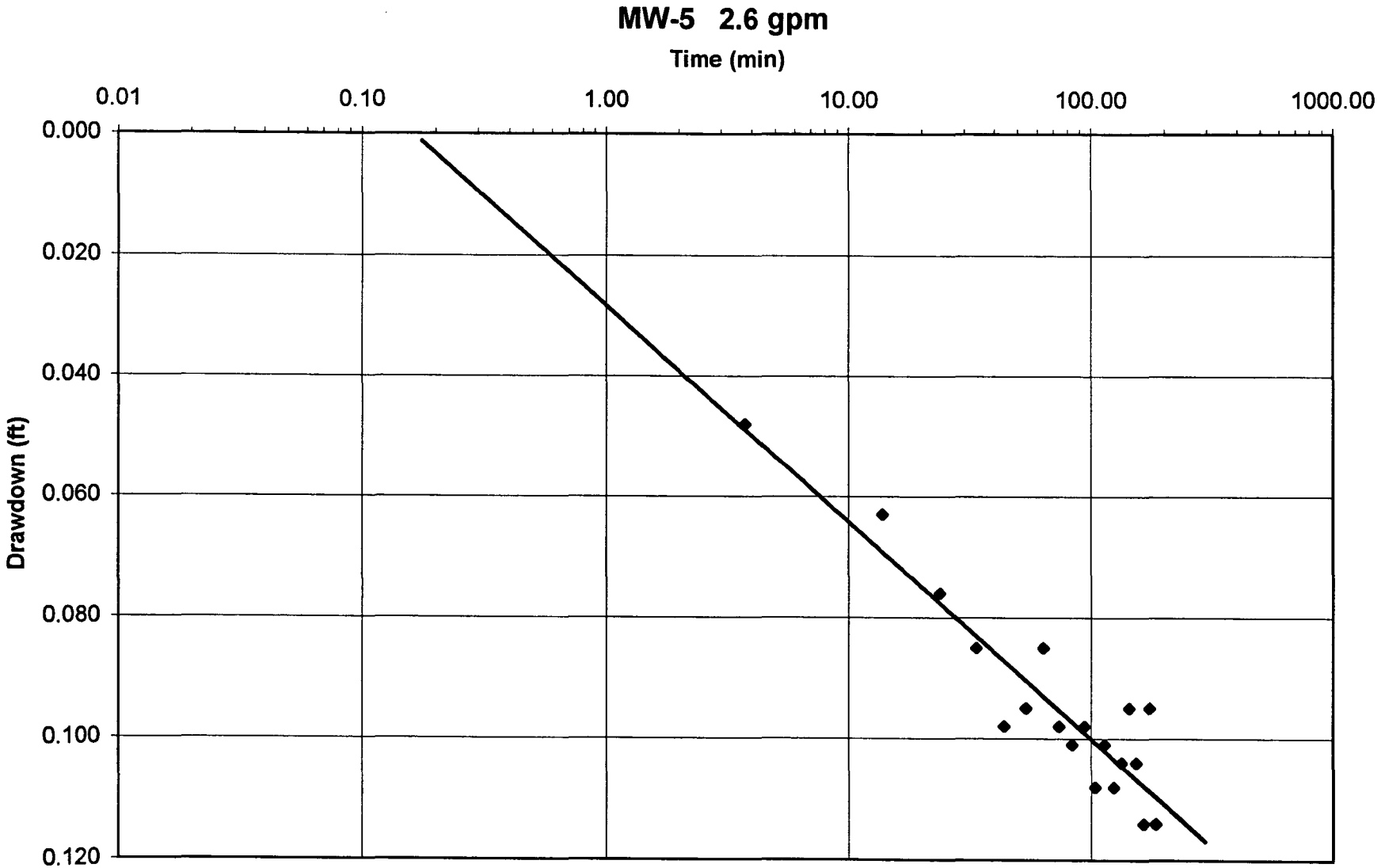

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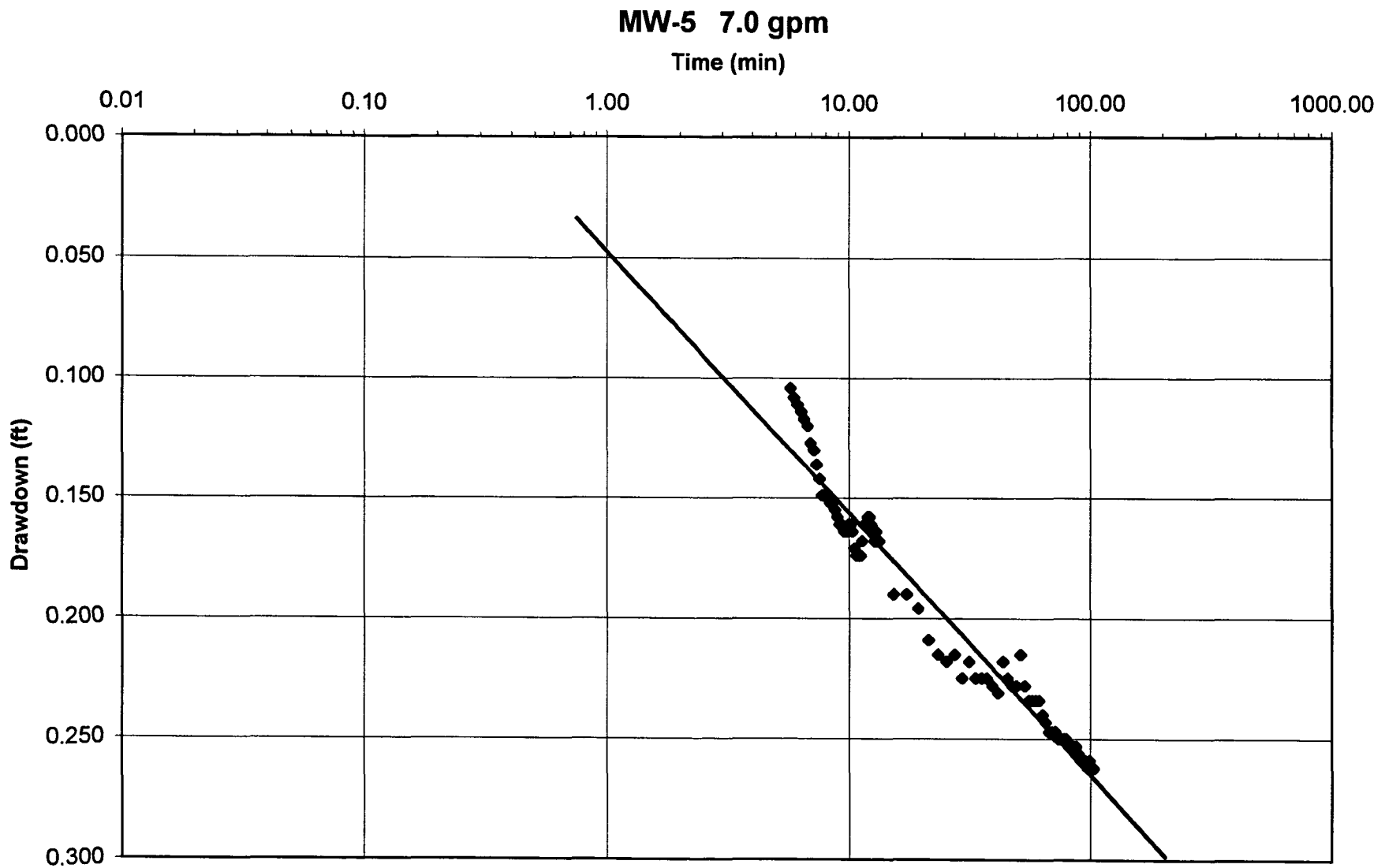

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MW-5
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
0.00	0.000	3.76	0.048	3.35	0.108
0.01	0.000	13.76	0.063	3.36	0.108
0.02	0.000	23.76	0.076	3.37	0.111
0.03	0.000	33.76	0.085	3.38	0.111
0.03	0.000	43.76	0.098	3.38	0.111
0.04	0.000	53.76	0.095	3.39	0.111
0.05	0.000	63.76	0.085	3.40	0.108
0.06	0.000	73.76	0.098	3.41	0.111
0.07	0.000	83.76	0.101	3.42	0.111
0.08	0.000	93.76	0.098	3.43	0.111
0.08	0.000	103.76	0.108	3.43	0.111
0.09	0.000	113.76	0.101	3.44	0.111
0.10	0.000	123.76	0.108	3.45	0.111
0.11	0.000	133.76	0.104	3.46	0.111
0.12	0.000	143.76	0.095	3.47	0.111
0.13	0.000	153.76	0.104	3.48	0.108
0.13	0.000	163.76	0.114	3.48	0.111
0.14	0.000	173.76	0.095	3.49	0.111
0.15	0.000	183.76	0.114	3.50	0.111
0.16	0.000			3.51	0.111
0.17	0.000			3.52	0.111
0.18	0.000			3.53	0.111
0.18	0.000			3.53	0.111
0.19	0.000			3.54	0.111
0.20	0.000			3.55	0.111
0.21	0.000			3.56	0.111
0.22	0.000			3.57	0.111
0.23	0.000			3.58	0.111
0.23	0.000			3.58	0.111
0.24	0.000			3.59	0.111
0.25	0.000			3.60	0.111
0.26	0.000			3.61	0.111
0.27	0.000			3.62	0.111
0.28	0.000			3.63	0.111
0.28	0.000			3.63	0.111
0.29	0.000			3.64	0.111
0.30	0.000			3.65	0.111
0.31	0.000			3.66	0.111
0.32	0.000			3.67	0.111
0.33	0.000			3.68	0.114
0.33	0.000			3.68	0.111
0.35	0.000			3.70	0.114
0.37	0.000			3.72	0.111
0.38	0.000			3.73	0.114
0.40	0.000			3.75	0.114
0.42	0.000			3.77	0.114
0.43	0.000			3.78	0.114

MW-5
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
0.45	0.000			3.80	0.114
0.47	-0.003			3.82	0.114
0.48	0.000			3.83	0.114
0.50	-0.003			3.85	0.114
0.52	-0.003			3.87	0.114
0.53	-0.003			3.88	0.114
0.55	0.000			3.90	0.114
0.57	-0.003			3.92	0.114
0.58	-0.003			3.93	0.117
0.60	-0.003			3.95	0.117
0.62	-0.003			3.97	0.114
0.63	-0.003			3.98	0.114
0.65	-0.003			4.00	0.117
0.67	-0.003			4.02	0.114
0.68	-0.003			4.03	0.114
0.70	-0.003			4.05	0.114
0.72	-0.006			4.07	0.114
0.73	-0.006			4.08	0.114
0.75	-0.006			4.10	0.114
0.77	-0.006			4.12	0.114
0.78	-0.006			4.13	0.114
0.80	-0.006			4.15	0.114
0.82	-0.006			4.17	0.114
0.83	-0.006			4.18	0.114
0.85	-0.006			4.20	0.114
0.87	-0.006			4.22	0.117
0.88	-0.006			4.23	0.114
0.90	-0.006			4.25	0.114
0.92	-0.006			4.27	0.114
0.93	-0.006			4.28	0.114
0.95	-0.006			4.30	0.117
0.97	-0.006			4.32	0.114
0.98	-0.006			4.33	0.117
1.00	-0.006			4.35	0.117
1.20	-0.006			4.55	0.117
1.40	-0.003			4.75	0.117
1.60	-0.003			4.95	0.117
1.80	-0.003			5.15	0.111
2.00	-0.003			5.35	0.108
2.20	0.000			5.55	0.104
2.40	-0.003			5.75	0.104
2.60	-0.003			5.95	0.108
2.80	0.000			6.15	0.111
3.00	0.000			6.35	0.114
3.20	0.000			6.55	0.117
3.40	0.003			6.75	0.120
3.60	0.003			6.95	0.127

MW-5
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
3.80	0.003			7.15	0.130
4.00	0.003			7.35	0.136
4.20	0.003			7.55	0.142
4.40	0.000			7.75	0.149
4.60	0.000			7.95	0.149
4.80	0.000			8.15	0.149
5.00	0.000			8.35	0.152
5.20	0.000			8.55	0.152
5.40	0.006			8.75	0.155
5.60	0.006			8.95	0.158
5.80	0.006			9.15	0.161
6.00	0.010			9.35	0.161
6.20	0.010			9.55	0.164
6.40	0.013			9.75	0.164
6.60	0.013			9.95	0.161
6.80	0.010			10.15	0.161
7.00	0.010			10.35	0.164
7.20	0.010			10.55	0.171
7.40	0.010			10.75	0.174
7.60	0.013			10.95	0.174
7.80	0.013			11.15	0.174
8.00	0.013			11.35	0.168
8.20	0.016			11.55	0.161
8.40	0.013			11.75	0.161
8.60	0.016			11.95	0.158
8.80	0.016			12.15	0.158
9.00	0.019			12.35	0.161
9.20	0.022			12.55	0.164
9.40	0.022			12.75	0.168
9.60	0.022			12.95	0.164
9.80	0.022			13.15	0.168
10.00	0.022			13.35	0.168
12.00	0.022			15.35	0.190
14.00	0.038			17.35	0.190
16.00	0.032			19.35	0.196
18.00	0.029			21.35	0.209
20.00	0.032			23.35	0.215
22.00	0.025			25.35	0.218
24.00	0.025			27.35	0.215
26.00	0.029			29.35	0.225
28.00	0.035			31.35	0.218
30.00	0.041			33.35	0.225
32.00	0.038			35.35	0.225
34.00	0.038			37.35	0.225
36.00	0.038			39.35	0.228
38.00	0.044			41.35	0.231
40.00	0.035			43.35	0.218

MW-5
DRAWDOWN DATA WITH CORRECTED ELAPSED TIME

STEP 1: 1 GPM		STEP 2: 2.6 GPM		STEP 3: 7.0 GPM	
Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)	Elapsed Time (min)	Drawdown (feet)
42.00	0.035			45.35	0.225
44.00	0.035			47.35	0.228
46.00	0.029			49.35	0.228
48.00	0.041			51.35	0.215
50.00	0.041			53.35	0.228
52.00	0.051			55.35	0.234
54.00	0.048			57.35	0.234
56.00	0.038			59.35	0.234
58.00	0.038			61.35	0.234
60.00	0.041			63.35	0.240
62.00	0.044			65.35	0.243
64.00	0.044			67.35	0.247
66.00	0.048			69.35	0.247
68.00	0.048			71.35	0.247
70.00	0.044			73.35	0.250
72.00	0.048			75.35	0.250
74.00	0.060			77.35	0.250
76.00	0.057			79.35	0.250
78.00	0.054			81.35	0.253
80.00	0.041			83.35	0.253
82.00	0.051			85.35	0.253
84.00	0.051			87.35	0.253
86.00	0.048			89.35	0.256
88.00	0.048			91.35	0.259
90.00	0.038			93.35	0.259
92.00	0.054			95.35	0.259
94.00	0.041			97.35	0.262
96.00	0.060			99.35	0.259
98.00	0.048			101.35	0.262
100.00	0.051			103.35	0.262
110.00	0.054				
120.00	0.048				

Appendix B

SUBJECT: INJECTION TESTING

JOB NO.: 710016 CLIENT: TXNMPL

BY: TJW DATE: 12-21 1997 CHECKED BY: _____ DATE: _____ 19__

INFILTRATION TRENCH DESIGN

KNOWN: TW-2 accepted 2.0 - 2.75 gpm with DTW stabilizing below 10 Ft (11.10 Ft Actual)

TW-2 : 17 Ft Deep
Ø : 8 inches

USE; Q = 2.0 gpm
DTW = 10 Feet

Area of Infiltration $A_{inf} = 2\pi rh + \pi r^2$

$= 2\pi\left(\frac{4"}{12}\right)(17-10\ Ft) + \pi\left(\frac{4"}{12}\right)^2$

$= 14.66\ Ft^2 + 0.35\ Ft^2$

$= 15\ Ft^2$

CALCULATE : Necessary A_{inf} For Q = 20 gpm

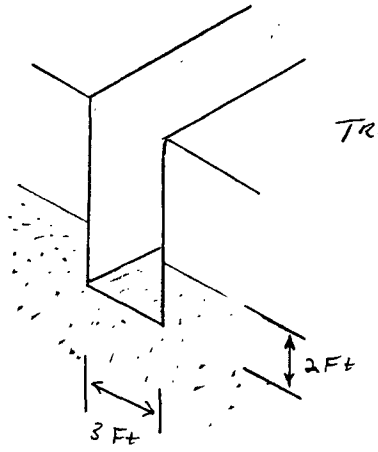
INFILTRATION CAPACITY = $\frac{Q}{A} = \frac{2\ gpm}{15\ Ft^2} = 0.1333\ \frac{gpm}{ft^2}$

FOR 20 gpm : $A = Q/(0.1333\ \frac{gpm}{ft^2})$

$A = \frac{20}{0.1333}$

$A = 150\ ft^2$

DESIGN :



TRENCH: 2 Ft INTO INJECTION ZONE
3 Ft WIDE.

$A = 2DL + WL = L(2D + W)$

$150\ Ft^2 = L(2 \times 2\ Ft + 3\ Ft)$

$150 = 7L$

$L = 21\ Ft$ S.F. = 1.5 (safety Factor)

L = 31.5 Feet

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

January 27, 1998

Mr. Bill Olson
NEW MEXICO OIL CONSERVATION DIVISION
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Discharge Plan
Texas - New Mexico Pipe Line Company
TNM-97-04 (aka Townsend Remediation Site)
Lovington, New Mexico
KEI Job No. 710016-1

Dear Mr. Olson:

This letter is an addendum to the Discharge Plan prepared for the TNM-97-04 project site located approximately two miles west of Lovington, New Mexico in the northeast quarter of the southeast quarter of Section 11, Township 16 South, Range 35 East.

Attached is a site map indicating proposed placement of the infiltration gallery and a diagram of the construction details of the infiltration gallery. Based on the drilling logs of the new monitoring wells (MW-10, MW-11, and MW-12) we have proposed placing the gallery upgradient of the remediation system.

In addition to the sampling schedule presented in TABLE I of the Discharge Plan, this letter is notification that we will sample and test for BTEX concentrations in the system effluent on a weekly basis for the first month of operation. Also, the sampling schedule for PAH concentrations will be amended from annual to monthly sampling.

Currently, the crude oil from this pipeline release is mounded on the ground water and beginning to spread. The impact to ground water can be reduced by beginning remediation as soon as possible. Therefore, we request temporary authorization as provided for in 20 NMAC 6.2.III.3106(B) to discharge treated ground water through the infiltration gallery as proposed in the Discharge Plan and this addendum.

If you have any questions, please contact either Jim Mosley at 512/272-5305 (email: jmosley@eden.com) or Mike Hawthorne at 210/680-3767 (email: mhawthorne@keic.com).

Respectfully,

Jim Mosley, P.E.
Senior Engineer

J. Michael Hawthorne, P.G., REM
Senior Geologist

Enclosure

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

January 27, 1998

Mr. Bill Olson
NEW MEXICO OIL CONSERVATION DIVISION
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Discharge Plan
Texas - New Mexico Pipe Line Company
TNM-97-04 (aka Townsend Remediation Site)
Lovington, New Mexico
KEI Job No. 710016-1

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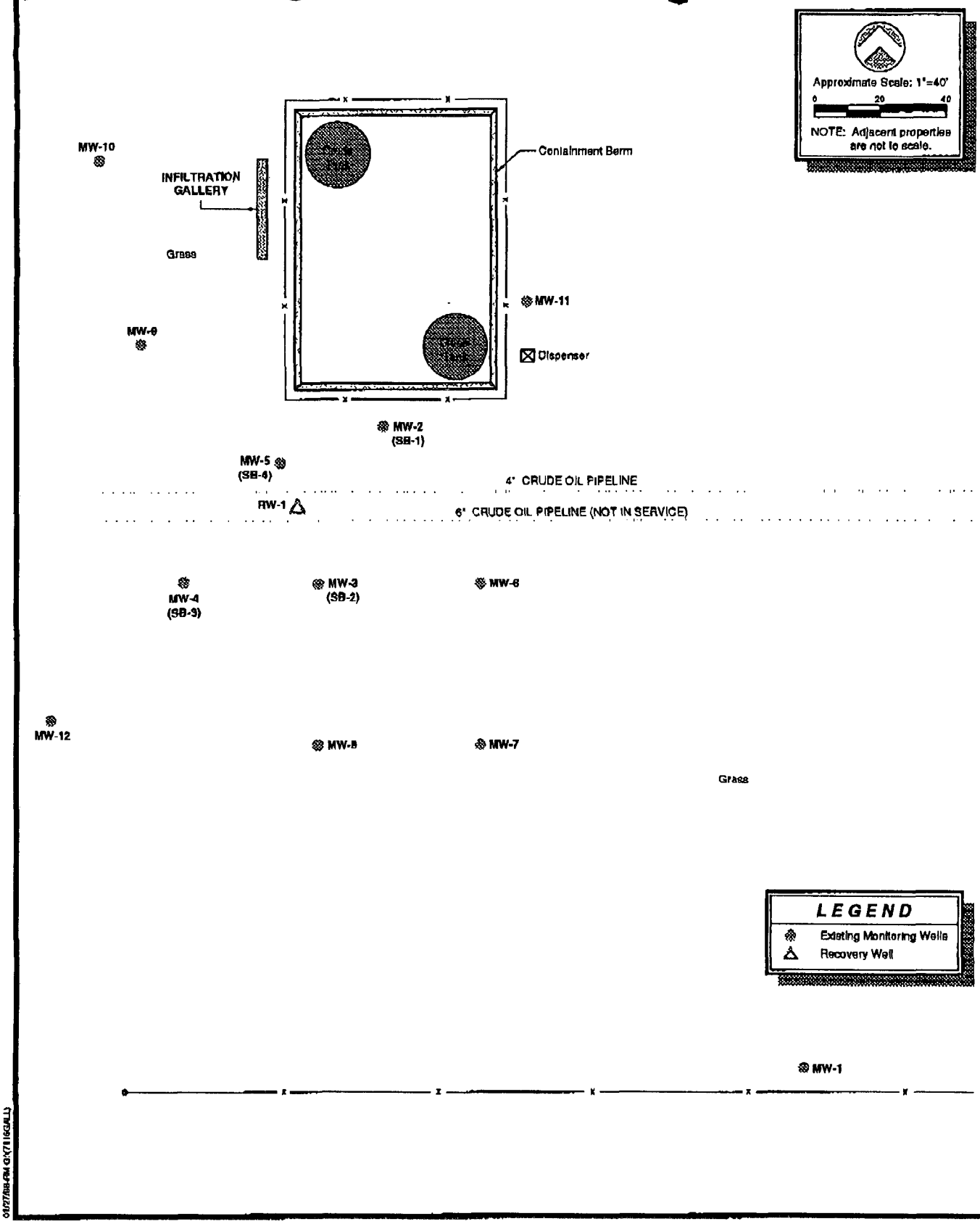
Respectfully,

Jim Mosley, P.E.
Senior Engineer

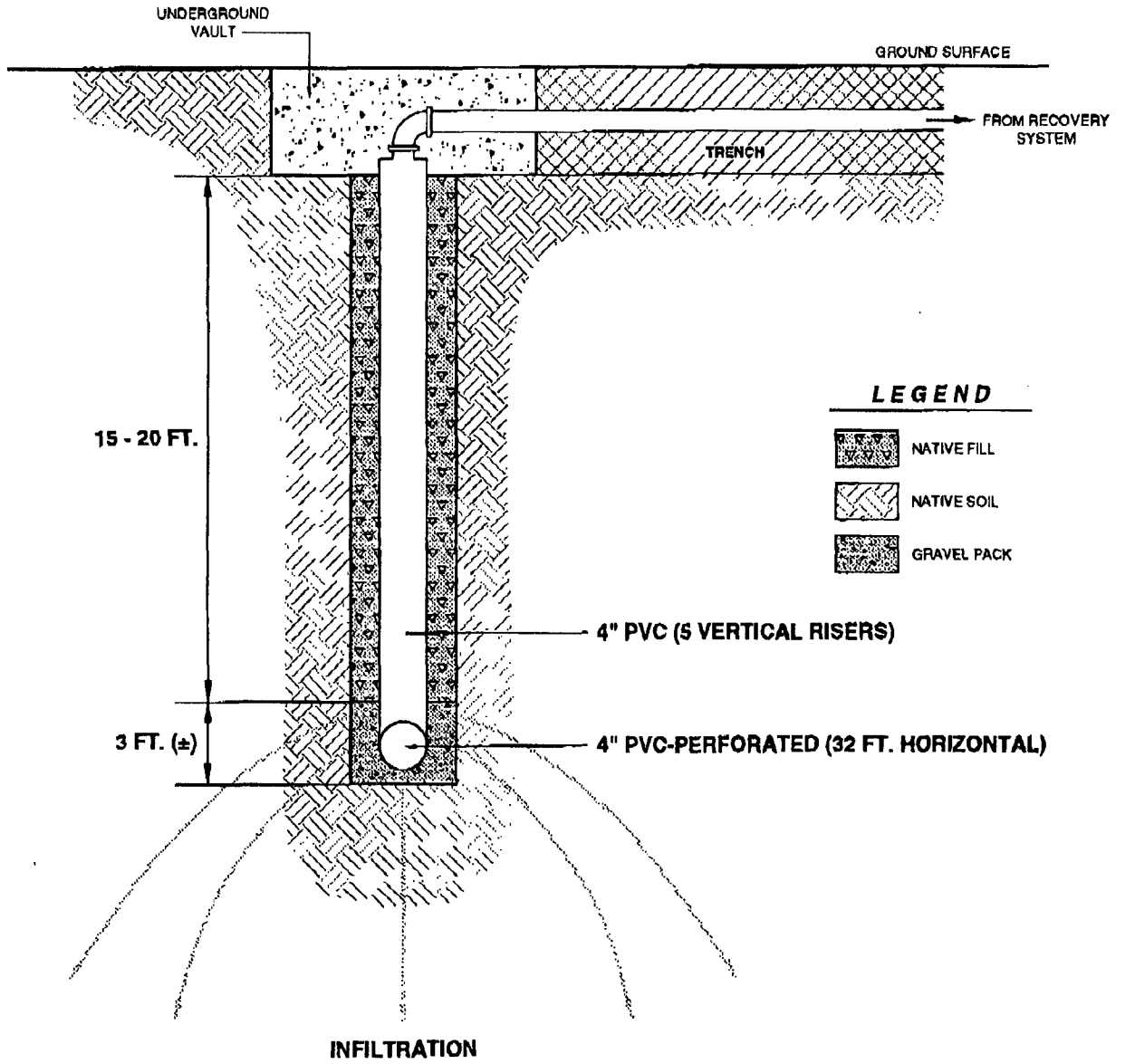
J. Michael Hawthorne, P.G., REM
Senior Geologist

Enclosure

p:\tnmp\710016\coodrem.doc



k·e·i	INFILTRATION GALLERY LOCATION	710016
	TEXAS - NEW MEXICO PIPE LINE COMPANY TNM-97-04 LOVINGTON, NEW MEXICO	FIG 1



NOT TO SCALE

k·e·i	*INFILTRATION GALLERY DETAILS*	710016
	TEXAS-NEW MEXICO PIPE LINE COMPANY TMN-97-04 LOVINGTON, NEW MEXICO	FIG 2

GW - 294

GENERAL CORRESPONDENCE

YEAR(S):

2006 - 1997

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

May 5, 2006

Ms. Camille Reynolds
Plains Marketing, L.P.
3112 West Highway 82
Lovington, NM 88260

Dear Ms. Reynolds:

The New Mexico Oil Conservation Division (NMOCD) has received and reviewed the following 2005 Annual Monitoring Reports submitted by NOVA Safety and Environmental on behalf of Plains Marketing, L.P. (Plains). These reports are hereby accepted and approved with the following understandings and conditions:

1. **Texaco Skelly F Site**; SW/4 NW/4 Section 21, Township 20 South, Range 37 East, Lea County New Mexico; Plains EMS number 2002-11229; NMOCD file number 1R-0420. Quarterly groundwater gauging and sampling, and product recovery will continue throughout 2006, the results of which are to be reported on the 2006 Annual Monitoring Report due by April 1, 2007. NMOCD expects a work plan to complete vertical delineation of the impact of the release to the soil by June 30, 2006. Details of the installation of the additional monitor wells will be provided in a separate report to be prepared after the installation and groundwater sampling has been accomplished.
2. **TNM 97-04**; SE/4 SE/4 Section 11, Township 16 South, Range 35 East, Lea County New Mexico; Plains EMS number TNM 97-04; NMOCD file number GW-0294. Monitor well MW-17 may be plugged, using a slurry containing 3% to 5% bentonite to the surface, and abandoned. Monitor well MW-16 may be placed on a semi-annual sampling and analysis schedule, and monitor well MW-11 may be placed on an annual sampling and analysis schedule. Plains must consider returning the automated recovery system to operational status. Plains must propose a time frame during which this will be accomplished.

NMOCD approval does not relieve Plains of responsibility should its operations at these sites prove to have been harmful to public health or the environment. Nor does it relieve Plains of its responsibility to comply with the rules and regulations of any other governmental agency.

If you have any questions, contact me at (505) 476-3492 or ed.martin@state.nm.us

NEW MEXICO OIL CONSERVATION DIVISION

Ed Martin

Edwin E. Martin
Environmental Bureau

Copy: NMOCD, Hobbs
Curt Stanley, NOVA

PLAINS
Marketing, L.P.

March 24, 2006

Mr. Ed Martin
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Plains – Annual Monitoring Reports
16 Sites in Lea County, New Mexico

Dear Mr. Martin:

Plains All American is an operator of crude oil pipelines and terminal facilities in the state of New Mexico. Plains All American actively monitors certain historical release sites exhibiting groundwater impacts, consistent with assessments and work plans developed in consultation with the New Mexico Oil Conservation Division (NMOCD). In accordance with the rules and regulations of the NMOCD, Plains All American hereby submits our Annual Monitoring reports for the following sites:

TNM 97-17	Section 21, Township 20 South, Range 37 East, Lea County
TNM 97-18	Section 28, Township 20 South, Range 37 East, Lea County
TNM 98-05A	Section 26, Township 21 South, Range 37 East, Lea County
TNM 98-05B	Section 26, Township 21 South, Range 37 East, Lea County
TNM 97-04	Section 11, Township 16 South, Range 35 East, Lea County
Texaco Skelly "F"	Section 21, Township 20 South, Range 37 East, Lea County
Darr Angell #2	Sections 11 and 14, Township 15 South, Range 37 East, Lea County
LF-59	Section 32, Township 19 South, Range 37 East, Lea County
SPS-11	Section 18, Township 18 South, Range 36 East, Lea County
Monument #2	Sections 6 and 7, Township 20 South, Range 37 East, Lea County
Monument #10	Section 32, Township 19 South, Range 37 East, Lea County
Monument #17	Section 29, Township 19 South, Range 37 East, Lea County
Monument #18	Section 7, Township 20 South, Range 37 East, Lea County
Bob Durham	Sections 31 and 32, Township 19 South, Range 37 East, Lea County
Monument Barber 10" Sour	Section 32, Township 19 South, Range 37 East, Lea County
Lea Station to Monument 6"	Section 5, Township 20 South, Range 37 East, Lea County

3112 West Highway 82 • Lovington, NM 88260 • (505) 396-3341

Nova prepared these documents and has vouched for their accuracy an completeness, and on behalf of Plains All American, I have personally reviewed the documents and interviewed Nova in order to verify the accuracy and completeness of these documents. It is based upon these inquires and reviews that Plains All American submits the enclosed Annual Monitoring Reports for the above facilities.

If you have any questions or require further information, please contact me at (505) 441-0965.

Sincerely,

Camille Reynolds

Camille Reynolds
Remediation Coordinator
Plains All American Pipeline

CC: Larry Johnson, NMOCD, Hobbs, New Mexico

Enclosure

PLAINS
ALL AMERICAN

March 29, 2005

Mr. Ed Martin
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Plains All American – Annual Monitoring Reports
21 Sites in Lea County, New Mexico

Dear Mr. Martin:

Plains All American is an operator of crude oil pipelines and terminal facilities in the state of New Mexico. Plains All American actively monitors certain historical release sites exhibiting groundwater impacts, consistent with assessments and work plans developed in consultation with the New Mexico Oil Conservation Division (NMOCD). In accordance with the rules and regulations of the NMOCD, Plains All American hereby submits our Annual Monitoring reports for the following sites:

LF-59	Section 32, Township 19 South, Range 37 East, Lea County
TNM 97-04	Section 11, Township 16 South, Range 35 East, Lea County
HDO 90-23	Section 06, Township 20 South, Range 37 East, Lea County
Darr Angell 2	Section 11,14, Township 15 South, Range 37 East, Lea County
SPS 11	Section 18, Township 18 South, Range 36 East, Lea County
TNM 97-17	Section 21, Township 20 South, Range 37 East, Lea County
TNM 97-18	Section 28, Township 20 South, Range 37 East, Lea County
TNM 98-05A	Section 26, Township 21 South, Range 37 East, Lea County
Red Byrd # 1	Section 01, Township 20 South, Range 36 East, Lea County
Bob Durham	Section 31, 32, Township 19 South, Range 37 East, Lea County
Monument Site 11	Section 30, Township 19 South, Range 37 East, Lea County
Darr Angell 1	Section 11, Township 15 South, Range 37 East, Lea County
TNM 98-05B	Section 26, Township 21 South, Range 37 East, Lea County
Monument Site 2	Section 6, 7, Township 20 South, Range 37 East, Lea County
Monument Site 10	Section 32, Township 19 South, Range 37 East, Lea County
Monument Site 17	Section 29, Township 19 South, Range 37 East, Lea County
Monument Site 18	Section 07, Township 20 South, Range 37 East, Lea County
Monument Barber 10" PL	Section 32, Township 19 South, Range 37 East, Lea County
Darr Angell 4	Section 11, 02, Township 15 South, Range 37 East, Lea County
Monument to Lea 6"	Section 05, Township 20 South, Range 37 East, Lea County
Texaco Skelly "F"	Section 21, Township 20 South, Range 37 East, Lea County

3112 West Highway 82 • Lovington, NM 88260 • (505) 396-3341

PLAINS
ALL AMERICAN

Nova prepared these documents and has vouched for their accuracy and completeness, and on behalf of Plains All American, I have personally reviewed the documents and interviewed Nova in order to verify the accuracy and completeness of these documents. It is based upon these inquiries and reviews that Plains All American submits the enclosed Annual Monitoring Reports for the above 21 facilities.

If you have any questions or require further information, please contact me at (505) 441-0965.

Sincerely,

for CR

Camille Reynolds
Remediation Coordinator
Plains All American

CC: Larry Johnson, NMOCD, Hobbs, NM

Enclosures

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 682-3761

FEDERAL EXPRESS
AIR BILL # 8170 0342 3660

March 30, 2000

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William Olson

RE: **ANNUAL GROUND WATER MONITORING REPORTS**

Dear Mr. Olson:

Attached please find the 2000 Annual Groundwater Monitoring Reports for the following sites:

Monument #18	Monument #10
Monument #17	TNM-97-16 (Becky Jo Doom site)
Monument #2	HDO-90-23
Monument #15	SPS-11
TNM-97-17	TNM-98-02
TNM-97-18	TNM-98-S01
TNM-98-05A	TNM-97-23
TNM-96-16	TNM-95-10 (Saunders)
TNM-97-14	TNM-97-04 (Townsend)

I hope all meets with OCD requirements for closure of the site but if you have any questions, please don't hesitate to call me at 915/684-3467.

Sincerely,

Lennah Frost
Sr. Environmental Engineer

cc: Environmental File

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

February 11, 2000

CERTIFIED MAIL
RETURN RECEIPT NO. Z-559-572-900

Ms. Lennah Frost
EOTT Energy Pipeline Limited Partnership
P.O. Box 1660
Midland, Texas 79702

RE: DISCHARGE PLAN FEES
TOWNSEND SITE (TNM-97-04) DISCHARGE PLAN GW-294
LEA COUNTY, NEW MEXICO

Dear Ms. Frost:

On May 28, 1998, the New Mexico Oil Conservation Division (OCD) approved discharge plan GW-294 for the EOTT Energy Pipeline Limited Partnership's (EOTT) Townsend Site (TNM-97-04) ground water remediation project. The conditions of the discharge plan approval required submission of a $50.00 discharge plan filing fee and a $1380 discharge plan flat fee pursuant to New Mexico Water Quality Control Commission (WQCC) Regulation 3114. The fees were due upon receipt of the discharge plan approval. A review of the OCD's files shows that the OCD has no record of receiving these required fees.

EOTT shall submit the required $50.00 discharge plan filing fee and a $1380 discharge plan flat fee in full immediately upon receipt of this notice in order to be in compliance with WQCC Regulation 3114. Please make all checks payable to the **NMED-Water Quality Management Fund** and addressed to the OCD Santa Fe Office

If you have any questions or comments, please contact me at (505) 827-7154.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

xc: Chris Williams, OCD Hobbs District Office

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 682-3761

December 10, 1999

State of New Mexico
Oil Conservation Division - Hobbs District Office
1625 N. French Dr.
Hobbs, NM 88240
Attn: Donna Williams

RE: UL - Sec. 16, T-11-S, R-37-E
Townsend Recovery Site

gw $H_2O \approx 26-41'$

Dear Ms. Williams:

Responding to your letter dated November 23, 1999, the above captioned leak is in the process of being remediated on site. Approximately 40 cubic yards of contaminated soil was removed from inside the firewall of the tank that overflowed. This soil was stockpiled on site and is being treated by Environmental Technology Group, Inc.(ETGI) with microbes, hydrogen peroxide and nutrients using the Deep Remediation Injection System (DRIS) shown in the presentation on Thursday, Dec. 9 at our Hobbs office.

Attached are analytical results from the soils being treated. The soil is being remediated to OCD guidelines. We believe that the contaminated soil will be at closure levels within the next 2 months. Copies of analytical results of soil sampling will be provided to the OCD as they are taken.

I hope all meets with OCD approval but if you have any questions, please don't hesitate to call.

Sincerely,

Lennah Frost

Lennah Frost
Sr. Environmental Engineer

cc: Environmental File

ENVIRONMENTAL LAB OF TEXAS, INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 915-520-4310

Sample Type: Soil
Sample Condition: Intact
Project #: EOT1014C
Project Name: Townsend
Project Location: Lea County, N.M.(Lovington, N.M.)

Sampling Date: 10/19/99
Receiving Date: 10/19/99
Analysis Date: 10/20/99

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C25 mg/kg	Total
20929	South Pad	12196	49436	≈ 61,600
20930	East Pad	9856	34265	34,121
20931	West Pad	4758	19248	≈ 24,000
20932	South Side Stockpile	9565	33773	43,238
20933	North Side Stockpile	4564	20789	≈ 25,000

at ? depths

%INSTRUMENT ACCURACY	115	110
% EXTRACTION ACCURACY	121	128
BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

10-25-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ENVIRONMENTAL TECHNOLOGY GROUP, INC.
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 915-520-4310

Sample Type: Soil
Sample Condition: Intact
Project #: EOT1014C
Project Name: Townsend
Project Location: Lea Co., N.M. (Lovington, N.M.)

Sampling Date: 10/19/99
Receiving Date: 10/19/99
Analysis Date: 10/20 & 10/21/99

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
20929	South Pad	0.778	40.73	42.56	123.2	52.89
20930	East Pad	0.533	34.13	32.29	101.8	44.08
20931	West Pad	0.282	23.47	24.46	69.88	33.08
20932	South Side Stockpile	0.613	36.39	36.33	103.7	44.97
20933	North Side Stockpile	0.184	16.00	19.26	57.70	26.18
% IA		94	92	92	90	89
% EA		89	86	85	83	77
BLANK		<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: EPA SW 846-8020,5030

Raland K. Tuttle

10-25-99
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ETGI
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 915-520-4310
FAX: 505-392-3760(Ken Dutton)

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: TNM 97-04
Project Name: Townsend
Project Location: Lovington, N.M.

Sampling Date: 10/27/99
Receiving Date: 10/30/99
Analysis Date: 11/01/99

ELT#	FIELD CODE	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	m,p-XYLENE (mg/kg)	o-XYLENE (mg/kg)
21156	SS 1-1'-2	0.389	17.93	15.76	45.10	24.02
21157	SS 2-1'-2	0.524	5.80	6.51	28.70	21.59
21158	SS 3-1'-2	0.638	20.01	12.04	87.69	33.65
21159	SS 4-1'-2	<0.100	7.67	2.07	59.11	29.45
	% IA	91	89	89	89	89
	% EA	93	86	88	88	89
	BLANK	<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: SW 846-8021,5030

Raland K. Tuttle

11-5-99
Date

ENVIRONMENTAL LAB OF TEXAS, INC.

"Don't Treat Your Soil Like Dirt"

ETGI
ATTN. MR. JESSE TAYLOR
P.O. BOX 4846
MIDLAND, TEXAS 79704
FAX: 505-392-3760 (Ken Dutton)
FAX: 915-520-4310

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: TNM 97-04
Project Name: Townsend
Project Location: Lovington, N.M.

Sampling Date: 10/27/99
Receiving Date: 10/30/99
Analysis Date: 11/02 & 11/03/99

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C25 mg/kg
21156	SS 1-1'-2	2869	10574
21157	SS 2-1'-2	3110	14337
21158	SS 3-1'-2	3970	12862
21159	SS 4-1'-2	3897	13075
	% INSTRUMENT ACCURACY	110	100
	% EXTRACTION ACCURACY	109	100
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Raland K. Tuttle

11-5-99
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ETGI
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-392-3760(Ken Dutton)

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: TNM 97-04-Townsend
Project Name: EOT 1014C
Project Location: Lovington, Lea County, N.M.

Sampling Date: 11/08/99
Receiving Date: 11/11/99
Analysis Date: 11/13/99

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
21549	SS 1-1'-3	<0.100	5.03	5.86	14.9	9.79
21550	SS 2-1'-3	<0.100	2.19	0.943	4.39	5.24
21551	SS 3-1'-3	<0.100	2.62	1.13	6.38	9.29
21552	SS 4-1'-3	0.244	0.651	1.38	7.66	7.43
	% IA	99	97	96	96	95
	% EA	92	90	87	87	88
	BLANK	<0.100	<0.100	<0.100	<0.100	<0.100

METHODS: SW 846-8021,5030

Raland K. Tuttle

11-15-99
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

ETGI
ATTN: MR. JESSE TAYLOR
P.O. BOX 4845
MIDLAND, TEXAS 79704
FAX: 505-392-3760

Sample Type: Soil
Sample Condition: Intact/Iced
Project #: TNM 97-04 - Townsend
Project Name: EOT 1014C
Project Location: Lovington, Lea County, N.M.

Sampling Date: 11/08/99
Receiving Date: 11/11/99
Analysis Date: 11/13/99

ELT#	FIELD CODE	GRO C6-C10 mg/kg	DRO >C10-C25 mg/kg
21549	SS 1-1'-3	880	5885
21550	SS 2-1'-3	1506	6722
21551	SS 3-1'-3	1284	8885
21552	SS 4-1'-3	1423	9221
	% INSTRUMENT ACCURACY	109	94
	% EXTRACTION ACCURACY	112	103
	BLANK	<10	<10

Methods: EPA SW 846-8015M GRO/DRO

Roland K Tuttle
Roland K. Tuttle

11-15-99
Date

12600 West I-20 East • Odessa, Texas 79765 • (915) 563-1800 • Fax (915) 563-1713

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

CONSERVATION DIVISION
DISTRICT I HOBBS
PO BOX 1980, Hobbs, NM 88241
(505) 393-6161
FAX (505) 393-0720

Jennifer A. Salisbury
CABINET SECRETARY

November 23, 1999

EOTT Energy Pipeline
Attn: Lennah Frost
P.O. Box 1660
Midland, Tx 79703

Re: C-141 submitted on 10-21-99
UL –Sec 16-Ts11S-R37E
Townsend Recovery Site

Dear Mrs. Frost:

The New Mexico Oil Conservation Division (NMOCD) is in receipt of the C-141 referenced above that was submitted by EOTT. In the New Mexico Rules and Reg.s under Rule 116.D Corrective Action: states, The responsible person must complete Division approved corrective action for releases which endanger public health or the environment. Releases will be addressed in accordance with a remediation plan submitted to and approved by the Division or with an abatement plan submitted in accordance with Rule 19 (19 NMAC 15.A.19). The NMOCD can not accept the C-141 marked as both the initial and final report due to the size of the spill and the lack of a remediation plan. The NMOCD does however accept the C-141 as an initial report.

The NMOCD requires the following information by December 10th , 1999:

1. Please submit to NMOCD a remediation plan, please include work performed up to date.
2. Please submit to NMOCD site assessment information per NMOCD guidelines for proposed remediation site. Also demonstrate for the site how EOTT determined the estimated closure values for TPH and BTEX.
3. Please submit to NMOCD vertical and horizontal extent of contamination with laboratory analysis for verification.

4. Please include in the sampling events Chlorides.

5. Notify the NMOCD at least 48 hours in advance of the scheduled activities such that the NMOCD has the opportunity to witness the events and split samples.

6. Please clarify to NMOCD what actions performed on and with contaminated soil was taken; also provide to NMOCD a map plotted with sample locations and the said remediated location of affected area(s) as well as the area used for the remediation of the contaminated soil. Also include in the plan the proposed, or already taken, action by EOTT of the excavated/treated soil.

If you have any further questions, or need any assistance please do not hesitate to write or call me at (505)393-6161 ext...113.

Sincerely,

Donna Williams

Donna Williams
Environmental Engineer Specialist
cc: Roger Anderson – Environmental Bureau Chief
Chris Williams – District I Supervisor

811 South First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Submit 2 copies to Appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name: EOTT Energy Pipeline	Contact: Lennah FROST
Address: PO Box 1660, Midland TX 74703	Telephone No.: 915/6843467
Facility Name: Townsend Recovery Site	Facility Type: Recovery Tank @ Leaksite a/a TNM-97-07

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	16	11S	37E					LEA

NATURE OF RELEASE

Type of Release: Crude oil & Water	Volume of Release: 30 bbl	Volume Recovered: 25 bbl
Source of Release: TANK	Date and Hour of Occurrence: 10/19/99 8am	Date and Hour of Discovery: 10/19/99 8AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Sylvia - voicemail	
By Whom? Lennah FROST	Date and Hour: 10/19/99 2:40pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully. (Attach Additional Sheets If Necessary)

Describe Cause of Problem and Remedial Action Taken. (Attach Additional Sheets If Necessary)
Head switch failed on recovery tank, overfilling tank

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary)
All oil was contained inside. affected caliche was excavated & treated on site using DRIS system, Area under caliche was treated w/ Dris also. Appro. 40 cu. yds

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Lennah Frost	**OIL CONSERVATION DIVISION**
Printed Name: Lennah FROST	Approved by District Supervisor:
Title: SR. ENV. Engineer	Approval Date: / Expiration Date:
Date: 10-21-99 Phone: 915/6843467	Conditions of Approval: / Attached ☐

41

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 682-3761

CERTIFIED MAIL
RETURN RECEIPT # Z471 136 362

December 3, 1999

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William Olson

RE: MODIFIED STAGE 2 ABATEMENT PLAN
TNM-97-04
LEA CO., NEW MEXICO

Dear Mr. Olson:

Attached please find the above captioned report, prepared by Environmental Technical Group, Inc. for EOTT Energy Pipeline. . We have reviewed ETGI's findings and concur with their recommendation for removal of the GeoVac System and installation of skimmer pumps.

EOTT is anxious to forward this project to completion. I hope all meets with OCD approval. If you have any questions, please don't hesitate to call me at 915/684-3467.

Sincerely,

Lennah Frost

Lennah Frost
Sr. Environmental Engineer

cc: Environmental File

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

L CONSERVATION DIVISION
DISTRICT I HOBBS
PO BOX 1980, Hobbs, NM 88241
(505) 393-6161
FAX (505) 393-0720

Jennifer A. Salisbury
CABINET SECRETARY

November 23, 1999

EOTT Energy Pipeline
Attn: Lennah Frost
P.O. Box 1660
Midland, Tx 79703

Re: C-141 submitted on 10-21-99
UL –Sec 16-Ts11S-R37E
Townsend Recovery Site

Dear Mrs. Frost:

The New Mexico Oil Conservation Division (NMOCD) is in receipt of the C-141 referenced above that was submitted by EOTT. In the New Mexico Rules and Reg.s under Rule 116.D Corrective Action: states, The responsible person must complete Division approved corrective action for releases which endanger public health or the environment. Releases will be addressed in accordance with a remediation plan submitted to and approved by the Division or with an abatement plan submitted in accordance with Rule 19 (19 NMAC 15.A.19). The NMOCD can not accept the C-141 marked as both the initial and final report due to the size of the spill and the lack of a remediation plan. The NMOCD does however accept the C-141 as an initial report.

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4. Please include in the sampling events Chlorides.

5. Notify the NMOCD at least 48 hours in advance of the scheduled activities such that the NMOCD has the opportunity to witness the events and split samples.

6. Please clarify to NMOCD what actions performed on and with contaminated soil was taken; also provide to NMOCD a map plotted with sample locations and the said remediated location of affected area(s) as well as the area used for the remediation of the contaminated soil. Also include in the plan the proposed, or already taken, action by EOTT of the excavated/treated soil.

If you have any further questions, or need any assistance please do not hesitate to write or call me at (505)393-6161 ext...113.

Sincerely,

Donna Williams

Donna Williams
Environmental Engineer Specialist
cc: Roger Anderson – Environmental Bureau Chief
Chris Williams – District I Supervisor

811 South First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Submit 2 copies to Appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name: EOTT Energy Pipeline	Contact: Lennah FROST
Address: PO BOX 1660, Midland TX 79703	Telephone No.: 915/6843467
Facility Name: Townsend Recovery Site	Facility Type: Recovery Tank @ Leaksite a/a TNM-97-07

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
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By Whom? Lennah FROST	Date and Hour: 10/19/99 2:40pm
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If a Watercourse was Impacted, Describe Fully. (Attach Additional Sheets If Necessary)

Describe Cause of Problem and Remedial Action Taken. (Attach Additional Sheets If Necessary)
Head switch failed on recovery tank, overfilling tank

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary)
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Signature: Lennah Frost	OIL CONSERVATION DIVISION
Printed Name: Lennah FROST	Approved by District Supervisor:
Title: SR. ENV. Engineer	Approval Date: / Expiration Date:
Date: 10-21-99 Phone: 915/6843467	Conditions of Approval: / Attached ☐

41

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 682-3761

VIA FEDERAL EXPRESS

September 2, 1999

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William Olson

RE: TOWNSEND SITE (TNM-97-04)
LEA COUNTY, NEW MEXICO

Dear Mr. Olson:

On July 22, 1999, EOTT submitted a workplan for the installation of an additional monitor well at the above captioned site. We have since decided to further investigate the site and have contracted Environmental Technology Group,Inc. (ETGI) to perform the investigation.

Attached is the workplan that ETGI has given us on the site. We have installed two additional monitor wells at this site in an effort to get representative groundwater data. One of these wells was installed at the location requested in your letter dated May 18, 1999. We now believe that we can begin to put together a plan that will hasten closure of the site.

ETGI will be completing a comprehensive report on their findings at this site and this will be submitted to the NMOCD as soon as EOTT receives it.

If you have any questions, please don't hesitate to call me at 915/684-3467.

Sincerely,

Lennah Frost
Sr. Environmental Engineer

cc: Al Hugh - Environmental File
NMOCD Hobbs District Office

August 17, 1999

EOTT Energy Corp.
5805 E. Highway 80
Midland, Texas 79701

ATTENTION: Ms. Lennah Frost

SUBJECT: Additional Site Assessment
Townsend Release Site
TNM-97-04
Lovington, New Mexico
ETGI Project No. EOT1016C

Dear Ms. Frost:

Environmental Technology Group, Inc. (ETGI) is pleased to have the opportunity to provide EOTT Energy Corp. (EOTT) with this proposal to conduct additional site assessment activities at the referenced site. As per our discussions, we conducted a site reconnaissance on August 5, 1999. In addition, we observed the collection of groundwater elevation data at the site on that date. The data were posted on a map which is included as Attachment A.

The existing GeoVac remediation system is designed to extract hydrocarbons from the subsurface in the aqueous, dissolved and vapor phase. In the process, the system should create a cone of depression in the area of the recovery well. However, the system has been operated sporadically and had been inoperable for approximately one week prior to the collection of the depicted data.

As shown on the map, the distribution of free phase product (green lines) is centered around monitoring well MW-5 and the general groundwater gradient (blue lines) slopes to the southeast. However, there is a pronounced mounding of the groundwater around recovery well RW-1, which will tend to disperse the free phase hydrocarbons to the north and south, as well as to the east. This would be counterproductive to the efficient recovery of free phase product at the site.

It appears that the desired cone of depression, which should be present during the system's operation, is lost when the system is inoperable due at least partially to the fact that the re-injection wells are upgradient of the area of free product. The site reconnaissance indicates that there may be additional hydrocarbon source areas to the north and northeast of the existing system's radius of influence. Also, it appears that the system has recovered more oil than that reported as released. Given this information, it seems likely that any oil present in these additional source areas would be pulled toward the system during it's operation, yet advected away from the system when it is not in operation. This scenario has the potential of creating an exaggerated smear zone in the area and could lead to the need for long term operation of the existing system.

For this reason, ETGI proposes that the potential existence of additional source areas be identified and defined in order to more accurately understand the site conditions and possibly modify the existing system to more efficiently remediate the site. Initially, ETGI proposes that six borings be advanced in the potential source areas and three of these borings completed as groundwater monitoring wells. The proposed locations of these borings and monitoring wells are depicted on Attachment A.

Soil samples will be collected at five foot intervals, including one sample in the smear zone. A portion of each sample will be placed in a enclosed container for headspace monitoring with a photoionization detector (PID) and the remainder will be placed in a laboratory cleaned sample jar. One sample from each boring, the one with the highest headspace reading, will be sent to Environmental Labs of Texas, in Midland, Texas, for Total Petroleum Hydrocarbon (TPH) and Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) analysis, EPA Method 8015 and Method 8260 respectively. High headspace readings or laboratory samples in the unsaturated zone could indicate the presence of additional sources in the area.

Three of the borings will be completed as groundwater monitoring wells based on field screening results. The well casing elevations will be measured relative to the existing wells and the groundwater elevation data will be used to gain additional insight regarding the groundwater gradient in the area. The wells will also be measured for the presence of free phase hydrocarbons in order to more completely understand the distribution of free phase product in the area.

ETGI will also conduct measurements of the groundwater elevations and distribution of free phase product when the system is operational, and again, after the system has been turned off. This should provide additional information regarding the effect of the system on the subsurface. A comprehensive report will be provided which compiles and summarizes the historical data, as well as the information collected during the investigation activities. The report will include soil boring logs, field screening data, laboratory reports, and conclusions and recommendations.

In addition, ETGI will reassess the GeoVac remediation system design based on the complete site data. A recommendation will be made regarding modifications of the existing system and/or alternate remedial technologies to provide optimal conditions for the accelerated remediation of the site.

The estimated cost for these activities is provided as Attachment B. This proposal, and the estimated costs, are based on existing information. Additional data collected during the investigation activities could result either a decrease or increase in scope. ETGI will provide EOTT with real time data during the investigation and will not change the scope of work without the consent of EOTT representatives.

If you have any questions or comments, please contact me or Jesse Taylor at (915) 522-1139 or (281) 362-8571 (Cell).

Sincerely:

ENVIRONMENTAL TECHNOLOGY GROUP, INC.

Jerry D. Nickell
Managing Principal

Jesse C. Taylor
Principal Geologist

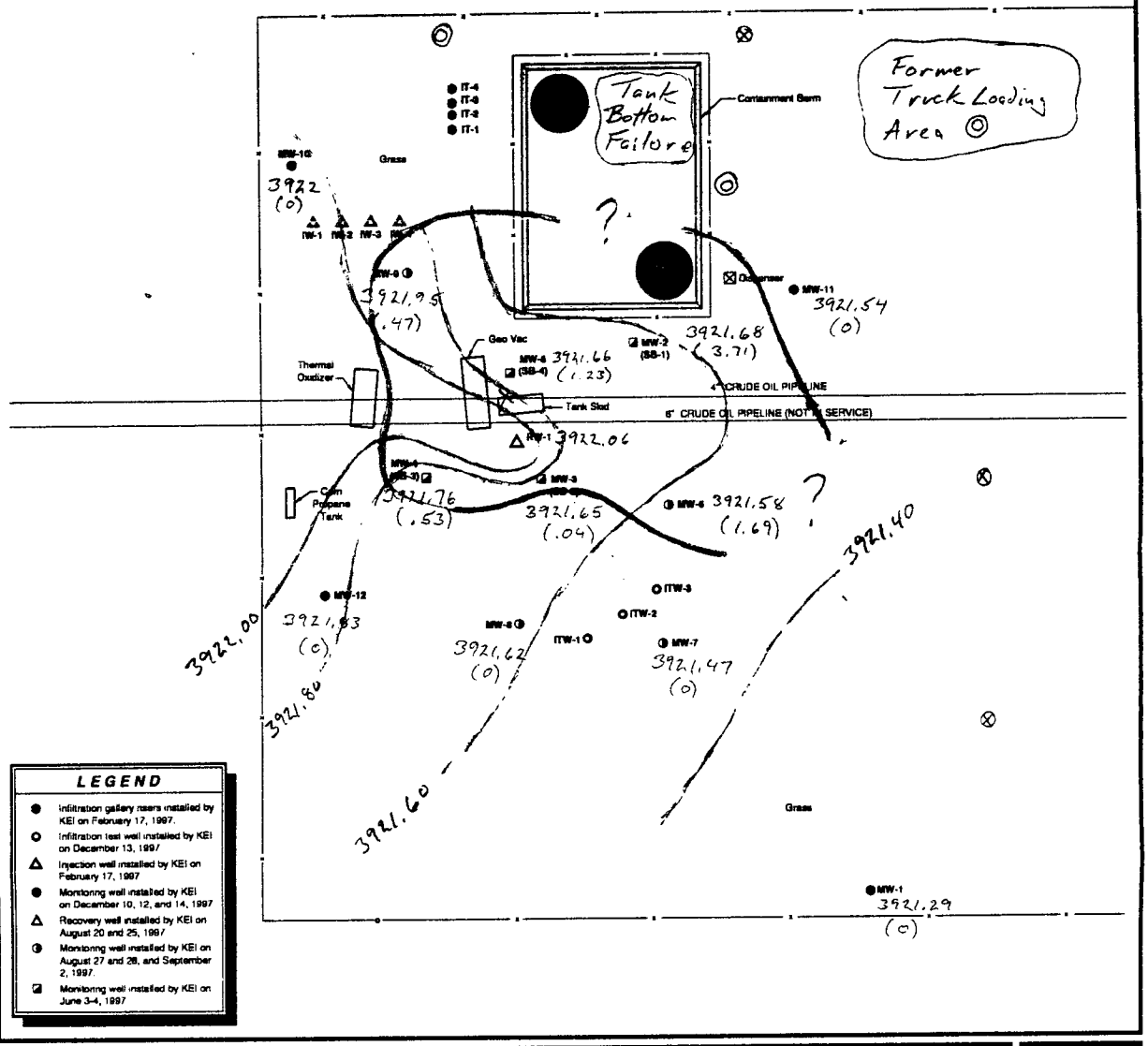
EOTT Love NM Asses Pro.wpd

ATTACHMENT A

⊗ Proposed Monitoring Well Locations

◎ Proposed Boring Locations

Former Pump Station



k·e·i	SITE DETAILS	710016
	TEXAS - NEW MEXICO PIPE LINE COMPANY TNM-97-04 LOVINGTON, NEW MEXICO	FIG 1

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 682-3761

BY CERTIFIED MAIL
RETURN RECEIPT NO. Z 445 240 629

July 22, 1999

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William Olson

RE: TOWNSEND SITE (tnm-97-04)
LEA COUNTY, NEW MEXICO

Dear Mr. Olson:

Per your letter dated May 18, 1999, attached please find EOTT Energy Pipeline Limited Partnership's (EOTT) proposed workplan for the installation of one additional monitor well at the above captioned site.

We would like to begin this well as soon as possible. I hope all meets with your approval but if you have any questions, please don't hesitate to call me at 915/684-3467.

Sincerely,

Lennah Frost

Lennah Frost
Sr. Environmental Engineer

cc: Al Hugh - Environmental File
NMOCD Hobbs District Office

ENERCON SERVICES, INC.
An Employee Owned Company

P.O. Box 51138
Midland, TX 79710-1138
Phone & Fax: (915) 520-2795

July 16, 1999
EOT-E99-2001

Ms. Lennah Frost
EOTT Energy Corporation
5806 East Highway 80
Midland, Texas 79707

RE: WORKPLAN & COST ESTIMATE FOR DRILLING, SAMPLING AND INSTALLATION OF ONE MONITOR WELL AT THE TNW TOWNSEND SITE LOCATED WEST OF LOVINGTON, LEA COUNTY, NEW MEXICO.

Dear Ms. Frost:

Enercon Services, Inc., (Enercon) is pleased to present this work plan and cost estimate for the installation and sampling of one monitor well at the above-referenced site located in Lea County New Mexico.

Our proposal is organized as follows:

- Scope of Work
- Site Safety Plan
- Schedule
- Compensation
- Assumptions

Scope of Work

The scope of work was prepared based on a conversation between Jeff Kindley of Enercon and Ms. Lennah Frost of EOTT on July 16, 1999. Based upon previously installed wells at the site, Enercon proposes installation of one (1) monitor well to a depth of approximately 65 feet below surface grade (bsg). The monitor well will be installed down gradient of MW-6 as requested by the New Mexico Oil and Conservation District (NMOCD). Regional groundwater gradient direction is to the southeast.

During drilling activities, the soils will be field screened for volatile organic constituents with a Photoionization Detector (PID) using headspace techniques. Two soil samples, one collected from above groundwater and one sample from the zone exhibiting the highest PID measurements will be collected

from each soil boring and submitted to Environmental Labs of Texas in Odessa, Texas for analysis of BTEX and TPH using EPA methods 8020 and 418.1 respectively. The boring will then be converted to a monitor well.

The monitor well will be installed using a 4-inch inside diameter, schedule 40 polyvinyl chloride riser, and a 20 foot long, 0.010 inch slotted screen. The screen will be placed at the bottom of the boring and extended to approximately 10 feet above the groundwater. A gravel pack will be set around the well screen from the bottom of the well to two feet above the top of the well screen. A two-foot bentonite plug will be placed above the gravel pack. The remainder of the wellbore will be sealed with cement containing 3-5% bentonite, and capped with two feet of cement. The well will be completed with a flush-mount manhole cover and a four-foot by four-foot thick concrete pad and locking cap.

The monitor well will be developed by pumping or handbailing a minimum of three well volumes or until conductivity, pH, and temperature have stabilized within 5% for three consecutive readings. Groundwater samples will be collected from the monitor well and submitted to Environmental Labs of Texas of Odessa, Texas for analysis of BTEX and TPH using EPA method 8020 and 418.1, respectively.

Immediately following installation of the monitor well, Enercon will make arrangements to have the elevation and location of the monitor well surveyed. Within two weeks of obtaining analytical results, Enercon will submit to EOTT a report detailing the site activities and summarizing the data collected. The report will include a geologic log, well completion diagram, laboratory analytical data, and a groundwater contour elevation map.

Site Safety Plan

A comprehensive Safety, Health, and Emergency Response Plan (SHERP) is maintained on file in each Enercon office for providing overall guidance to Enercon employees for establishing the safety criteria for employment on project sites. A site specific health and safety plan is developed for each project site and will be reviewed daily before commencing project activities.

Enercon will ensure that the work is conducted in a manner that is protective of the environment; safety and health of Enercon employees and subcontractors; and in compliance with all U.S. EPA, OSHA, and State Health and Safety statutes and regulations.

Schedule

It is anticipated that the project will be initiated within two weeks of notification to proceed (dependent on subcontractor availability). Anticipated time for completion of the drilling activities is one and a half 12-hour days, which includes development and sampling of the monitor well. As always, Enercon is committed to meeting your required schedule.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 18, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-661

Ms. Lennah Frost
EOTT Energy Pipeline Limited Partnership
P.O. Box 1660
Midland, Texas 79702

RE: TOWNSEND SITE (TNM-97-04)
LEA COUNTY, NEW MEXICO

Dear Ms. Frost:

The New Mexico Oil Conservation Division (OCD) understands that the EOTT Energy Pipeline Limited Partnership (EOTT) is the current operator of the above referenced pipeline site which was previously operated by the Texas-New Mexico Pipe Line Company (TNMPLC). The OCD has reviewed TNMPLC's April 2, 1999 "TOWNSEND SITE, TNM-97-04, 1998 ANNUAL REPORT, LOVINGTON, NEW MEXICO, JOB NO. 710016-1" which was submitted on behalf of TNMPLC by their consultant KEI. This document contains the results of TNMPLC's 1998 ground water remediation and monitoring actions related to a crude oil pipeline spill at the Townsend site (TNM-97-04) west of Lovington, New Mexico.

A review of the above referenced report shows that there are no downgradient monitor wells east to southeast of monitor well MW-6 which can demonstrate that the ground water contamination is contained. Therefore, the OCD requires that EOTT submit a work plan for installation of an additional monitoring well in this area. The work plan shall be submitted to the OCD Santa Fe Office by July 23, 1999 with a copy provided to the OCD Hobbs Office.

If you have any questions or comments, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Theresa Nix, KEI

Z 274 520 661

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

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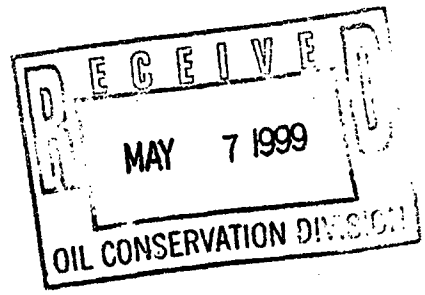
Postmark or Date	

PS Form **3800**, April 1995

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 687-2040



BY CERTIFIED MAIL

May 5, 1999

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William Olson

RE: Abatement Plan for Site HDO-90-23,
Discharge Plan GW-294 and Discharge Plan GW-140
Formerly Texas New Mexico Pipeline

Dear Mr. Olson:

This letter is to notify the NMOCD that EOTT Energy Pipeline Limited Partnership has acquired the above mentioned remediation projects from Texas New Mexico Pipeline effective May 1, 1999. It is the intent of EOTT to operate under the terms and conditions of the approved discharge plans.

I look forward to working with you on these projects. If you have any questions or need additional information, please don't hesitate to call me at 915/684-3467.

Sincerely,

Lennah Frost

Lennah Frost
Sr. Environmental Engineer

/ld

cc: Al Hugh - Environmental File
Neil Stidham

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

April 2, 1999

Mr. William C. Olson
STATE OF NEW MEXICO
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Townsend Site, TNM-97-04
1998 Annual Report
Lovington, New Mexico
Job No. 710016-1

Dear Mr. Olson:

Enclosed is a revised 1998 annual report for the above referenced site. Please discard the annual report submitted to you on April 1, 1999. After the report was submitted to your office, some errors were discovered in our database that affected the information presented in the report. The enclosed report contains the corrected information. We apologize for any inconvenience this may have caused.

If you have any questions please contact me at (210) 680-3767.

Respectfully,

Theresa Nix

Theresa Nix
Project Manager

tnmpl\710016\correspondence\cannul98.doc

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

May 21, 1998

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

Re: Townsend Site, TNM-97-04
Ground Water Remediation Project
Lovington, New Mexico
Job No. 710016-1

Dear Mr. Anderson:

Enclosed are copies of the following figures:

- Revised Site Details map.
- Typical Injection Well Details for the Discharge Plan
- Typical Infiltration Gallery Details for the Discharge Plan
- Log and Details of Monitoring Wells MW-6 through MW-9 and RW-1 for report dated January 15, 1998

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

Respectfully,

Theresa Nix

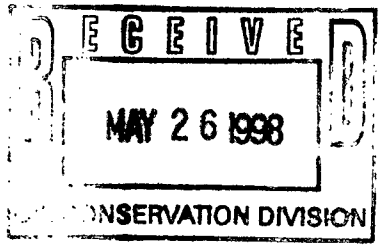
Theresa Nix
Project Manager

cc: TNMPL, Tony Savoie
OCD Hobbs District Office, Wayne Price
Jim Mosley, KEI
J. Michael Hawthorne, KEI

tln\p:\tnmpl\710016\dischpln\cfigures.doc

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

May 21, 1998



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

Re: Groundwater Monitoring Event
Texas - New Mexico Pipe Line Company
TNM-97-04
Lovington, New Mexico
Job No. 710016-1

Dear Mr. Savoie:

Transmitted with this letter is the ground water binder update packet for the first quarter of 1998 ground water monitoring event conducted at TNM-97-04, located near Lovington, New Mexico. A copy has been submitted to OCD Hobbs and OCD Santa Fe.

The packet contains 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 the new event

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

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80855

Project ID: 710016
Project Manager: Theresa Nix
Project Location: Lovington, NM

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

Date Received in Lab : Mar 6, 1998 09:30
Date Report Faxed: Mar 12, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180855 001 MW-1 Liquid 03/05/98 13:47	180855 002 MW-6 Liquid 03/05/98 14:23	180855 003 MW-7 Liquid 03/05/98 13:57	180855 004 MW-8 Liquid 03/05/98 14:08	180855 005 MW-10 Liquid 03/05/98 14:37	180855 006 MW-11 Liquid 03/05/98 15:00
BTEX **EPA 8020**	*Analyzed:* / *Units:*	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.	03/06/98 ppm R.L.
Benzene		< 0.001 (0.001)	7.5 (0.1)	< 0.001 (0.001)	0.025 (0.001)	0.003 (0.001)	0.002 (0.001)
Toluene		< 0.001 (0.001)	1.8 (0.1)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
Ethylbenzene		< 0.001 (0.001)	0.2 (0.1)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
m,p-Xylenes		< 0.002 (0.002)	0.3 (0.2)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)
o-Xylene		< 0.001 (0.001)	0.2 (0.1)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)	< 0.001 (0.001)
Total BTEX		N.D.	10.0	N.D.	0.025	0.003	0.002
PAHs by GC-MS (610 List) **EPA 8270**	*Analyzed:* / *Units:*	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.
Acenaphthene		< 0.002 (0.002)	< 0.002 (0.002)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 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)	< 0.002 (0.002)	< 0.002 (0.002)
Naphthalene		< 0.002 (0.002)	0.037 (0.002)	< 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)	< 0.002 (0.002)	< 0.002 (0.002)

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80855

Project ID: 710016
Project Manager: Theresa Nix
Project Location: Lovington, NM

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

Date Received in Lab : Mar 6, 1998 09:30
Date Report Faxed: Mar 12, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:* / *Field ID:* / *Depth:* / *Matrix:* / *Sampled:*	180855 001 MW-1 Liquid 03/05/98 13:47	180855 002 MW-6 Liquid 03/05/98 14:23	180855 003 MW-7 Liquid 03/05/98 13:57	180855 004 MW-8 Liquid 03/05/98 14:08	180855 005 MW-10 Liquid 03/05/98 14:37	180855 006 MW-11 Liquid 03/05/98 15:00
EPA 8270	*Analyzed:* / *Units:*	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.	03/12/98 mg/L R.L.
Pyrene		< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)	< 0.002 (0.002)

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc..
The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80855

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

Project ID: 710016
Project Manager: Theresa Nix
Project Location: Lovington, NM

Date Received in Lab : Mar 6, 1998 09:30
Date Report Faxed: Mar 12, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180855 007					
	Field ID:	MW-12					
	Depth:						
	Matrix:	Liquid					
	Sampled:	03/05/98 14:48					
BTEX **EPA 8020**	*Analyzed:*	03/06/98	R.L.				
	Units:	ppm					
Benzene		0.003	(0.001)				
Toluene		< 0.001	(0.001)				
Ethylbenzene		< 0.001	(0.001)				
m,p-Xylenes		< 0.002	(0.002)				
o-Xylene		< 0.001	(0.001)				
Total BTEX		0.003					
PAHs by GC-MS (610 List) **EPA 8270**	*Analyzed:*	03/12/98	R.L.				
	Units:	mg/L					
Acenaphthene		< 0.002	(0.002)				
Acenaphthylene		< 0.002	(0.002)				
Anthracene		< 0.002	(0.002)				
Benzo(a)anthracene		< 0.002	(0.002)				
Benzo(a)pyrene		< 0.002	(0.002)				
Benzo(b)fluoranthene		< 0.002	(0.002)				
Benzo(g,h,i)perylene		< 0.002	(0.002)				
Benzo(k)fluoranthene		< 0.002	(0.002)				
Chrysene		< 0.002	(0.002)				
Dibenzo(a,h)anthracene		< 0.002	(0.002)				
Fluoranthene		< 0.002	(0.002)				
Fluorene		< 0.002	(0.002)				
Indeno(1,2,3-cd)pyrene		< 0.002	(0.002)				
Naphthalene		0.006	(0.002)				
Phenanthrene		< 0.002	(0.002)				

Edward H. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

CERTIFICATE OF ANALYSIS SUMMARY 1-80855

Project ID: 710016
Project Manager: Theresa Nix
Project Location: Lovington, NM

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

Date Received in Lab : Mar 6, 1998 09:30
Date Report Faxed: Mar 12, 1998
XENCO contact : Carlos Castro/Edward Yonemoto

Analysis Requested	*Lab ID:*	180855 007					
	Field ID:	MW-12					
	Depth:						
	Matrix:	Liquid					
	Sampled:	03/05/98 14:48					
EPA 8270	*Analyzed:*	03/12/98	R.L.				
	Units:	mg/L					
Pyrene		< 0.002	(0.002)				

This report summary, and the entire report it represents, has been made for the exclusive and confidential use of K.E.I. Consultants, Inc.. The interpretations and results expressed through this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories, however, assumes no responsibility and makes no warranty to the end use of the data hereby presented.

Edward T. Yonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A25A80

SW- 846 5030/8020 BTEX

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

Analyst: HL
Matrix: Liquid

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

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

Edward H. Tonemoto, Ph.D.
Technical Director

XENCO Laboratories

Certificate Of Quality Control for Batch : 18A34B23

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

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

Analyst: LC
Matrix: Liquid

BLANK SPIKE / BLANK SPIKE DUPLICATE AND RECOVERY

Parameter	[A] Blank Result mg/L	[B] Blank Spike Result mg/L	[C] Blank Spike Duplicate Result mg/L	[D] Blank Spike Amount mg/L	[E] Detection Limit mg/L	Blank Limit Relative Difference %	[F] QC Spike Relative Difference %	[G] QC Blank Spike Recovery %	[H] QC B.S.D. Recovery %	[I] Blank Spike Recovery Range %	J Qualifier
Acenaphthene	< 0.0040	0.0996	0.0996	0.1000	0.0040	31.0	0.0	99.6	99.6	46-118	
4-Chloro-3-Methylphenol	< 0.0040	0.0890	0.0828	0.1000	0.0040	42.0	7.2	89.0	82.8	23-97	
2-Chlorophenol	< 0.0040	0.0868	0.0834	0.1000	0.0040	40.0	4.0	86.8	83.4	27-123	
1,4-Dichlorobenzene	< 0.0040	0.0938	0.0920	0.1000	0.0040	28.0	1.9	93.8	92.0	36-97	
2,4-Dinitrotoluene	< 0.0040	0.0796	0.0780	0.1000	0.0040	38.0	2.0	79.6	78.0	24-96	
N-Nitroso-di-n-propylamine	< 0.0080	0.0808	0.0760	0.1000	0.0080	38.0	6.1	80.8	76.0	41-116	
4-Nitrophenol	< 0.0080	0.0298	0.0236	0.1000	0.0080	50.5	23.2	29.8	23.6	10-80	
Pentachlorophenol	< 0.0020	0.0582	0.0586	0.1000	0.0020	50.0	0.7	58.2	58.6	9-103	
Phenol	< 0.0020	0.0408	0.0384	0.1000	0.0020	42.0	6.1	40.8	38.4	12-89	
Pyrene	< 0.0040	0.1012	0.1002	0.1000	0.0040	31.0	1.0	101.2	100.2	26-127	
1,2,4-Trichlorobenzene	< 0.0020	0.0900	0.0922	0.1000	0.0020	28.0	2.4	90.0	92.2	39-98	

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

Edward T. Fonemoto, Ph.D.
Technical Director

XENCO Laboratories

ANALYTICAL CHAIN OF CUSTODY REPORT
CHRONOLOGY OF SAMPLES

K.E.I. Consultants, Inc.

Project ID: 710016
Project Manager: Theresa Nix
Project Location: Lovington, NM

Project Name: Lovington

XENCO COC#: 1-80855
Date Received in Lab: Mar 6, 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	180855-001	BTEX	SW-846	ppm	Standard	Mar 5, 1998 13:47		Mar 6, 1998 by HL	Mar 6, 1998 14:38 by HL
2			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 13:47		Mar 10, 1998 by RK	Mar 12, 1998 00:39 by LC
3	MW-6	180855-002	BTEX	SW-846	ppm	Standard	Mar 5, 1998 14:23		Mar 6, 1998 by HL	Mar 6, 1998 16:52 by HL
4			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 14:23		Mar 10, 1998 by RK	Mar 12, 1998 01:25 by LC
5	MW-7	180855-003	BTEX	SW-846	ppm	Standard	Mar 5, 1998 13:57		Mar 6, 1998 by HL	Mar 6, 1998 17:31 by HL
6			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 13:57		Mar 10, 1998 by RK	Mar 12, 1998 02:11 by LC
7	MW-8	180855-004	BTEX	SW-846	ppm	Standard	Mar 5, 1998 14:08		Mar 6, 1998 by HL	Mar 6, 1998 15:36 by HL
8			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 14:08		Mar 10, 1998 by RK	Mar 12, 1998 02:56 by LC
9	MW-10	180855-005	BTEX	SW-846	ppm	Standard	Mar 5, 1998 14:37		Mar 6, 1998 by HL	Mar 6, 1998 15:55 by HL
10			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 14:37		Mar 10, 1998 by RK	Mar 12, 1998 04:43 by LC
11	MW-11	180855-006	BTEX	SW-846	ppm	Standard	Mar 5, 1998 15:00		Mar 6, 1998 by HL	Mar 6, 1998 16:14 by HL
12			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 15:00		Mar 10, 1998 by RK	Mar 12, 1998 05:28 by LC
13	MW-12	180855-007	BTEX	SW-846	ppm	Standard	Mar 5, 1998 14:48		Mar 6, 1998 by HL	Mar 6, 1998 16:33 by HL
14			PAHs	SW846-8270	mg/L	Standard	Mar 5, 1998 14:48		Mar 10, 1998 by RK	Mar 12, 1998 06:13 by LC

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 # 180855-8A

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

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

Project Name: Lovington Project Director: Mike Hawthorne

Project Location: Lovington, NM Project Manager: Theresa Nix

Sampler Signature: Stanley Glover Project No. 710016

No. coolers this shipment: Contractor COC #

Carrier: UPS Quote #:

Airbill No. P.O. No: 8653

Field ID	Date	Time	DEPTH	SOIL	WATER	COMP	GRAB	Container Size	Container Type P, G	Preservative Ice	Preservative Other	No of CONTAINERS Total	EPA method 5030 BTEX (8020/8020-602)	TPH (418.1)	PAH EPA method 8100 or 8270	Please Hold	Turn-around: ASAP / 24 hrs / 48 hrs / Standard	LAB ONLY ID #
1 mw-1	3-5-98	13:47			/		/			/	HCl	3	/	/	/			1
2 mw-6		14:23			/		/			/			/	/	/			2
3 mw-7		13:57			/		/			/			/	/	/			3
4 mw-8		14:08			/		/			/			/	/	/			4
5 mw-10		14:37			/		/			/			/	/	/			5
6 mw-11		15:00			/		/			/			/	/	/			6
7 mw-12	↓	14:48			/		/			/	↓	↓	/	/	/			7
8																		8
9																		9
10																		10

Waste Oil PIT No: Tank No:

Sample Description

Remarks

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	DATE	TIME
Stanley Glover	3-5-98	1600			
			Received For Laboratory by: Jamie Yockey by UPS	3/6/98	930

Remarks: Fax Analytical to Theresa Nix 210-680-3763

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

* Pre-scheduling is recommended

Precision Analytical Services

Olson, William

From: Price, Wayne
Sent: Thursday, May 14, 1998 8:03 AM
To: Bill Olson
Subject: Soil Gas Surveys

Dear Bill:

I was witnessing the TNMPL Townsend site and told Tony Savoie that NMOCD needs the construction details and the location of the infiltration gallery. The Geo Vac system is quite impressive. The day I was there they had a contractor (Cubix Corp) performing the stack air testing for the thermal oxidizer for air quality.

Please note I had an opportunity to discuss in-situ soil gas survey with a Mr. Jeff Thomason of Cubix. The are quite knowledgeable on this issue as they perform this at closed landfill sites. They have mobil rigs that have GC's and/or other methods i.e. tedlor bags, etc.

I ask Mr. Thomason to send me some info on the EPA methods, etc. I also gave him your name. He may contact you concerning this issue. This might be a good source for us to obtain technical knowledge. I did mention the Shell-Westgate project.

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal | Time 1550 | Date 4/28/98

Originating Party	Other Parties
Bill Olson - Environmental Bureau	Jim Mosely - IEI (512) 272-5305

Subject

Townsend Sto (Tex-Mex Pipeline) DP

Discussion

OCD needs - Exact discharge location
- Construction details of injection system

Informed him that 1/15/98 report Appendix A has 5 copies of MW-8 well log but missing other new monitor well construction details.

Conclusions or Agreements

He will get above to me ASAP

Distribution

file
Wayne Price - OCD Hobbs

Signed Bill Olson

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

April 21, 1998

Mr. Roger C. Anderson
OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Townsend Site, TNM-97-04
Ground Water Remediation Project
Lovington, New Mexico
Job No. 710016

Dear Mr. Anderson:

This letter is in response to the Temporary Discharge Authorization addressed to Mr. Tony Savoie with Texas - New Mexico Pipe Line Company (TNMPL) dated January 29, 1998. Per your letter, TNMPL is required to submit a monitoring report to your office by May 1, 1998. Some of the required information in your letter includes:

- The total volume of fluid pumped from the recovery well.
- The total volume of product recovered in the treatment system.
- The total volume of treated effluent reinjected.

The treatment system has not been operational but is scheduled to begin by May 1, 1998. Therefore, KEI requests an extension for the monitoring report until August 21, 1998. By extending the deadline, approximately 90 days worth of ground water treatment system data could be presented in the monitoring report.

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

Respectfully,

Theresa Nix for

J. Michael Hawthorne, PG, REM

Verbal approval
to Michael Hawthorne
on 5/20/98, 1320 hrs

cc: OCD Hobbs Office
Tony Savoie, TNMPL
Marc Oler; TTTI

tln\p:\tnmpl\710016\cextens1.doc

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

Notice of Publication

~~and numbered~~ ..... ~~Court of Lea~~

~~was published~~ was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, ~~for the same day of the week~~ for one (1) day ~~beginning~~ beginning with the issue of

February 4, 19 98

and ending with the issue of

February 4, 19 98

And that the cost of publishing said notice is the sum of $ 52.80

which sum has been (Paid) (Assessed) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 10th day of February, 19 98

Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 19 98

RECEIVED

FEB 16 1997

Environmental Bureau
Oil Conservation Division

LEGAL NOTICE
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 Water Quality Control Commission (WQCC) Regulations, the following discharge plan application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87540, Telephone (505) 827-7132:

(GW-294) - Texas-New Mexico Pipe Line Company, Tony Savole, P.O. Box 1030, Jal, New Mexico 88252, has submitted a discharge plan application for remediation of contaminated ground water at the Townsend Remediation Site located in the NE 1/4, SE 1/4 of Section 11, Township 16 South, Range 35 East NMPM, Lea County, New Mexico. The application addresses discharges to ground water associated with the remediation of petroleum contaminated ground water. Approximately 30 gallons per minute of contaminated ground water is proposed to be processed through a treatment system to remove contaminants to below WQCC Ground water standards prior to reinjection in an infiltration gallery. groundwater most likely to be affected by an accidental discharge is at a depth of approximately 53 feet with a total dissolved solids concentration of approximately 426 to 574 mg/l. The discharge plan addresses system operation and monitoring and how spills, leaks, and other accidental discharges to the surface will be managed.

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 discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, 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 and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should beheld. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the plan based on information available. If a public hearing is held, the director will approve the plan based on information in the plan application and information presented at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 27th day of January, 1998.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
KATHLEEN GARLAND
Acting Director

SEAL

Published in the Lovington Daily Leader February 4, 1998.

The Santa Fe New Mexican

Since 1849. We Read You.

NM OCD
ATTN: SALLY MARTINEZ
2040 S. PACHECO ST.
SANTA FE, NM 87505

AD NUMBER: 10234 ACCOUNT: 56689

LEGAL NO: 62977 P.O. #: 98-199-00257

RECEIVED
FEB 10 1998
CONSERVATION DIVISION

177 LINES ONCE at $ 70.80

Affidavits: 5.25

Tax: 4.75

Total: $ 80.80

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 Water Quality Control Commission (WQCC) Regulations, the following discharge plan application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7132:

(GW-294) - Texas-New Mexico Pipe Line Company, Tony Savoie, P.O. Box 1030, Jal, New Mexico 88252, has submitted a discharge plan application for remediation of contaminated ground water at the Townsend Remediation Site located in the NE ¼, SE ¼ of Section 11, Township 16 South, Range 35 East NMPM, Lea County, New Mexico. The application addresses discharges to ground water associated with the remediation of petroleum contaminated ground water. Approximately 30 gallons per minute of contaminated ground water is proposed to be processed through a treatment system to remove contaminants to below WQCC ground water standards prior to reinjection in an infiltration gallery. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 53 feet with a total dissolved solids concentration of approximately 426 to 574 mg/l. The discharge plan addresses system operation and monitoring and how spills, leaks, and other accidental discharges to the surface will be managed.

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 discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, 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 and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the plan based on information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 27th day of January 1998.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
KATHLEEN A. GARLAND,
Acting Director

Legal #62977
Pub. February 4, 1998

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE

I, BETSY PERNER being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily news paper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a Newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication # 62977 a copy of which is hereto attached was published in said newspaper once each WEEK for ONE consecutive week(s) and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 4 day of FEBRUARY 1998 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ Betsy Perner
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 4 day of FEBRUARY A.D., 1998

Notary B. Mathie
Commission Expires 3-13-2001

OFFICIAL SEAL
B. MATHIE
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 3-13-2001

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

January 29, 1998

Lovington Daily Leader
Attention: Advertising Manager
Post Office Box 1717
Lovington, New Mexico 88260

Re: Notice of Publication

_____
_____
_____

Dear Sir/Madam:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. ***Publisher's affidavit in duplicate.***
2. ***Statement of cost (also in duplicate).***
3. ***Certified invoices for prompt payment.***

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than February 5, 1998.

Sincerely,

Sally Martinez
Administrative Secretary

Attachment

P 269 262 836

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	Lovington Daily Leader P.O. Box 1717 Lovington, NM 88260
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

January 29, 1998

The New Mexican
***Attention:** Betsy Perner*
202 East Marcy
Santa Fe, New Mexico 87501

Re: Notice of Publication
PO # 98-199-00257

Dear Ms. Perner:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. ***Publisher's affidavit.***
2. ***Invoices for prompt payment.***

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than Wednesday, February 4, 1998.

Sincerely,

Sally Martinez

Sally Martinez
Administrative Secretary

Attachment

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 Water Quality Control Commission (WQCC) Regulations, the following discharge plan application has been submitted to the Director of the Oil Conservation Division, 2040 S. Pacheco, Santa Fe, New Mexico 87540, Telephone (505) 827-7132:

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If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 27th day of January, 1998.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

KATHLEEN GARLAND, Acting Director

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

January 29, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-221

Mr. Tony Savoie
Texas-New Mexico Pipe Line Company
P.O. Box 1030
Jal, New Mexico 88252

RE: TEMPORARY DISCHARGE AUTHORIZATION
TOWNSEND SITE GROUND WATER REMEDIATION PROJECT
LEA COUNTY, NEW MEXICO

Dear Mr. Savoie:

The New Mexico Oil Conservation Division (OCD) has reviewed Texas-New Mexico Pipe Line Company's (TNMPLC) January 27, 1998 "DISCHARGE PLAN, TEXAS - NEW MEXICO PIPE LINE COMPANY, TNM-97-04 (AKA TOWNSEND REMEDIATION SITE), LOVINGTON, NEW MEXICO, KEI JOB NO. 710016-1" which was submitted on behalf of TNMPLC by their consultant KEI. This document contains a request for temporary discharge authorization for a pump and treat system for remediation of contaminated ground water during consideration of TNMPLC's January 20, 1998 discharge plan application (GW-294).

The request for temporary discharge authorization , as presented in the above referenced document **is approved and pursuant to New Mexico Water Quality Control Commission (WQCC) Regulation 3106.B. you are hereby authorized to discharge without an approved discharge plan until May 29, 1998 under the conditions contained in the enclosed attachment.**

This temporary authorization is issued because of the necessity to protect ground water at the site and to allow the OCD time to process the plan under the WQCC discharge plan regulations. The OCD is currently issuing a public notice of the plan as required under WQCC regulation 3108.

Please be advised that OCD approval does not relieve TNMPLC of liability if the remediation plan fails to adequately remediate ground water contamination related to TNMPLC's activities. In addition, OCD approval does not relieve TNMPLC of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please contact William Olson of my staff at (505) 827-5885.

Sincerely,

Roger C. Anderson
Environment Bureau Chief

Attachment

xc: OCD Hobbs District Office
Michael Hawthorne, KEI

Z 235 437 221

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

January 29, 1998

TEMPORARY DISCHARGE APPROVAL CONDITIONS
TEXAS-NEW MEXICO PIPE LINE COMPANY
TOWNSEND GROUND WATER REMEDIATION PROJECT

1. Discharge Quality

Effluent from the air stripper which is reinjected into the infiltration gallery will meet the WQCC ground water standards as found in WQCC regulation 3103.

2. Below Grade Piping

Any below grade piping used to convey contaminated fluids to the treatment system will be pressure tested to three psi above operating pressure prior to operation.

3. Treatment System Sampling Schedule

Effluent from the air stripper will be sampled and analyzed using appropriate EPA methods and quality assurance/quality control (QA/QC) according to the following schedule:

Initially	Weekly (for 1st Month)	Monthly
BTEX PAH's WQCC Metals	BTEX PAH's	BTEX PAH's

4. Monitor Well Sampling Schedule

Ground water from monitor wells which do not contain free phase product will be sampled and analyzed using appropriate EPA methods according to the following schedule:

Initially	Quarterly	Annually
BTEX PAH's WQCC Metals	BTEX PAH's	BTEX PAH's WQCC metals

5. Monitoring Report

A monitoring report will be submitted to the OCD Santa Fe Office on May 1, 1998 with a copy provided to the OCD Hobbs District Office. The report will contain the following information:

a. A summary of the laboratory analytic results of water quality sampling of monitor wells and the treatment system including the laboratory analytical data and associated QA/QC. The summary data from each monitoring point will be presented in tabular form and will list all past and present sampling results.

b. A product thickness map based on the thickness of free phase product on ground water in all monitor and recovery wells.

c. Isoconcentration maps for contaminants of concern (ie. BTEX, etc.)

d. The total volume of fluid pumped from the recovery well.

e. The total volume of product recovered in the treatment system.

f. The total volume of treated effluent reinjected.

g. As built construction details of the recovery and injection system.

h. The results of any below grade line testing.

8. Product and Waste Disposal

All recovered product, waste filters, recovery system or treatment system waste products will be recycled and/or disposed of at an OCD approved facility.

9. Tank Berming

All above ground tanks used to contain fluids other than non-contaminated fresh water will be bermed such that they can contain one and one-third times the volume of the largest tank or all interconnected tanks.

10. Notification

TNMPLC will notify the OCD Santa Fe Office at least one week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.

To: Bill Olson

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS

Name WAYNE PRICE Date 7/3/97 Miles _____ District I

Time of Departure 7 AM Time of Return 4 PM Car No. G 047

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Wayne Price

BONNEVILLE FUELS - K 14-17-37

TNMPL 97-04 W of LOVINGTON

MANZANO / MISSISSIPPIAN POTASH 21-18-35

MET WITH MISS PERSONNEL ON-SITE!

ZOOM PICTURES

PICTURE OF PSH TEX-NM3X RL

BILL: CORRECTED LOCATION

IS SE/4 SE/4 11-16-35 (NOT

SW/4 SW/4 16-11-35) AS REPORTED!

Mileage		Per Diem		Hours	
UIC		UIC		UIC	
RFA		RFA		RFA	
Other		Other		Other	

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
R = Repair/Workover
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

R = Inspections relating to Reclamation Fund Activity

O = Other - Inspections not related to injection or The Reclamation Fund

E = Indicates some form of enforcement action taken in the field (show immediately below the letter U, R or O)

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
C = Combined prod. inj. operations
S = SWD
U = Underground Storage
G = General Operation
F = Facility or Location
M = Meeting
O = Other

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

June 27, 1997

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
TNM-435
97-04 TxNMPL
Lovington, New Mexico
Job No. 710016

Dear Mr. Anderson:

This letter amends the location of the written notification of the discovery of phase-separate hydrocarbons (PSH) on ground water at the above referenced site during subsurface investigations activities.

The referenced site is located in the SW/4, SW/4 of Section 11, Township 16S, Range 35E in Lovington, New Mexico.

If you have any questions or need additional information, please contact me at (800) 253-0507.

Respectfully,

Paul B. Hartnett, P.E.
Senior Engineer

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

tln\p:\tnmpl\710016\cpshno2.doc

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

June 26, 1997

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
TNM-97-04
Lovington, New Mexico
Job No. 710016

Dear Mr. Anderson:

This letter provides written notification of the discovery of phase-separate hydrocarbons (PSH) on ground water at the above referenced site during subsurface investigations activities.

On June 3, 1997, KEI advanced exploratory holes at the referenced site, which is located in the SW/4, SW/4 of Section 16, Township 11 South, Range 35 East in Lovington, New Mexico. PSH was encountered at the ground water interface at an approximate depth of 52 feet below ground surface. Mr. Wayne Price of the OCD was notified on June 4, 1997 at 3:30 p.m. by phone.

KEI has installed four monitoring wells at the site to further characterize the nature and extent of hydrocarbon impact to ground water. PSH recovery will be performed as on initial remedial response.

If you have any questions or need additional information, please contact me at (800) 253-0507.

Respectfully,

Paul B. Hartnett, P.E.
Senior Engineer

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

tln\p:\tnmpl\710016\cpshnot.doc

DISTRICT I
P.O. BOX 1980, HOBBS, NM 88241-1980

DISTRICT II
P.O. DRAWER DD, ARTESIA, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd, Aztec, NM 87410

RECEIVED
JUN 26 1997
Environmental Bureau
Oil Conservation Division

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 2 COPIES TO APPROPRIATE DISTRICT OFFICE IN ACCORDANCE WITH RULE 116 PRINTED ON BACK SIDE OF FORM

Att: Roger Anderson NMOCD

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

OPERATOR: Texas-New Mexico Pipe Line Company			ADDRESS: P. O. Box 60028, San Angelo, TX 76906				TELEPHONE: (915) 947-9000
REPORT OF	FIRE	BREAK	SPILL	LEAK X	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTRY	PIPE LINE X	GASO PLANT	OIL RFY	OTHER*
FACILITY NAME: 4" gathering line							
LOCATION OF FACILITY: Qtr/Qtr Sec. or Footage. SW/4 SW/4				SEC. 16	TWP. 11S	RGE. 35E	COUNTY Lea
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK 2 miles west of Lovington							
DATE AND HOUR OF OCCURRENCE Unknown			DATE AND HOUR OF DISCOVERY April 16, 1997 4:00 p.m.				
WAS IMMEDIATE NOTICE GIVEN?	YES	NO	NOT REQUIRED X	IF YES, TO WHOM Wayne Price			
BY WHOM B. D. Chapman (reported that quantity may be more than 10 barrels)				DATE AND HOUR April 25, 1997 9:00 a.m.			
TYPE OF FLUID LOST Sweet Crude			QUANTITY OF LOSS Unknown (*see note below)		VOLUME RECOVERED None		
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

GROUND WATER CONTAMINATION
PER TRACY T. SANDIE
CALLED 6-9-97

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**

External Corrosion. Leak successfully clamped off.

≈ 9' of 15# on either TANK, or ≈ 52'

DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN**

Approximately 1500 sq.ft. pasture land. Will remediate on site.

*Originally estimated at 10 barrels. Under investigation. An amended report will be issued when quantity is determined.

DESCRIPTION OF AREA	FARMING	GRAZING X	URBAN	OTHER*			
SURFACE CONDITION	SANDY	SANDY LOAM	CLAY	ROCKY X	WET	DRY X	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, P[illegible]

75 degrees, clear

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNED [signature] PRINTED NAME AND TITLE Edwin H. Gripp, District Manager DATE April 25, 1997

*SPECIFY

**ATTACH ADDITIONAL SHEETS IF NECESSARY

State Corp. Commission
Pipe Line Division

Hazardous Waste Section
NM Environmental Improvement Div.

TNM-97-04 BDC

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1550	Date 6/4/97

Originating Party	Other Parties
Tony Savoie - Tex Mex Pipeline	Bill Olson - Environmental Bureau

Subject

Ground Water Contamination Notification - TNM-97-04 Spill Site

Discussion

Discovered free phase product on Ground water at TNM-97-04 spill site in Lovington Area, Lea County, NM
Location - unit M, sec 16, T11S, R35E
DTW = 50'

Conclusions or Agreements

Will submit subsequent written notification and ground water plan

Distribution

File
Wayne Price - OCD Hobbs

Signed Bill Olson

NOTICE OF PUBLICATION

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

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GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 27th day of January, 1998.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

KATHLEEN GARLAND, Acting Director

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 1345	Date 1/12/97

Originating Party	Other Parties
Bill Olson - Environmental Bureau	KEI - Mike Hawthorne

Subject

Tex-Mex - Lovington Site

Discussion

OCD is going to require abatement plan for site

Tex/Mex is preparing discharge plan for site since remedy will be pump & treat

Conclusions or Agreements

OCD will hold off on abatement plan requirement
Tex/Mex will hand deliver DP next Wednesday

Distribution

Signed Bill Olson

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

August 11, 1997

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

Re: Remediation System Workplan
TNMPL - Lovington Site
KEI Project No. 710016

Dear Mr. Savoie:

KEI has prepared a workplan for a proposed remediation system installation at the Lovington site. The workplan presents a description of the first phase of the proposed remediation system and a discussion of the evaluation procedures for measuring system effectiveness.

In June 1997, KEI installed 5 monitoring wells at the site. Monitoring wells MW-3 and MW-5 each have approximately 9 feet of PSH present on the ground water. PSH recovery from these wells is conducted twice a week using a 2-inch electric submersible pump.

SOIL ASSESSMENT AND CLOSURE LEVEL DETERMINATION

The extent of hydrocarbon impact to soil at the site will be evaluated based on data collected during previous and proposed monitoring well installation activities. This data will be utilized in a risk-based analysis to determine appropriate soil closure levels for the site that are protective of human health and the environment. Following OCD review and approval of this analysis, a soil remediation plan, if required, will be developed and implemented.

A small stockpile of impacted soils excavated during initial response actions is currently at the site. It does not appear that excavation is a feasible alternative to remediate soils at the site, based on current data. Therefore, the existing stockpile will be replaced into the currently open excavation to restore the original grade. These soils will be addressed in conjunction with the impacted native soils at the site.

ADDITIONAL WELL INSTALLATION AND MODIFIED PUMP TEST

We propose to install 1 recovery well designated as RW-1 and 4 additional monitoring wells designated as MW-6, MW-7, MW-8, and MW-9. Proposed locations of the recovery well and additional monitoring wells are indicated on FIG. 1. The wells will be installed to a depth of 75 feet using air rotary drilling. The lower 40 feet of the wells will consist of 0.020 inch slotted well screen. The wells will be installed by a licensed water well driller and the appropriate Water Well Reports will be prepared and transmitted to the state. The wells will

be surveyed to determine the ground surface, PVC riser pipe, and protective casing elevations with respect to the existing wells.

After installation, the recovery well will be developed by surging and pumping. Upon completion of development, a modified pump test will be conducted in the recovery well. The modified pump test will be used to determine the size (flowrate) and type (pneumatic or electric submersible) of remedial equipment most suitable for depression of ground water to control the gradient and to collect PSH. The modified pump test will be conducted as follows.

- A Grundfos electric submersible pump will be lowered to the bottom of the well and will be operated at a low flow rate (approximately 1 gpm) for a period of 4 hours or until water level measurements in the adjacent wells stabilize. If measurements indicate the flow rate is too high and drawdown will reach the top of the submersible pump, the pump test will be terminated since use of electric submersible equipment will probably not be the most suitable remedial equipment.
- If water levels stabilize within the 4 hour period, the flow rate will be increased to a rate determined by the field personnel conducting the test. The recovery well will be pumped at the higher rate for an additional 4 hours or until water levels in the adjacent wells have stabilized. The pump test will not exceed 8 hours unless field decisions dictate otherwise.
- Water level measurements will be obtained by use of pressure transducers and a Hermit data logger. We anticipate use of 1 transducer in the recovery well and up to 3 additional transducers in the adjacent monitoring wells.
- Water from the development will be placed in frac tanks mobilized to the site to collect fluids generated during the development of wells, the pumping test and the operation of the total fluids recovery system.

The data obtained from the modified test will be evaluated using the Jacob-Cooper method to estimate the steady state drawdown values. Based on this evaluation, recommendations will be made regarding the type of remedial equipment to achieve ground water depression. KEI will also research available equipment and provide recommendations for the PSH recovery equipment. One type of specific recovery equipment to be researched will be the use of down well belt skimmers.

PROJECT EVALUATION

For the Lovington site, the initial remediation objectives are to remove as much PSH as possible and prevent migration of PSH and dissolved phase hydrocarbons. To assist with evaluation of the system effectiveness, we propose to conduct operation and maintenance activities weekly with the appropriate documentation. For the first 3 months after system installation, well gauging measurements (PSH thickness and adjusted water level) will also be taken each week during the O&M site visit. The data collected will be input into Excel spreadsheets and graphs will be plotted to show data trends. The graphs indicating PSH thickness and contours, ground water elevations, and cumulative PSH recovered will be prepared on a monthly basis. A quarterly report will discuss the effectiveness of the system with respect to the system objectives and present recommendations to enhance the effectiveness, if necessary.

PROJECT SCHEDULE

Upon TNMPL approval of the work plan, installation of the recovery well and additional monitoring wells should begin within two weeks, depending on the driller's schedule. The pumping test should be complete within one week of the complete development of the recovery well. Design of the total fluids recovery system should be complete within two

weeks after the completion of the modified pump test. Installation of the pump and associated piping for the first recovery well should begin within two weeks of system design, depending on equipment delivery.

If you have any questions regarding the work plan, please contact Mr. Hawthorne at (210) 680-3767.

Respectfully,

Jim Mosley, P.E.
Senior Engineer

J. Michael Hawthorne, P.G., REM
Sr. Geologist

Attachments

cc: Marc Oler, TTTI
jdm\p:\tnmpl\710016\rworkpln.doc

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 14, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-209

Mr. John A. Savoie
Texas-New Mexico Pipeline Company
P.O. Box 60028
San Angelo, Texas 76906

RE: GROUND WATER CONTAMINATION
TNM-97-4 SITE

Dear Mr. Savoie:

The New Mexico Oil Conservation Division (OCD) has reviewed Texas-New Mexico Pipe Line Company's (TNMPLC) June 26, 1997 "TEXAS-NEW MEXICO PIPE LINE COMPANY, TNM-97-4, LOVINGTON, NEW MEXICO, JOB NO. 710016" which was submitted on behalf of TNMPLC by their consultant KEI. This document contains notification of discovery of ground water contamination related to a crude oil pipeline leak in Unit M, Section 16, T11S, R35E in Lovington, New Mexico.

The document states that monitor wells have been installed to characterize the nature and extent of contamination. However, the document does not commit to providing the OCD with the results of the investigations. Therefore, the OCD requires that TNMPLC submit a report on the investigations to the OCD Santa Fe Office by October 17, 1997. A copy of the report will also be provided to the OCD Hobbs District Office. The report will contain:

1. A description of all investigation and remediation activities which occurred including the procedures used during the investigation and conclusions and recommendations.

2. A site map showing the locations of all soil borings and monitor wells in relation to other pertinent site features.

3. A summary of all laboratory analytic results of soil and water quality sampling including copies of the laboratory analyses and associated quality assurance/quality control data.

4. A water table elevation map using the water table elevation of the ground water in all site monitor wells.

5. A geologic log and well completion diagram for each monitor well or borehole.

6. Any other information obtained which is pertinent to the investigation of the extent of contamination.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor
Wayne Price, OCD Hobbs District Office
Michael Hawthorne, KEI

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