GW - 80

GENERAL CORRESPONDENCE

YEAR(S): 1996-1993

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 1000	Date 11/5/96
Originating Party		**Other Parties**
Chris Wolfe - OBS&A 822-0412 ext 186		Bill Olson - Envir. Bureau

Subject

Chris Wolfe - OBS&A Sampling Ground Water

Discussion

Sampling at - ENRON Laguna next week
- ENRON Thoreau following week

Conclusions or Agreements

Distribution

ENRON Laguna File
ENRON Thoreau File
Denny Foust - OCD Aztec

Signed Bill Olson

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

October 25, 1996

Mr. Fenley Ryther, Jr.
Permits Group Manager
ENRON Operations Corp.
P.O. Box 1188
Houston, TX 77251-1188

RE: GROUND WATER ANALYSES
ENRON THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Ryther:

Enclosed are copies of the New Mexico Oil Conservation Division's (OCD) August 15, 1996 split ground water sample results from monitor well MW-6B at ENRON's Thoreau Compressor Station.

Aroclor-1221 was detected at a concentration of 260 parts per billion. It appears that PCB's continue to be detected in monitor well MW-6B at a concentration in excess of New Mexico Water Quality Control Commission (WQCC) ground water standards.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc w/enclosure: Denny Foust, OCD Aztec District Office
Julie Curtis, Navajo EPA Superfund Program
George Robinson, Cypress Engineering Services

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

September 6, 1996

Mr. William C. Olson
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

RE: Semi-annual Report of Groundwater Remediation Activities
Transwestern Pipeline Company Thoreau Compressor Station
McKinley County, New Mexico

Dear Bill,

The attached report is submitted pursuant to the NMOCD's requirements for semi-annual reporting of groundwater remediation activities at the subject facility. The reporting period is January 1, 1996, through June 30, 1996. This is the second semi-annual report to be submitted since the initiation of remediation activities.

If you have any questions or comments regarding this report, please contact me at (713) 646-7318 or George Robinson at (713) 646-7327.

Yours Very Truly,

Fenley "Ted" Ryther, Jr., PE
Environmental Affairs

TR/gcr

xc w/attachments:

Julie Curtiss	NNEPA Superfund Program
Denny Foust	NMOCD Aztec District Office
Larry Campbell	TW Technical Operations
George Robinson	Cypress Engineering Services

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

September 5, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-616

Mr. James R. Russell
Transwestern Pipeline Company
4001 Indian School Road, NE, Suite 250
Albuquerque, NM 87110

Re: Disposal Request
Thoreau Facility GW-80
McKinley County, New Mexico

Dear Mr. Russell:

The Oil Conservation Division (OCD) has received your request letter dated July 8, 1996, for approval to remove and dispose of approximately 30 yards of concrete from your Thoreau Compressor Station (GW-80) at the Thoreau Compressor Station (GW-80) located in McKinley County, New Mexico. **Based on the information provided, your disposal request is approved.**

Please be advised that this approval does not relieve you of liability should your operation result in pollution of surface or groundwater or the environment. Also, OCD approval does not relieve Transwestern Pipeline Company from compliance with other Federal, State, and Local rules/regulations that may apply.

Sincerely,

Roger C. Anderson
Bureau Chief

RCA/pws

xc: OCD - Aztec

P 288 258 616

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to TWPC - Russell	
Street & Number (Concrete Burying)	
Post Office, State, & ZIP Code GW-80	
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

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

July 17, 1996

CERTIFIED MAIL
RETURN RECEIPT NUMBER P-269-269-173

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1188
Houston, Texas 77251-1188

RE: DRILL CUTTINGS DISPOSAL
ENRON THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Campbell:

The New Mexico Oil Conservation Division (OCD) has completed a review of ENRON's April 24, 1996 "FINAL DISPOSITION OF SOIL CUTTINGS, TRANSWESTERN PIPELINE COMPANY, THOREAU COMPRESSOR STATION NO. 5". This document contains the results of ENRON's sample analyses of stockpiled soils generated during installation of the ground water remediation system at ENRON's Thoreau Compressor Station. The document also contains a request to dispose on these soils onsite based upon the sample analyses.

Based upon the information contained in the above referenced document, the above disposal request is approved.

Please be advised that OCD approval does not relieve ENRON of liability should their activities result in actual contamination of ground water, surface water or the environment. In addition, OCD approval does not relieve ENRON of responsibility for compliance with any other federal, state or local laws and/or regulations.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Aztec District Office
Julie Curtiss, Navajo EPA Superfund Office
George Robinson, Cypress Engineering Services

Transwestern Pipeline Company

GW-80

4001 Indian School Road, Northeast, Suite 250 Albuquerque, New Mexico 87110 (515) 260-4000 Fax (505) 254-1437

RECEIVED
AUG 28 1996
CONSERVATION DIV.

Ms. Carol D. Peters
United States Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

7-17-96

Re: TPL Examine All Compressor Station West of Corona, New Mexico

Dear Ms. Peters:

Transwestern Pipeline has examined all Compressor Stations west of Corona, New Mexico to see if any liquid in our work operation is being removed from fuel filters into a bottomless cistern. In our investigation we have found no operating practices where liquid is being removed from the fuel filters and drained into a bottomless cistern.

If you have any questions concerning this response, please give me a call at (505) 260-4011.

Sincerely,

James R. Russell

James R. Russell
Environmental Specialist

cc: Roger Anderson, NMOCD
Joe Hulscher
Rich Jolly
Larry Campbell

RECEIVED
AUG 28 1996
Environmental
Oil Conservation Division

American Environmental Network, Inc.

AEN I.D. **608329**

August 29, 1996

RECEIVED
SEP 03 1996
Environmental Bureau
Oil Conservation Division

NM Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Project Name/Number: ENRON THOREAU (NONE)

Attention: Bill Olson

On **08/15/96**, American Environmental Network (NM), Inc., (ADHS License No. AZ0015) received a request to analyze **aqueous** sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses were performed by American Environmental Network (FL) Inc., 11 east East Olive Road, Pensacola, FL.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
General Manager

MR:ft

Enclosure

2709-D Pan American Freeway, NE • Albuquerque, NM 87107 • (505) 344-3777 • Fax (602) 344-4413

American Environmental Network, Inc.

CLIENT	: NM OIL CONSERVATION DIVISION	DATE	08/15/96
PROJECT #	: (NONE)		
PROJECT NAME	: ENRON THOREAU	REPORT DATE:	08/29/96

AEN ID: 608329

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	608329-01	9608151(MW-6B)	AQUEOUS	08/15/96

---TOTALS---

MATRIX	#SAMPLE(S)
AQUEOUS	1

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

American Environmental Network, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	608419
Client:	AMERICAN ENVIRONMENTAL NETWORK OF NEW MEXICO
Project Number:	608329
Project Name:	NMOCD
Project Location:	ENRON
Test:	PCB
Analysis Method:	8080 / SW-846, 3rd Edition.
Extraction Method:	3510 / SW-846, 3rd Edition.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	15-AUG-96 1230
Client Sample Id:	608329-01	Received Date:	16-AUG-96
Batch: PCW057		Extraction Date:	21-AUG-96
Blank: A	Dry Weight %: N/A	Analysis Date:	27-AUG-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
AROCLOR-1016	UG/L	ND	20	
AROCLOR-1221	UG/L	260	20	
AROCLOR-1232	UG/L	ND	20	
AROCLOR-1242	UG/L	ND	20	
AROCLOR-1248	UG/L	ND	20	
AROCLOR-1254	UG/L	ND	20	
AROCLOR-1260	UG/L	ND	20	
DCB	%REC/SURR	91	1-165	
TCMX	%REC/SURR	94	1-134	
ANALYST	INITIALS	KL		

Comments:

American Environmental Network, Inc.

"Method Report Summary"

Accession Number: 608419
Client: AMERICAN ENVIRONMENTAL NETWORK OF NEW MEXICO
Project Number: 608329
Project Name: NMOCD
Project Location: ENRON
Test: PCB

Client Sample Id:	Parameter:	Unit:	Result:
608329-01	AROCLOR-1221	UG/L	260

American Environmental Network, Inc.

"QC Report"

Title: Water Blank
Batch: PCW057
Analysis Method: 8080 / SW-846, 3rd Edition.
Extraction Method: 3510 / SW-846, 3rd Edition.

Blank Id: A Date Analyzed: 26-AUG-96 Date Extracted: 21-AUG-96

Parameters:	Units:	Results:	Reporting Limits:
AROCLOR-1016	UG/L	ND	1.0
AROCLOR-1221	UG/L	ND	1.0
AROCLOR-1232	UG/L	ND	1.0
AROCLOR-1242	UG/L	ND	1.0
AROCLOR-1248	UG/L	ND	1.0
AROCLOR-1254	UG/L	ND	1.0
AROCLOR-1260	UG/L	ND	1.0
DCB	%REC/SURR	101	1-165
TCMX	%REC/SURR	82	1-134
ANALYST	INITIALS	KL	

Comments:

American Environmental Network, Inc.

"QC Report"

Title: Water Reagent
Batch: PCW057
Analysis Method: 8080 / SW-846, 3rd Edition.
Extraction Method: 3510 / SW-846, 3rd Edition.

RS Date Analyzed: 26-AUG-96
RSD Date Analyzed: 26-AUG-96

RS Date Extracted: 21-AUG-96
RSD Date Extracted: 21-AUG-96

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
AROCLOR 1016	10.0	<1.0	9.7	97	9.4	94	3	11	78-116
AROCLOR 1260	10.0	<1.0	10.1	101	10.5	105	4	18	70-133
Surrogates:									
DCB				98		103			1-165
TCMX				87		82			1-134

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

American Environmental Network, Inc.

"QC Report"

Title: Water Matrix
Batch: PCW057
Analysis Method: 8080 / SW-846, 3rd Edition.
Extraction Method: 3510 / SW-846, 3rd Edition.

Dry Weight %: N/A
Sample Spiked: 608419-1

MS Date Analyzed: 26-AUG-96
MSD Date Analyzed: 26-AUG-96

MS Date Extracted: 21-AUG-96
MSD Date Extracted: 21-AUG-96

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
AROCLOR 1016	20.0	<1.0	28.6	143	26.5	133	7	22	16-144
AROCLOR 1260	20.0	<1.0	19.9	100	19.5	98	2	41	1-155
Surrogates:									
DCB				101		99			1-165
TCMX				75		64			1-134

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
J = THE REPORTED VALUE IS EITHER LESS THAN THE REPORTING LIMIT BUT GREATER THAN ZERO, OR QUANTITATED AS A TIC; THEREFORE, IT IS ESTIMATED.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

RP = ROBERT PEREZ
KL = KERRY LEMONT
RW = ROBERT WOLFE
PL = PAUL LESCHENSKY

AnalyticalTechnologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody 608419

DATE: 8/15 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: **Analytical Technologies of New Mexico, Inc.**
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: K McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
608329	8/15	1230	AQ	1

Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
														X														

PROJECT INFORMATION

PROJECT NUMBER: 608329
PROJECT NAME: Enron
QC LEVEL: (STD) IV
QC REQUIRED: (MS) MSD BLANK
TAT: (STANDARD) RUSH!

DUE DATE: 8/22
RUSH SURCHARGE: _____
CLIENT DISCOUNT: _____
SPECIAL CERTIFICATION REQUIRED: ☐YES ☐NO

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS	
INTACT?	
RECEIVED GOOD COND./COLD	
LAB NUMBER	

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	X
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.
Signature: John Caldwell Time: 1700
Printed Name: John Caldwell Date: 8/15/96
Analytical Technologies of New Mexico, Inc. Albuquerque

RECEIVED BY: 1.
Signature: Time: 0952
Printed Name: R. ELSPERMAN Date: 8/16/96
Company: AEN-FL

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.
Signature: Time:
Printed Name: Date:
Company:

American Environmental Network (NM), Inc.

Albuquerque • Phoenix • Pensacola • Portland • Pleasant Hills • Columbia

CHAIN OF CUSTODY

DATE: 8/15/96 PAGE: 1 OF 1

AEN LAB I.D. 608329

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Bill Olson

COMPANY: N.M. Oil Conservation Division
ADDRESS: 2040 S. Pacheco
Santa Fe, NM 87505
PHONE: (505) 827-7154
FAX: (505) 827-8177

BILL TO: Same
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
960815/230 (MW-6B)	8/15/96	1230	water	-01													2									2

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: ENRON Thoreau
P.O. NO.:
SHIPPED VIA: Hand delivered

SAMPLE RECEIPT

NO. CONTAINERS	2
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	ICE

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

field

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Time: 1540	Signature: Time:
Printed Name: William Olson Date: 8/15/96	Printed Name: Date:
Company: NMOCD	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 1540
Printed Name: Date:	Printed Name: Date: 8/15/96
Company:	American Environmental Network (NM), Inc.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

July 26, 1996

Mr. Fenley Ryther, Jr.
Permits Group Manager
ENRON Operations Corp.
P.O. Box 1188
Houston, TX 77251-1188

RE: GROUND WATER ANALYSES
ENRON THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Ryther:

Enclosed are copies of the April 17, 1996 ground water samples from ENRON's Thoreau Compressor Station that the New Mexico Oil Conservation Division (OCD) split with ENRON. You will notice that the PCB samples for monitor well MW-6B are not included in the report. I talked to the laboratory and they stated that these samples were lost. Please contact me prior to the next planned sampling event so that the OCD can resample this well.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc w/enclosure: Denny Foust, OCD Aztec District Office
Julie Curtis, Navajo EPA Superfund Program
George Robinson, Cypress Engineering Services

P 269 269 180

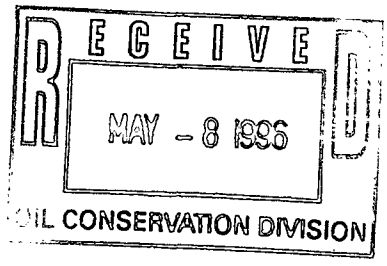
US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

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

American Environmental Network, Inc.

AEN I.D. **604373**



May 7, 1996

New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Project Name/Number: THOREAU COMPRESSOR ENRON

Attention: Bill Olson

On **04/17/96**, American Environmental Network (NM), Inc. (ADHS License No. AZ0015) received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA 8080 (PCB only) analyses were performed by Paragon Analytics Inc., 225 Commerce Drive, Fort Collins, CO.

All other analyses were performed by American Environmental Network (NM), Inc., Albuquerque, NM.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
General Manager

MR:ft

Enclosure

2709-D Pan American Freeway, NE • Albuquerque, NM 87107 • (505) 344-3777 • Fax (602) 344-4413

American Environmental Network, Inc.

CLIENT : NMED
PROJECT # : ENRON
PROJECT NAME : THOREAU COMPRESSOR

DATE RECEIVED : 04/17/96
REPORT DATE : 05/07/96

AEN ID: 604373

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	604373-01	9604171300 (MW-68)	AQUEOUS	04/17/96
02	604373-02	9604171340 (MW-1B)	AQUEOUS	04/17/96

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	2

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

American Environmental Network, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 8010/8020)
CLIENT : NMED AEN I.D.: 604373
PROJECT # : ENRON
PROJECT NAME : THOREAU COMPRESSOR

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	9604171300 (MW-6B)	AQUEOUS	04/17/96	NA	04/25/96	1

PARAMETER	UNITS	01
BENZENE	**UG/L**	**9.4**
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5 D(1)
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATES:		
BROMOCHLOROMETHANE (%)		84
TRIFLUOROTOLUENE (%)		101

D(1)=DILUTED 1X, ANALYZED 04/25/96

American Environmental Network, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 8010/8020	AEN I.D.	: 604373
BLANK I.D.	: 042496	MATRIX	: AQUEOUS
CLIENT	: NMED	DATE EXTRACTED	: NA
PROJECT #	: ENRON	DATE ANALYZED	: 04/24/96
PROJECT NAME	: THOREAU COMPRESSOR	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATES:		
BROMOCHLOROMETHANE (%)		92
TRIFLUOROTOLUENE (%)		93

American Environmental Network, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 8010/8020	AEN I.D.	: 604373
BLANK I.D.	: 042596	MATRIX	: AQUEOUS
CLIENT	: NMED	DATE EXTRACTED	: NA
PROJECT #	: ENRON	DATE ANALYZED	: 04/25/96
PROJECT NAME	: THOREAU COMPRESSOR	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATES:		
BROMOCHLOROMETHANE (%)		86
TRIFLUOROTOLUENE (%)		91

American Environmental Network, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST	: PURGEABLE HALOCARBONS/AROMATICS (EPA 8010/8020)		
MSMSD #	: 60435907	AEN I.D.	: 604373
CLIENT	: NMED	DATE EXTRACTED	: NA
PROJECT #	: ENRON	DATE ANALYZED	: 04/24/96
PROJECT NAME	: THOREAU COMPRESSOR	SAMPLE MATRIX	: AQUEOUS
REF. I.D.	:	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	9.7	97	10.7	107	10
CHLOROBENZENE	<0.5	10.0	9.7	97	10.6	106	9
1,1-DICHLOROETHENE	<0.2	10.0	7.8	78	8.5	85	9
TOLUENE	<0.5	10.0	9.8	98	10.7	107	9
TRICHLOROETHENE	<0.3	10.0	10.0	100	11.3	113	12

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

May 2, 1996

Ms. Kimberly McNeill
American Environmental Network, Inc.
2709-D Pan American Freeway, NE
Albuquerque, NM 87107

RE: Paragon Workorder: 96-04-096
Client Project Name: Thareau
Client Project Number: 604373

Dear Ms. McNeill,

One water sample was received from American Environmental Network, Inc. on April 18, 1996. The sample was scheduled for Aroclors analysis. The results for this analysis are contained in the enclosed report.

Should you have any questions, please call.

Sincerely,

John Whalen

Paragon Analytics, Inc.
John Whalen
Project Manager

JW/drb
Enclosure: report

Paragon Analytics, Inc.

Pesticides / PCBs Case Narrative

AEN-NM

604373

Client ID	Paragon ID
9604171340(MW-1B)	96-04-096-01

1. This report consists of 1 water sample received by Paragon on 04/18/96.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water sample was extracted using continuous liquid-liquid extractors, based on Method 3520. These extracts were then processed using sulfuric acid cleanup by Method 3650 in an attempt to remove potential interferences.

3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a DB-17 capillary column according to protocols based on Method 8080. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interferences.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

7. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria.

Roland P. Bruggeman
Organics Supervisor

5-2-96
Date

DP
Reviewer's Initials

5/2/96
Date

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

AROCLORS
Method 8080

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: 604373
Lab Sample ID: WRB1 04/18/96

Sample Matrix: Water
Cleanup: Sulfuric Acid

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 4-18-96
Date Analyzed: 4-26-96

Sample Volume: 1000 mL
Final Volume: 10 mL

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Aroclor 1016	ND	0.50
Aroclor 1221	ND	0.50
Aroclor 1232	ND	0.50
Aroclor 1242	ND	0.50
Aroclor 1248	ND	0.50
Aroclor 1254	ND	0.50
Aroclor 1260	ND	0.50

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	103	43 - 124

ND = Not Detected at or above client requested detection limit.

AROCLORS
Method 8080

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: 604373
Lab Sample ID: 96-04-096-01

Sample Matrix: Water
Cleanup: Sulfuric Acid

Sample ID
9604171340(MW-1B)

Date Collected: 4/17/96
Date Extracted: 4/18/96
Date Analyzed: 4/26, 30/1996

Sample Volume: 1000 mL
Final Volume: 10 mL

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Aroclor 1016	ND	0.50
Aroclor 1221	0.93	0.50
Aroclor 1232	ND	0.50
Aroclor 1242	ND	0.50
Aroclor 1248	ND	0.50
Aroclor 1254	ND	0.50
Aroclor 1260	ND	0.50

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	102	43 - 124

ND = Not Detected at or above client requested detection limit.

AROCLOR BLANK SPIKE

Method 8080

Lab Name: Paragon Analytics, Inc.

Lab Sample ID: WBS1,2 04/18/96

Client Name: AEN-NM
Client Project ID: 604373

Date Extracted: 4-18-96
Date Analyzed: 4-26-96

Sample Matrix: Water
Cleanup: Sulfuric Acid

GC Column: DB-17

Sample Volume: 1,000 mL
Final Volume: 10 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Aroclor 1260	15.0	13.9	92	50 - 150

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Aroclor 1260	15.0	14.0	93	1	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	107	114	43 -124

EP/3

AROCLOR MATRIX SPIKE

Method 8080

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: 604373
Lab Sample ID: 96-04-096-01

Sample Matrix: Water
Cleanup: Sulfuric Acid

Sample ID

9604171340(MW-1B)

Date Collected: 4-17-96
Date Extracted: 4-18-96
Date Analyzed: 4-26-96

Sample Volume: 1000 mL
Final Volume: 10 mL

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery	QC Limits % Rec
Aroclor 1260	15.0	ND	14.0	94	50 - 150

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD Percent Recovery	RPD	QC Limits RPD
Aroclor 1260	15.0	14.6	97	4	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	83	91	43 - 124

ND = Not Detected

AnalyticalTechnologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

96.04.096

DATE: 4/17 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: **Analytical Technologies of New Mexico, Inc.**
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: K McNeill

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
604373-02	4/17	1340	AQ	01

ANALYSIS REQUEST

Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
														X														3

PROJECT INFORMATION

PROJECT NUMBER: 604373
PROJECT NAME: Tharan
QC LEVEL: (STD.) IV
(QC REQUIRED:) MS MSD BLANK
TAT: (STANDARD) RUSH!

DUE DATE: 5/6
RUSH SURCHARGE:
CLIENT DISCOUNT:
SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	3
CHAIN OF CUSTODY SEALS	NA
INTACT?	NA
RECEIVED GOOD COND./(COLD)	✓
LAB NUMBER	

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.
Signature: [signature] Time: 1700
Printed Name: John Caldwell Date: 4/17/96
Analytical Technologies of New Mexico, Inc. Albuquerque

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company: Fedex

RECEIVED BY: 1.
Signature: Time:
Printed Name: Date:
Company: Fedex

RECEIVED BY: (LAB) 2.
Signature: [signature] Time: 900
Printed Name: Driskell Date: 4/18/96
Company: Paragon

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: AEN - NM SHIPPING CONTAINER #: Cooler

WORKORDER NO. 96.04.096 INITIALS: [illegible] DATE: 4/18/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	(No)
2.	Are custody seals on the cooler intact? If so, how many _____	(N/A)	Yes	No
3.	Are custody seals on sample containers intact?	(N/A)	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		(Yes)	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		(Yes)	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		(Yes)	No
7.	Are the samples preserved correctly?	(N/A)	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		(Yes)	No
9.	Are all samples within holding times for the requested analyses?		(Yes)	No
10.	Were the sample received on ice?	N/A	(Yes)	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		(Yes)	No
12.	Are samples requiring no headspace, headspace free?	(N/A)	Yes	No
13.	Do the samples require quarantine?		Yes	(No)
14.	Do samples require ATI disposal?		Yes	(No)
15.	Did the client return any unused bottles?		Yes	(No)

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes_____ No_____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature: [signature] Date: 4-18

Cooler Temperature: 1°C

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 4/17 PAGE: 1 OF 1

ATI LAB I.D. 604373

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Bill Olson

COMPANY: N.M. Oil Conservation Div.
ADDRESS: 2040 S. Pacheco
Santa Fe, NM 87505
PHONE: (505) 827-7154
FAX: (505) 827-8177

BILL TO:
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
960417 1300 (MW-6B)	4/17/96	1300	water	-01
960417 1340 (MW-1B)	4/17/96	1340	water	-02

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	8010/8020	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)		504 EDB☐ / DBCP☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
		3													2													5
															1													1

PROJECT INFORMATION
PROJ. NO.: ENRON
PROJ. NAME: Thoreau Compressor
P.O. NO.:
SHIPPED VIA: hand delivered

SAMPLE RECEIPT

NO. CONTAINERS	6
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	7°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Will Olson Time: 1630	Signature: Time:
Printed Name: William Olson Date: 4/17/96	Printed Name: Date:
Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 1630
Printed Name: Date:	Printed Name: John Caldwell Date: 4/17/96
Company:	Analytical Technologies of New Mexico

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

July 17, 1996

CERTIFIED MAIL
RETURN RECEIPT NUMBER P-269-269-173

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1188
Houston, Texas 77251-1188

RE: DRILL CUTTINGS DISPOSAL
ENRON THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Campbell:

The New Mexico Oil Conservation Division (OCD) has completed a review of ENRON's April 24, 1996 "FINAL DISPOSITION OF SOIL CUTTINGS, TRANSWESTERN PIPELINE COMPANY, THOREAU COMPRESSOR STATION NO. 5". This document contains the results of ENRON's sample analyses of stockpiled soils generated during installation of the ground water remediation system at ENRON's Thoreau Compressor Station. The document also contains a request to dispose on these soils onsite based upon the sample analyses.

Based upon the information contained in the above referenced document, the above disposal request is approved.

Please be advised that OCD approval does not relieve ENRON of liability should their activities result in actual contamination of ground water, surface water or the environment. In addition, OCD approval does not relieve ENRON of responsibility for compliance with any other federal, state or local laws and/or regulations.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Aztec District Office
Julie Curtiss, Navajo EPA Superfund Office
George Robinson, Cypress Engineering Services

P 269 269 173

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

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Postage	$
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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

Transwestern
Pipeline Company

4001 Indian School Road, Northeast, Suite 250 Albuquerque, New Mexico 87110 (505) 260-4000 Fax (505) 254-1437

Gw-80

July 8,1996

Mr. Roger Anderson
Oil Conservation Division
P.O.Box 2088
Santa Fe, New Mexico 87504-2088

Re: Disposal of Concrete at Station No. 5, Thoreau , New Mexico

Dear Mr. Anderson:

Transwestern Pipeline Company, owner and operator of the Thoreau Compressor Station No. 5, request approval from your agency to dispose of waste generated from oil and gas activities at the above reference facility. This request addresses disposal onsite into a dedicated excavation area of approximately thirty (30) cubic yards of concrete removed from this facility during various construction activities. Approval of this request will allow Transwestern expedited completion of these projects and will not create any adverse impacts to the facility environment.

Sincerely,

James R. Russell

James R. Russell
Environmental Specialist

xc: Rich Jolly
Larry Campbell
Charlie Allen
file

7. **Tank Labeling**: All tanks should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill, or ignite.

8. **Below Grade Tanks/Sumps**: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-detection into the design. All pre-existing sumps and below-grade tanks that do not have secondary containment and leak detection must demonstrate integrity on an annual basis. Integrity tests include pressure testing to 3 pounds per square inch above normal operating pressure and/or visual inspection of cleaned out tanks /or sumps.

9. **Underground Process/Wastewater Lines**: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years there after. Companies may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure or other means acceptable to the OCD.

10. **Housekeeping**: All systems designed for spill collection/prevention should be inspected to ensure proper operation and to prevent overtopping or system failure.

Any contaminated soils that are collected at the facility will be tested for hazardous constituents, and after receiving OCD approval, will be disposed of at an OCD approved site.

11. **Spill Reporting**: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the Aztec OCD District Office at (505)-334-6178.

12. **Transfer of Discharge Plan:** The OCD will be notified prior to any transfer of ownership, control, or possession of a facility with an approved discharge plan. A written commitment to comply with the terms and conditions of the previously approved discharge plan must be submitted by the purchaser and approved by the OCD prior to transfer.

13. **Closure:** The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be submitted for approval by the director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

14. **Conditions accepted by**: L. T. Campbell 6/28/96
Company Representative Date

Division Environmental Specialist
Title

FAX (505) 625-8060

Phone (505) 623-2761

Transwestern Pipeline Company
TECHNICAL OPERATIONS
6381 North Main • Roswell, New Mexico 88201

June 28, 1996

Mr. Roger Anderson
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Discharge Plan Fee, Thoreau Compressor Station

Dear Mr. Anderson:

Enclosed find check no. 0602016487 in the amount of $690.00 issued by Transwestern Pipeline Company to cover the required flat fee for the above referenced facility's discharge plan.

Sincerely,

Larry Campbell

Larry Campbell
Division Environmental Specialist

file

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

May 31, 1996

CERTIFIED MAIL
RETURN REC[illegible] NO. Z-765-963-157

Mr. Larry Campbell
Division Environmental Specialist
Transwestern Pipeline Company
6381 North Main
Roswell, NM 88201

RE: Discharge Plan Inspection
Thoreau C[illegible]pressor Station GW-80
San Juan County, New Mexico
McKinley by [illegible] 5-12-96

Dear Mr. Campbell:

The OCD along with Transwestern Pipeline Company personnel on May 7, 1996 inspected the Thoreau Compressor Station located in SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico. The purpose of this inspection was to ensure that GW-80 a previously approved discharge plan compressor site was in compliance with the NMOCD approved discharge plan GW-080. During the inspection the NMOCD took photographs of the Thoreau Compressor Station facility and duplicate copies of these photos are enclosed for Transwestern Pipeline Company's reference.

Upon inspecting the facility and discussing environmental operations at the site with Transwestern Pipeline Company personnel it is OCD's conclusion that the site is in compliance with GW-80 permit conditions. The personnel at the site appeared to be committed to ensuring that the facility remain well maintained and as you can see by the photos included with this inspection report they have done an outstanding job. Three minor areas that need to be included as part of the permit compliance are:

- Inspection by pressure testing of the below ground drainlines per OCD guidelines.
- Yearly inspection and cleaning underneath the compressor room foundation metal deck.

- The dirt pile in photo no. 8 has not received OCD approval for disposal or remmediation options - Transwestern shall submit a plan to the OCD Santa Fe Division Office within 30 days of receipt of this letter proposing disposal or remmediation options.

Should Transwestern Pipeline Company have any questions regarding this inspection please feel free to call me at (505)-827-7156.

Sincerely,

Patricio W. Sanchez
Petroleum Engineering Specialist

Z 765 963 157

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to TwPC - Larry Campbell	
Street and No. Thoreau GW-80	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, March 1993

xc: Denny Foust - Aztec District.

TWBC GW-80 "THOREAU"

PHOTO NO. 1 5-7-96

PHOTO NO. 2 5-7-96

TWPC GW-80

PHOTO NO. 3 5-7-96

PHOTO NO. 4 5-7-96

TWPC GW-80

PHOTO NO. 5 5-7-96

PHOTO NO. 6 5-7-96

TWPC GW-80

PHOTO NO. 7 5-7-96

PHOTO NO. 8 5-7-96

The Santa Fe New Mexican
Since 1849. We Read You.

NEW MEXICO OIL CONSERVATION
ATTN: SALLY MARTINEZ
2040 S. PACHECO
SANTA FE, NM 87505

AD NUMBER: 493237 ACCOUNT: 56689
LEGAL NO: 59516 P.O. #: 96199002997

171 LINES once at $ 68.40
Affidavits: 5.25
Tax: 4.60
Total: $ 78.25

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, the following discharge plan renewal application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico, 87505, Telephone (505) 827-7131:

(GW-80) - Transwestern Pipeline Company, Mr. Larry Campbell, (505)-625-8022, 6381 N. Main St., Roswell, NM, 88201, has submitted a Discharge Plan Renewal Application for the Thoreau Compressor located in the SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico. Approximately 300 gallons per day of scrubber and washdown water will be stored onsite in a closed top tank and disposed of at an OCD approved facility. Groundwater most likely to be affected by a spill, leak, or accidental discharge to the surface is at a depth of approximately 50 feet with a total dissolved solids concentration of approximately 600 to 900 mg/L. The discharge plan addresses 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 application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru 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 shall 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 proposed plan based on the information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the discharge plan application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 18th day of April, 1996.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY,
Director
Legal #59516
Pub. April 24, 1996

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 #59516 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 24th day of APRIL 1996 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 24th day of APRIL A.D., 1996

OFFICIAL SEAL
Candace C. Ruiz
NOTARY PUBLIC - STATE OF NEW MEXICO
My Commission Expires: 9/29/99

NOTICE OF PUBLICATION

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STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY, Director

WJL/pws

NO EFFECT FINDING
The described action will have no effect on listed species, wetlands or other important wildlife resources.
Date April 24, 1996
Consultation # GWOCD96-1
Approved by
U.S. FISH and WILDLIFE SERVICE
NEW MEXICO ECOLOGICAL SERVICES FIELD OFFICE
ALBUQUERQUE, NEW MEXICO

Affidavit of Publication

STATE OF NEW MEXICO
) SS
COUNTY OF McKINLEY

HUBBARD, Freida being duly sworn upon oath, deposes and says:

As Legal Clerk of The Independent, a newspaper published in and having a general circulation in McKinley County, New Mexico and in the City of Gallup, New Mexico and having a general circulation in Cibola County, New Mexico and in the City of Grants, New Mexico and having a general circulation in Apache County, Arizona and in the City of St. Johns and in the City of Window Rock, Arizona therein: that this affiant makes this affidavit based upon personal knowledge of the facts herein sworn to. That the publication, a copy of which is hereto attached was published in said newspaper during the period and time of publication and said notice was published in the newspaper proper, and not in a supplement thereof,

for one time, the first publication being on the 3rd day of May, 19 96 the second publication being on the _____ day of _____, 19_____ the third publication on the _____ day of _____, 19_____.

and the last publication being on the _____ day of _____, 19_____.

That such newspaper, in which such notice or advertisement was published, is now and has been at all times material hereto, duly qualified for such purpose, and to publish legal notices and advertisements within the meaning of Chapter 12, of the statutes of the State of New Mexico, 1941 compilation.

Freida Hubbard
Affiant.

Sworn and subscribed to before me this 13th day of May, A.D., 19 96.

Linda Kay Delano
Notary Public

My commission expires
August 29, 1997

2735 2M BUTLER'S Gallup

RECEIVED
MAY 16 1996
OIL CONSERVATION DIVISION

LEGAL NOTICE

NOTICE OF PUBLICATION
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ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 18th day of April, 1996.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
/s/ WILLIAM J. LEMAY, Director

Legal #12921 Published in The Independent May 3, 1996.

Okay to Pay DWB
5-17-96

Affidavit of Publication

STATE OF NEW MEXICO
) SS
COUNTY OF McKINLEY

HUBBARD, Freida being duly sworn upon oath, deposes and says:

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Freida Hubbard
Affiant.

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Linda Kay Delano
Notary Public

My commission expires
August 29, 1997

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LEGAL NOTICE

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GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 18th day of April, 1996.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
/s/ WILLIAM J. LEMAY, Director

Legal #12921 Published in The Independent May 3, 1996.

Okay to Pay DLB
5-17-96

NOTICE OF PUBLICATION

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ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L

WILLIAM J. LEMAY, Director

WJL/pws

ENRON
Transwestern Pipeline Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

April 24, 1996

Mr. William C. Olson
New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

RE: Final Disposition of Soil Cuttings
Transwestern Pipeline Company
Thoreau Compressor Station No. 5

Dear Bill,

During the course of drilling several soil borings for the installation of the Phase II ground water remediation system at the subject station, approximately eight cubic yards of soil cuttings containing petroleum hydrocarbon compounds were generated and collected on-site. An additional eight cubic yards of clean soil cuttings were generated and stockpiled separately. One composite soil sample was collected from each soil pile and delivered to a laboratory for analysis. The results are summarized in the table below. A copy of the lab results are enclosed with this letter.

	Units	Clean Soil	Contaminated Soil
Volume	cubic yards	8	8
TPH	(mg/kg)	< 20	1000
benzene	(mg/kg)	< 0.5	< 0.5
toluene	(mg/kg)	< 0.5	2.1
ethylbenzene	(mg/kg)	< 0.5	2.7
xylene (total)	(mg/kg)	< 0.5	62
Total BTEX	(mg/kg)	< 2.0	< 67.3
PCBs (all Arochlors)	(mg/kg)	---	< 0.1

Transwestern proposes to mix the two piles of soil together and thin spread it on the ground surface in the general area where the soil cuttings were generated. The justification for this proposal is based primarily on the following three factors: 1) the small volume of soil involved; 2) the relatively low concentration of petroleum hydrocarbon compounds contained in the soil; and 3) Transwestern does not anticipate generating any additional contaminated soil cuttings in association with the ground water remediation system.

Please contact me at (505) 625-8022 or George Robinson at (713) 646-7327 if you have any questions or comments regarding this issue.

Sincerely,

Larry Campbell

Larry Campbell
Division Environmental Specialist

xc: Denny Foust NMOCD Aztec District Office
George Robinson Cypress Engineering Services

Hall Environmental
Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite C
Albuquerque, NM 87109
(505) 345-3975

4/3/96

Daniel B. Stephens and Associates, Inc.
6020 Academy NE, Suite 100
Albuquerque, NM 87109

Dear Mr. Bob Marley,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

Scott Hallenbeck 4/3/96

Scott Hallenbeck, Lab Manager

Project: 9603125/Enron-Thoreau

Results for Sample: Filtered Purge Water

Date collected: 3/29/96	Date received: 3/29/96
Date extracted: 4/1/96	Date Analyzed:4/1,2/96
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9603125-1
Project Manager: Bob Marley	Sampled by: C. Pigman
Matrix: Aqueous	

Test: EPA 8080

Compound	Result	Units
Arochlor 1016	<1.0	PPB (µg/L)
Arochlor 1221	<1.0	PPB (µg/L)
Arochlor 1232	<1.0	PPB (µg/L)
Arochlor 1242	<1.0	PPB (µg/L)
Arochlor 1248	<1.0	PPB (µg/L)
Arochlor 1254	<1.0	PPB (µg/L)
Arochlor 1260	<1.0	PPB (µg/L)

Decachlorobiphenyl (Surrogate) Recovery = 103 %
Dilution Factor = 1

Test: EPA 8020

Compound	Result	Det. Limit	Units
Benzene	nd	0.5	PPB (µg/L)
Toluene	nd	0.5	PPB (µg/L)
Ethylbenzene	nd	0.5	PPB (µg/L)
Total Xylenes	nd	0.5	PPB (µg/L)

BFB (Surrogate) Recovery = 98 %
Dilution Factor = 1

Results for sample: SB-4

Date collected: 3/29/96	Date received: 3/29/96
Date extracted: 4/1/96	Date Analyzed:4/3/96
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9603125-2
Project Manager: Bob Marley	Sampled by: C. Pigman
Matrix: Non-Aqueous	

Test: EPA 8080 PCBs

Compound	Result	Units
Arochlor 1016	<0.1	PPM (mg/kg)
Arochlor 1221	<0.1	PPM (mg/kg)
Arochlor 1232	<0.1	PPM (mg/kg)
Arochlor 1242	<0.1	PPM (mg/kg)
Arochlor 1248	<0.1	PPM (mg/kg)
Arochlor 1254	<0.1	PPM (mg/kg)
Arochlor 1260	<0.1	PPM (mg/kg)

Dilution = 1

% Decaclorobiphenyl: 77%

Results for sample: Contaminate Cuttings

Date collected: 3/29/96	Date received: 3/29/96
Date extracted: 4/1/96	Date Analyzed:4/1,2/96
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9603125-3
Project Manager: Bob Marley	Sampled by: C. Pigman
Matrix: Non-Aqueous	

Test: EPA 8020

Compound	Result	Det. Limit	Units
Benzene	nd	0.5	PPM (mg/kg)
Toluene	2.1	0.5	PPM (mg/kg)
Ethylbenzene	2.7	0.5	PPM (mg/kg)
Total Xylenes	62	0.5	PPM (mg/kg)

BFB (Surrogate) Recovery = 98 %
Dilution Factor = 1

Test: EPA 418.1

Compound	Result	Det. Limit	Units
TPH	1,000	100	PPM (mg/kg)

Dilution Factor = 5

Results for sample: Clean Cuttings

Date collected: 3/29/96	Date received: 3/29/96
Date extracted: 4/1/96	Date Analyzed: 4/1,2/96
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9603125-4
Project Manager: Bob Marley	Sampled by: C. Pigman
Matrix: Non-Aqueous	

Test: EPA 8020

Compound	Result	Det. Limit	Units
Benzene	nd	0.5	PPM (mg/kg)
Toluene	nd	0.5	PPM (mg/kg)
Ethylbenzene	nd	0.5	PPM (mg/kg)
Total Xylenes	nd	0.5	PPM (mg/kg)

BFB (Surrogate) Recovery = 85 %
Dilution Factor = 1

Test: EPA 418.1

Compound	Result	Det. Limit	Units
TPH	nd	20	PPM (mg/kg)

Dilution Factor = 1

Results for QC: Reagent Blank

Date extracted: 4/1/96	Date Analyzed:4/1,2/96
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: RB 4/1
Project Manager: Bob Marley	Sampled by:NA
Matrix: Aqueous	

Test: EPA 8080

Compound	Result	Units
Arochlor 1016	<1.0	PPB (µg/L)
Arochlor 1221	<1.0	PPB (µg/L)
Arochlor 1232	<1.0	PPB (µg/L)
Arochlor 1242	<1.0	PPB (µg/L)
Arochlor 1248	<1.0	PPB (µg/L)
Arochlor 1254	<1.0	PPB (µg/L)
Arochlor 1260	<1.0	PPB (µg/L)

Decachlorobiphenyl (Surrogate) Recovery = 95%
Dilution Factor = 1

Test: EPA 8020

Compound	Result	Det. Limit	Units
Benzene	nd	0.5	PPB (µg/L)
Toluene	nd	0.5	PPB (µg/L)
Ethylbenzene	nd	0.5	PPB (µg/L)
Total Xylenes	nd	0.5	PPB (µg/L)

BFB (Surrogate) Recovery = 97 %
Dilution Factor = 1

Results for QC: Reagent Blank

Date extracted: 4/1/96	Date Analyzed:4/1,2/96
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: RB 4/1
Project Manager: Bob Marley	Sampled by: NA
Matrix: Non-Aqueous	

Test: EPA 8080 PCBs

Compound	Result	Units
Arochlor 1016	<0.1	PPM (mg/kg)
Arochlor 1221	<0.1	PPM (mg/kg)
Arochlor 1232	<0.1	PPM (mg/kg)
Arochlor 1242	<0.1	PPM (mg/kg)
Arochlor 1248	<0.1	PPM (mg/kg)
Arochlor 1254	<0.1	PPM (mg/kg)
Arochlor 1260	<0.1	PPM (mg/kg)

Dilution = 1
% Decaclorobiphenyl: 95%

Test: EPA 8020

Compound	Result	Det. Limit	Units
Benzene	nd	0.5	PPM (mg/kg)
Toluene	nd	0.5	PPM (mg/kg)
Ethylbenzene	nd	0.5	PPM (mg/kg)
Total Xylenes	nd	0.5	PPM (mg/kg)

BFB (Surrogate) Recovery = 92 %
Dilution Factor = 1

Results for QC: Matrix Spike / Matrix Spike Dup
Blank Spike/Blank Spike Dup

Date extracted: NA	Date analyzed: 4/1,2/96
Client: Daniel B. Stephens and Assoicates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9603122-3 MS/MSD
Project Manager: Bob Marley	BS/BSD 4/1
Matrix: Aqueous	Units: PPB (µg/L)

Test: EPA 8020

Compound	Sample Result	Amount Added	Matrix Spike	MS %	Dup	MS MSD %	RPD
Benzene	<0.5	20.0	20.6	103	105	21.0	2
Toluene	<0.5	20.0	20.4	102	20.6	103	1
Ethylbenzene	<0.5	20.0	19.9	100	20.2	101	1
Total Xylenes	<0.5	60.0	60.3	100	61.4	102	2

Test: EPA 8080 PCB's

Compound	Sample Result	Amount Added	Blank Spike	BS %	BS Dup	BSD %	RPD
Arochlor 1260	<1.0	5.0	4.6	92	4.6	92	0

Results for QC: Matrix Spike / Matrix Spike Dup
Blank Spike/Blank Spike Dup

Date extracted: NA	Date analyzed: 4/1,2/96
Client: Daniel B. Stephens and Assoicates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9604004-7 MS/MSD
Project Manager: Bob Marley	BS/BSD 4/1
Matrix: Non-Aqueous	Units: PPM (mg/kg)

Test: EPA 8020

Compound	Sample Result	Amount Added	Matrix Spike	MS %	Dup	MS MSD %	RPD
Benzene	<0.05	1.00	0.82	82	0.75	75	13
Toluene	<0.05	1.00	0.83	83	0.75	75	8
Ethylbenzene	<0.05	1.00	0.87	87	0.80	80	7
Total Xylenes	<0.05	3.00	2.69	90	2.52	84	6

Test: EPA 8080

Compound	Sample Result	Amount Added	Blank Spike	BS %	BS Dup	BSD %	RPD
Arochlor 1260	<0.1	0.5	0.48	96	0.51	102	6

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite C
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Client: DANIEL B, STEPHENS & ASSOC,
Address: 6020 ACADEMY NE #100 ALBUQUERQUE NM 87109
Phone #: 505-822-9400
Fax #: 505-822-8877

Project Name: ENRON THORBAU
Project #: 4105.2.2
Project Manager: BOB MARLEY
Sampler: C. PIGMAN
Samples Cold? ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: Other	HEAL No.
3/29/96	1110	H_2O	FILTERED PURGE H_2O	2/40ml 1L	X		NONE	9603125-1
3/29/96	1245	SOIL	SB-4	8OZ			NONE	-2
3/29/96	1415	SOIL	CONTAMINATE CUTTINGS	2/8OZ			NONE	-3
3/29/96	1425	SOIL	CLEAN CUTTINGS	2/8OZ			NONE	-4
		TRIP BLANK		2/40ml		X		-5

ANALYSIS REQUEST

BTEX + MTBE (602/8020)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015 MOD (Gas/Diesel)	THP (Method 418.1)	8010/8020 Volatiles	EDB (Method 504)	EDC	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	Basic Soil Test (PH, EC, SAR, PSA)	8080 Pesticides / (PCB's only)	8020 BTEX			Air Bubbles or Headspace (Y or N)
												X	X			
												X	~~X~~ DO NOT RUN 8020 ON SB			
			X										X			
			X										X			
			X										X			

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
3/29/96	1703	Clarence Pigman	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks: RUN 8020 BTEX ON 8010 INST SAM INSTEAD OF PID

FAX (505) 625-8060

Phone (505) 623-2761

Transwestern Pipeline Company
TECHNICAL OPERATIONS
6381 North Main • Roswell, New Mexico 88201

April 12, 1996

Mr. Patricio Sanchez
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Renewal of Discharge Plan GW-080, Thoreau Compressor Station

Dear Mr. Sanchez:

Transwestern Pipeline Company (Transwestern), owner and operator of the Thoreau Compressor Station, is in receipt of the Oil Conservation Division's (OCD) February 28, 1996 letter, requesting renewal of the above referenced discharge plan. By this letter and the attached application, Transwestern requests renewal of the discharge plan for the Thoreau Compressor Station. Under the original application submitted on August 22, 1991, Transwestern provided all necessary and accurate information and was issued GW-080 by the OCD on November 14, 1991.

During the five (5) year operating period of this approved plan, the activities at the facility which are covered under this plan have remained consistent. this includes the groundwater monitoring activity. The only information not addressed under the plan, and is presently ongoing, is a remediation activity in which hydrocarbon materials are being removed from the underlying groundwater. The OCD has been apprised of this activity in subsequent notifications. Transwestern has installed a series of monitor and production wells to address removal of the hydrocarbon constituents present.

As required under 3-114 of the Water Quality Control Regulations, enclosed find a $50.00 (check no. 0602012035) nonrefundable filing fee for this renewal application.

If you should require any additional information concerning this renewal application, contact our Roswell Technical Operations at (505) 625-8022.

Sincerely,

Larry Campbell

Larry Campbell
Division Environmental Specialist

xc: Butch Russell
Roger Osborn
Arnie Bailey
file

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
APR 17 1996
Environmental Bureau
Oil Conservation Division

Revised 12/1/95

Submit Original Plus 1 Copies to Santa Fe
1 Copy to appropriate District Office

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

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

☐ New ☒ Renewal ☐ Modification

1. Type: Natural Gas Compressor Station
2. Operator: Transwestern Pipeline Company Thoreau Compressor Station
   Address: 6381 North Main Street, Roswell N.M 88201
   Contact Person: Larry Campbell Phone: (505) 625-8022
3. Location: SE 1/4 ____/4 Section 20 Township 14 N Range 13W
   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 herby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Larry Campbell Title: Division Environmental Specialist

Signature: Larry Campbell Date: 3/11/96

TRANSWESTERN PIPELINE COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

ENRON CORP

0019801 SD 7628 EMSA3 04/02/96

NMED-WATER QUALITY MANAGEMENT
OIL CONSERVATION DIVISION
2040 SOUTH PACHECO ST
SANTA FE, NM
87504-

RECEIVED
APR 17 1996
Environmental Bureau
Oil Conservation Division

VENDOR NO. #822134121

REMITTANCE STATEMENT

VOUCHER NO.	INVOICE DATE	INVOICE NUMBER	PURCHASE ORDER	AMOUNT		
				GROSS	DISCOUNT	NET
9603000190	03/05/96	INV030596		50.00	0.00	50.00
			ACCOUNTS PAYABLE THOREAU C/S DISCHARGE PLAN FEE			
					TOTAL	50.00

SPECIAL INSTRUCTIONS:
MAIL TO:TRANSWESTERN 6381 N.MAIN ROSWELL,NM 88201

DETACH AND RETAIN THIS STUB FOR YOUR RECORDS.

CHECK # [redacted] ATTACHED BELOW

ENRON CORP

TRANSWESTERN PIPELINE COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

62-20
311

No. [redacted]

04/02/96

PAY TO THE ORDER OF

NMED-WATER QUALITY MANAGEMENT
OIL CONSERVATION DIVISION
2040 SOUTH PACHECO ST
SANTA FE, NM
87504-

$$$$$$$$$$$$$$$$50.00

NOT VALID AFTER 60 DAYS

Fifty and 00/100 Dollars

VOID VOID

X

AUTHORIZED SIGNATURE

CITIBANK DELAWARE, A SUBSIDIARY OF CITICORP
ONE PENN'S WAY, NEW CASTLE, DE 19720

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

April 4, 1996

Mr. Larry Campbell
Division Environmental Specialist
Technical Operations
Transwestern Pipeline Company
6381 North Main
Roswell, New Mexico 88201

Re: Historic PCB Release at Transwestern Pipeline Company's Compressor Station No. 5, Thoreau, New Mexico

Dear Mr. Campbell:

This letter is being sent in response to a February 7, 1996 meeting and your March 7, 1996 letter requesting a site-specific exemption for PCB cleanup levels associated with the historic practice of draining hydrocarbon liquids (contaminated with PCBs in excess of 50 ppm) from a fuel filter into a bottomless cistern at the above referenced site. Based on information Transwestern Pipeline Company (TPL) has provided to EPA, we approve of the exemption for PCB levels associated with the subsurface soils underlying a cistern and in the proximity of the cistern, subject to certain conditions.

Based on conversations and correspondence, it is EPA's understanding that the past operating practices of TPL at the above referenced site included removing hydrocarbon liquids from the inlet gas prior to ignition in the compressor engines. During the late 60's or early 70's (exact date unknown), a 1/2" drainage pipe was connected to the fuel filter and a small amount of hydrocarbon liquids, which were caught in the filter, were directed to a small 8"X30" galvanized cistern outside of the compressor building. Because the cistern was bottomless, the collected PCB contaminated fluids were released to the subsurface soils underlying the cistern. In August, 1995, TPL discovered and voluntarily brought to EPA's attention, the release of PCB contaminated pipeline condensate from this cistern. Two sampling investigations were conducted prior to excavation of the area in October, 1995. Approximately 52 cubic yards of PCB contaminated soil was removed and disposed of in a TSCA regulated landfill. Confirmation sampling of the exposed sidewall and excavation floor revealed regulated levels of PCBs only to be present in the undisturbed soils of the southwest sidewall and floor at 140 ppm, respectively. Further sampling was conducted south and west of areas of concern. Based upon the sampling results, the remaining levels (maximum

level of 280 ppm PCBs) of regulated contamination appear to be restricted to the soil materials underlying the excavation floor and in the soils southwest of the excavation (8.31 ppm PCBs).

TPL is requesting this site-specific exemption based on concern for employee safety and operational liabilities with the open excavation and potential instability of the nearby equipment and piping. The residual soil PCB levels appear to be confined mainly to the excavation floor, underneath the excavation floor and trending in a southwesterly direction. This is in the direction of the compressor building which houses the engines and compresses the gas at the facility. Between the compressor building and excavation there exists numerous underground piping, structural and foundation supports which are necessary components to ensure safe operation of the equipment. Currently, the excavation is within 2 feet of a gas cooler support structure. TPL has installed shoring support structures in the immediate area of the excavation. TPL states that additional excavation activities in a horizontal or vertical direction could cause a catastrophic emergency to occur. Because natural gas at pressures exceeding 1000 psi are associated with the piping and equipment components at this location, a movement or shift by this equipment as a result of the soil stresses and failure of the sidewall could be disastrous, and could possibly cause an explosion and/or fire.

Based on the above facts, EPA will allow TPL to discontinue excavation activities at this time. EPA requires that the excavation bottom be filled with at least three (3) feet of compacted clay with a permeability (cm/sec) equal to or less than 1×10^{-7}. The remainder of the excavation should be backfilled with clean soil. A six (6) inch concrete cap should be constructed over the area, extending at least two feet beyond the perimeter excavation area. The pad should be contoured to drain water away from under the cooling tower area. TPL shall also deed record the area of contamination and provide a copy of said addition to the deed to EPA. In the future, if TPL reconfigures this area so that there is more accessibility to this area, TPL will be required to cleanup and properly dispose of the PCB contamination to the appropriate EPA standards at the time.

EPA wishes to make it clear that this letter serves as an informal approval of TPL's request to discontinue excavation at the Compressor Station No. 5, Thoreau, New Mexico. This informal approval does not absolve TPL of any enforcement liability under TSCA or any other statute and TPL must comply with any and all applicable Federal, State and/or local requirements and regulations.

Also, as you are aware on May 31, 1990, in the U.S. District Court in New Mexico was entered a Consent Decree between EPA, Region 6 and Transwestern Pipeline Company, Houston, Texas for the characterization and remediation of PCB contamination at four natural gas compressor stations and ancillary facilities, if appropriate, in New Mexico. This Consent Decree was terminated in U.S. District Court, New Mexico on March 8, 1993 as TPL certified that all terms and conditions of the settlement had been met. It was EPA's belief under the auspices of the Consent Decree that all PCB contamination had been identified and remediated. Obviously this was not the case, as TPL recently identified the PCB contamination that is the subject of this correspondence. EPA encourages TPL to examine all compressor stations west of the Corona, New Mexico Compressor Station for similar historical operating practices, appropriate characterization and, if applicable, remediation.

If you have any questions concerning this response, please call Donna Mullins, of my staff at (214) 665-7576.

Sincerely,

Carol D. Peters

Carol D. Peters
Chief
Toxics/Enforcement Section
(6EN-AT)

cc: Roger Anderson, NMOCD

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 4/2/96,

or cash received on _____ in the amount of $ 50.00

from Transwestern (ENRON

for Thoreau C.S GW-080

(Facility Name) (DP No.)

Submitted by: _____ Date: _____

Submitted to ASD by: R. Chudes Date: 5/9/96

Received in ASD by: M. Smyth Date: 5-20-96

Filing Fee X New Facility ___ Renewal ___

Modification ___ Other _____

(specify)

Organization Code 521.07 Applicable FY 96

To be deposited in the Water Quality Management Fund.

Full Payment ___ or Annual Increment ___

ENRON CORP

TRANSWESTERN PIPELINE COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

62-20
311

No. [redacted]

04/02/96

PAY TO THE ORDER OF

NMED-WATER QUALITY MANAGEMENT
OIL CONSERVATION DIVISION
2040 SOUTH PACHECO ST
SANTA FE, NM
87504-

$SSSSSSSSSSSSS50.00

NOT VALID AFTER 90 DAYS

Fifty and 00/100 Dollars

X

AUTHORIZED SIGNATURE

CITIBANK DELAWARE, A SUBSIDIARY OF CITICORP
ONE PENN'S WAY, NEW CASTLE, DE 19720

[redacted]

TRANSWESTERN PIPELINE COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

ENRON CORP

GW-80 - Renewal filing Fee

0019801 SD 7628 EMSA3 04/02/96

NMED-WATER QUALITY MANAGEMENT
OIL CONSERVATION DIVISION
2040 SOUTH PACHECO ST
SANTA FE, NM
87504

PG 1 OF 1

RECEIVED

APR 17 1996

Environmental Bureau
Oil Conservation Division

VENDOR NO. #822134121

REMITTANCE STATEMENT

VOUCHER NO.	INVOICE DATE	INVOICE NUMBER	PURCHASE ORDER	AMOUNT GROSS	AMOUNT DISCOUNT	AMOUNT NET
9603000190	03/05/96	INV030596		50.00	0.00	50.00
			ACCOUNTS PAYABLE THOREAU C/S DISCHARGE PLAN FEE			
						TOTAL 50.00

SPECIAL INSTRUCTIONS:
MAIL TO:TRANSWESTERN 6381 N.MAIN ROSWELL,NM 88201

DETACH AND RETAIN THIS STUB FOR YOUR RECORDS. CHECK # [redacted] ATTACHED BELOW

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

Z 765 963 123

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to TWPC - Larry Campbell	
Street and No. 6381 N. Main	
P.O., State and ZIP Code Roswell, NM 88201	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, March 1993

March 26, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-963-123

Mr. Larry Campbell
Division Environmental Specialist
Transwestern Pipeline Company
6381 North Main
Roswell, NM 88201

RE: Historic Hydrocarbon Release
Thoreau Compressor Station GW-080
McKinley County, New Mexico

Dear Mr. Campbell:

The OCD has received the letter dated March 14, 1996 regarding the "Historic Hydrocarbon Release." This release was associated with a fuel filter and as the OCD understands the implication of your letter - this particular release would not have contained PCB's. The levels for BTEX and TPH in the report prepared by the METRIC Corporation dated February 28, 1996 are below the OCD clean-up guidelines for soils. Based on the above information no further action with regards to this spill will be required regarding sampling or delineation of possible contamination associated with this spill.

Please note, OCD approval does not relieve Transwestern Pipeline Company of liability should it later be found that contamination to groundwater was caused by this spill. Further, OCD approval does not relieve Transwestern Pipeline Company from other Federal, State, and Local rules/regulations that may apply.

If you have any questions please feel free to call (505)-827-7156.

Sincerely,

Patricio W. Sanchez
Petroleum Engineering Specialist

xc: Denny Foust

FAX (505) 625-8060

Phone (505) 623-2761

Transwestern Pipeline Company
TECHNICAL OPERATIONS
6381 North Main • Roswell, New Mexico 88201

March 14, 1996

Mr. Pat Sanchez
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87504

Re: Historic Hydrocarbon Release at Transwestern Pipeline Company's, Compressor Station No. 5, Thoreau, New Mexico

Dear Mrs. Sanchez:

Transwestern Pipeline Company (Transwestern), is providing the following information to your agency as a result of a historic release of PCB's which occurred at the above referenced facility. This information, provides an account of the remediation activities completed to date to cleanup this release. Past operating practices at the compressor station included removing hydrocarbon liquids from the inlet fuel gas prior to ignition in the compressor engines. During the late 60's or early 70's (exact date unknown), a 1/2" drainage pipe was connected to the fuel filter and the small amount of hydrocarbon liquids which were caught and collected in the filter were directed to a small 8"x30" galvanized cistern outside of the compressor building. Because the cistern had no bottom, collected liquids were released to the subsurface soils underlying the cistern.

In August of 1995, Transwestern discovered the release of pipeline condensate from this cistern. Transwestern initiated a soil sampling program to determine qualitative characterization of the soils impacted by the release. Excavation of the contaminated soil began in October of 1995, with approximately 52 cubic yards (10'x10'x14') of soils being removed and disposed of in an approved regulated landfill facility. Confirmation sampling of the exposed sidewall and excavation floor revealed the hydrocarbon contamination to be detection levels of the analytical equipment. A soil investigation conducted by METRIC Corporation, for which a copy of the report has been submitted to your agency, confirmed there to be no residual contamination present. The required OCD notification report for the historic release accompanies this letter.

Should you require additional information concerning this request, contact our Roswell office of Operations and Commercial Support at (505) 625-8022.

Sincerely,

Larry Campbell

Larry Campbell
Division Environmental Specialist
xc: file

NEW MEXICO OIL CONSERVATION COMMISSION

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

NAME OF OPERATOR	TRANSWESTERN PIPELINE COMPANY				ADDRESS		
REPORT OF	FIRE	BREAK	SPILL	LEAK	BLOWOUT	OTHER*	RELEASE - CONTROLLED
TYPE OF FACILITY	DRLG WELL	PROD. WELL	TANK BTTY	PIPE LINE	GASO PLNT	OIL RFY	OTHER* COMPRESSOR STATION
NAME OF FACILITY	COMPRESSOR STA. #5, THOREAU						
LOCATION OF FACILITY (QUARTER/QUARTER SECTION OR FOOTAGE DESCRIPTION)	SE ¼				SEC. 20	TWP. 14 N	RGE. 13 W / COUNTY MCKINLEY
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	2.5 miles North of Thoreau, New Mexico						
DATE AND HOUR OF OCCURENCE	UNKNOWN - HISTORIC BEFORE 1980				DATE AND HOUR OF DISCOVERY		
WAS IMMEDIATE NOTICE GIVEN?	YES	NO X	NOT REQUIRED		IF YES, TO WHOM		
BY WHOM					DATE AND HOUR		
TYPE OF FLUID LOST	PIPELINE CONDESATE				QUANTITY OF LOSS	UNKNOWN	VOLUME RECOVERED NONE
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN** LIQUIDS IN THE FUEL GAS WERE DIRECTED TO A BELOW GRADE CISTERN FOR DISPOSAL. UPON TRANSWESTERN'S IDENTIFICATION OF THE HYDROCARBON CONTAMINATION, THE SOILS HAVE BEEN EXCAVATED. REFER TO ATTACHED ANALYTICAL AND SAMPLING LOCATIONS.

DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN** HYDROCARBON CONTAMINATED SOILS HAVE BEEN EXCAVATED AND DISPOSED OF AT A REGULATED LANDFILL. THIS EXCAVATION RESULTED IN APPROXIMATELY 52 CUBIC YARDS (10'x10'x14') OF SOILS WHICH WERE REMOVED. CONFIRMATION SAMPLES WERE COLLECTED TO VERIFY CLEANUP (TPH < 100 PPM, BTEX < 10 PPM)

DESCRIPTION OF AREA	FARMING	GRAZING	URBAN	OTHER* COMPRESSOR STATION YARD			
SURFACE CONDITIONS	SANDY	SANDY LOAM X	CLAY	ROCKY	WET	DRY X	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNED Larry Campbell TITLE Division Environ Specialist DATE 2/28/96

*SPECIFY **ATTACH ADDITIONAL SHEETS IF NECESSARY

ENRON
Transwestern Pipeline Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

April 1, 1996

Fax received on 4/2/96 Will Olson

Mr. William C. Olson
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

RE: Groundwater Remediation System Start-up & Groundwater Sampling
Transwestern Pipeline Company
Thoreau Compressor Station No. 5

Dear Bill,

Transwestern has scheduled to start-up the second phase of the groundwater remediation system at the Thoreau Compressor Station on Wednesday, April 17, 1996.

In addition to the remediation system start-up activities, Transwestern also plans to collect groundwater samples from monitor wells MW-1B and MW-6B. Analytical results for groundwater samples previously collected from these two monitor wells have indicated low levels of PCB compounds. From the time the monitor wells were originally installed, Transwestern has suspected that the presence of PCB compounds in groundwater at these two monitor wells was due to monitor well installation practices which allowed PCB compounds in surface soil to be carried down the soil boring during installation. In support of this explanation, more recent analyses have been non-detect for PCB compounds indicating possibly a very limited source had been present in the monitor well completions. In light of this development, Transwestern has scheduled to sample these two monitor wells in conjunction with start-up activities in anticipation that all other interested parties, specifically the NNEPA and the NMOCD, could be present to witness and split samples.

Please contact me at (713) 646-7318 or George Robinson at (713) 646-7327 if you have any questions or comments regarding this issue or if a schedule change is necessary for your staff to be present during the sampling activities.

Yours Very Truly,

Fenley "Ted" Ryther, Jr., PE
Environmental Affairs

TR/gcr

xc: Julie Curtiss — NNEPA Superfund Program — Via Fax (520-871-7333)
Denny Foust — NMOCD Aztec District Office
George Robinson — Cypress Engineering Services

ENRON
Transwestern Pipeline Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

April 1, 1996

Fax received on 4/2/96 Will Olson

Ms. Lorenda Joe
Acting Director, Navajo EPA
P.O. Box 9000
Window Rock, AZ 86515

RE: Groundwater Remediation System Start-up & Groundwater Sampling
Transwestern Pipeline Company
Thoreau Compressor Station No. 5

Dear Ms. Joe,

Transwestern has scheduled to start-up the second phase of the groundwater remediation system at the Thoreau Compressor Station on Wednesday, April 17, 1996.

In addition to the remediation system start-up activities, Transwestern also plans to collect groundwater samples from monitor wells MW-1B and MW-6B. Analytical results for groundwater samples previously collected from these two monitor wells have indicated low levels of PCB compounds. From the time the monitor wells were originally installed, Transwestern has suspected that the presence of PCB compounds in groundwater at these two monitor wells was due to monitor well installation practices which allowed PCB compounds in surface soil to be carried down the soil boring during installation. In support of this explanation, more recent analyses have been non-detect for PCB compounds indicating possibly a very limited source had been present in the monitor well completions. In light of this development, Transwestern has scheduled to sample these two monitor wells in conjunction with start-up activities in anticipation that all other interested parties, specifically the NNEPA and the NMOCD, could be present to witness and split samples.

Please contact me at (713) 646-7318 or George Robinson at (713) 646-7327 if you have any questions or comments regarding this issue or if a schedule change is necessary for your staff to be present during the sampling activities.

Yours Very Truly,

Fenley "Ted" Ryther, Jr., PE
Environmental Affairs

TR/gcr

xc:	Julie Curtiss	NNEPA Superfund Program	Via Fax (520-871-7333)
	Bill Olson	New Mexico Oil Conservation Division	
	Denny Foust	NMOCD Aztec District Office	
	George Robinson	Cypress Engineering Services	

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 8:45 AM	Date 3-14-96

Originating Party	Other Parties
Pat Sanchez - OCD	Larry Campbell - TWPC

Subject Report Submitted by "Metric Corporation" Dated Feb. 28, 1996 sent to Mr. Larry Campbell.

Discussion (1) Called Larry and asked him what the purpose of the above mentioned report is? He said it was part of spill investigation and I should of recieved a letter and spill report. I told him I had not recieved the letter or spill report form.

Conclusions or Agreements Larry will mail me a cover letter and spill report. - Since there is no contamination I will follow up with a letter indicating no further action is required. as no contaminents above levels Present.

Distribution File.

Signed Patricia A. Sanchez

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

March 13, 1996

CERTIFIED MAIL
RETURN RECEIPT NO: Z-765-962-552

Mr. Larry Campbell
Transwestern Pipeline Company
6381 North Main
Roswell, New Mexico 88201

RE: GROUND WATER MONITORING REPORTS
EUNICE STATION
THOREAU STATION
WT-1 STATION
ATOKA-1 STATION
BELL LAKE PLANT

Dear Mr. Campbell:

The New Mexico Oil Conservation Division (OCD) has completed a review of Transwestern Pipeline Company's (TPC) January 11, 1996 "REPORTING REQUIREMENTS FOR GROUND WATER REMEDIATION PROJECTS, TRANSWESTERN PIPELINE COMPANY". This document contains TPC's request to change the reporting frequency and ground water monitoring report submission dates for the Eunice Station, Thoreau Station, WT-1 Station, Atoka 1 Station and Bell Lake Plant.

The above referenced request is approved.

Please be advised that OCD approval does not relieve TPC of liability should contamination exist which is outside the scope of work plan, or if the proposed work plan fails to the adequately remediate or monitor contamination at the sites. In addition, OCD approval does not relieve TPC of responsibility for compliance with any other federal, state or local laws and/or regulations.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Artesia District Office
George Robinson, Cypress Engineering Services, Inc.

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 28, 1996

Z 765 963 030

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Mr. Larry Campbell	
Street and No. Thoreau-GW-80	
P.O., State and ZIP Code	
Postage	$
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PS Form 3800, March 1993

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-963-030

Mr. Larry Campbell
Division Environmental Specialist
Transwestern Pipeline Company
6381 North Main
Roswell, NM 88201

RE: Discharge Plan Renewal
Thoreau Compressor Station GW-080
McKinley County, New Mexico

Dear Mr. Campbell:

The OCD on December 1, 1995 sent a renewal letter to Mr. James Russell with Transwestern Pipeline Company and found out through phone conversation that the renewal information should have been sent to Mr. Larry Campbell.

Enclosed you will find a copy of the renewal letter dated December 1, 1995 along with the WQCC Regulations and OCD Guidelines and Application form as revised December, 1995. Please review these current regulations and guidelines and include any changes from the previous regulations and guidelines in the renewal application. As was stated in the renewal letter the discharge plan will expire on November 14, 1996.

If you have any questions please feel free to call (505)-827-7156.

Sincerely,

Patricio W. Sanchez
Petroleum Engineer

Enclosures
xc: Denny Foust

THE
NAVAJO
NATION

P.O. BOX 9000 • WINDOW ROCK, ARIZONA 86515 • (602) 871-4941

ALBERT HALE
PRESIDENT

THOMAS ATCITTY
VICE-PRESIDENT

February 26, 1996

Fenley Ryther, Jr.
Permits Group Manager
ENRON Operations Corporation
P.O. Box 1188
Houston, TX 77251-1188

Re: Semi-annual Report of Groundwater Remediation Activities, Transwestern Pipeline Company Thoreau Compressor Station No. 5, Thoreau, NM

Dear Mr. Ryther,

The Navajo Nation Environmental Protection Agency (NNEPA) has completed its review of ENRON Operations Corporation's (ENRON's) "Semi-annual Report of Groundwater Remediation Activities." NNEPA concurs with the content of the Report.

Julie Curtiss, NNEPA project manager for this site, has spoken with George Robinson about a few data deficiencies within Table 3. Also, the attached pages are an example of a similar format used by the United Nuclear Corporation when reporting results of their quarterly sampling, and which allows all sampled constituents to be shown for each well.

Once again, I would like to express my gratitude to ENRON for the open and cooperative attitude displayed during discussion and development of the Remediation Plan, and especially the willingness that you and George Robinson have shown in amending the plan to address Navajo Nation concerns. My staff looks forward to continuing to work with you.

Please contact Julie Curtiss, Navajo Superfund Program, (520) 871-6859, with any further comments or questions.

Sincerely,

Lorenda Joe, Acting Director
Navajo Nation Environmental Protection Agency

xc: George Robinson
Cypress Engineering Services, Inc.
16300 Katy Freeway, Suite 105
Houston, TX 77094

William C. Olson, Project Manager
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Charmaine Tso, Groundwater Pollution Control, NNEPA
Mike Johnson, Water Resources Dept.
Chrono: J. Curtiss
ENRON file

TABLE C.2

ZONE 3 WATER QUALITY SUMMARY
THIRD QUARTER 1989 THROUGH THIRD QUARTER 1995

General Notes:

1. NRC standard as listed in License Condition 30, Part B.
2. EPA standard as listed in Table 2, "Contaminant-Specific Groundwater ARARs" of the ROD (EPA, 1988c). Recommendations have been made for revising EPA standards for TDS, NO3 and SO4.
3. NA - Not applicable.
4. "-" (Minus sign) indicates that the concentration is less than the laboratory limits of detection. A minus sign for combined Ra-226 and Ra-228 indicates that at least one of these constituents was less than the laboratory limits of detection, which are 0.2 and 1.0 pCi/l, respectively.
5. All values that exceed the NRC and/or EPA standards are shaded.
6. Gross alpha value excludes contribution from radon and uranium.
7. "*" (Asterisk) indicates a Point of Compliance well.

Specific Notes:

a. Insufficient water for sampling, 4th quarter 1991.
b. Insufficient water for sampling, 3rd quarter 1992.
c. Insufficient water for sampling, 4th quarter 1993.
d. Insufficient water for sampling, 4th quarter 1992.
e. The water level in EPA-11 fell below the pump inlet after 2nd quarter 1990. The pump is cemented in place and cannot be lowered.
f. Insufficient water for sampling, 1st quarter 1992.
g. Insufficient water for sampling, 3rd quarter 1992.
h. Well EPA-18's sump is within the Zone 2 formation. The water level in this well has dropped below the bottom of Zone 3, and the water quality may not be indicative of Zone 3 conditions.

TABLE C.2

ZONE 3 WATER QUALITY SUMMARY
THIRD QUARTER 1989 THROUGH THIRD QUARTER 1995

		Constituent Concentrations														
Well No.	Date	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/l)	Ca (mg/l)	Cl (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	HCO3 (mg/l)	NH4 (mg/l)	NO3 (mg/l)	SO4 (mg/l)	Al (mg/l)	Co (mg/l)	Mn (mg/l)	Mo (mg/l)
NRC Standard		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA Standard		NA	NA	3,170	NA	250.0	NA	NA	NA	NA	NA	30.00	2,160	5.00	0.05	2.60	1.00
0106 D	7/18/89	4.2	4.66	4,068	476	45.7	17.3	425	113.0	2.0	1.12	67.00	2,928	8.00	0.15	12.00	-0.10
0106 D	10/11/89	4.7	4.76	4,182	465	46.3	21.2	332	113.0	6.8	0.97	52.00	2,582	6.50	0.16	12.00	0.06
0106 D	1/4/90	4.3	4.37	4,150	466	47.5	16.4	339	110.0	0.0	0.86	56.00	2,502	7.40	0.14	12.00	-0.10
0106 D	4/10/90	4.3	4.93	4,180	483	48.2	17.0	350	110.0	6.8	1.54	58.00	2,452	7.80	0.12	12.00	-0.10
0106 D	7/10/90	4.6	4.76	4,259	455	44.2	15.1	332	99.4	8.5	0.14	64.30	2,439	6.50	0.12	12.40	-0.10
0106 D	10/9/90	4.5	4.99	4,256	437	50.0	14.6	342	113.0	9.8	0.13	52.00	2,536	4.30	0.11	11.60	-0.10
0106 D	1/15/91	4.8	6.35	4,121	545	56.0	13.3	383	112.0	65.0	0.12	57.50	2,563	0.77	0.07	7.70	0.18
0106 D	4/9/91	5.2	6.69	4,014	591	55.3	11.6	380	117.0	125.0	0.10	67.00	2,481	0.29	0.04	4.20	0.21
0106 D(a)	7/9/91	4.9	5.89	4,247	575	156.0	13.7	360	99.0	20.0	0.49	44.30	2,770	0.90	0.07	7.90	0.20
0009 D	7/18/89	4.6	4.56	7,365	465	100.0	10.7	963	158.0	1.0	0.79	2.50	5,061	43.00	0.65	14.00	-0.10
0009 D	10/12/89	4.4	4.10	8,276	439	108.0	13.4	1,013	159.0	0.0	0.87	2.40	5,508	90.00	0.94	17.00	-0.01
0009 D	1/4/90	4.4	4.04	8,330	431	94.4	10.0	940	160.0	0.0	0.60	0.55	5,597	96.00	1.00	18.00	-0.10
0009 D	4/10/90	4.4	4.41	7,222	447	99.1	9.1	856	160.0	0.0	1.08	6.30	4,688	46.00	0.75	15.00	-0.10
0009 D	7/10/90	4.4	4.14	8,932	473	101.0	9.5	1,012	153.0	0.0	0.37	0.26	6,126	155.00	0.83	19.30	-0.10
0009 D	10/9/90	4.3	4.21	9,372	435	124.0	9.7	1,094	172.0	0.0	0.24	0.10	6,551	153.00	1.52	23.00	-0.10
0009 D	1/15/91	4.5	4.37	7,769	469	113.0	11.6	887	159.0	0.0	0.65	0.12	5,383	50.40	0.71	12.80	-0.10
0009 D	4/9/91	4.2	4.18	9,518	485	80.2	10.7	1,106	163.0	0.0	1.04	0.39	6,305	115.00	0.83	13.10	-0.10
0009 D	7/9/91	4.3	4.40	8,444	412	44.1	8.9	883	141.0	0.0	1.18	0.05	5,661	76.60	0.79	17.00	-0.10
0009 D	10/14/91	4.1	4.35	8,946	363	191.0	8.3	717	160.0	0.0	2.30	-0.01	5,904	128.00	1.30	22.10	-0.10
0009 D	1/21/92	4.3	4.31	8,112	444	108.0	10.2	1,028	153.0	0.0	1.11	1.24	5,648	55.10	0.74	17.10	-0.10
0009 D (b)	4/7/92	4.3	4.09	8,533	426	124.0	11.5	767	185.0	0.0	1.31	-0.10	5,628	160.00	1.24	22.00	-0.10
0518*	7/23/89	3.3	3.44	9,675	443	64.6	35.8	764	236.0	0.0	123.00	22.00	6,727	420.00	1.70	41.00	-0.10
0518*	10/11/89	3.2	3.32	10,260	417	133.0	46.8	770	223.0	0.0	77.20	29.00	6,908	500.00	1.80	44.00	-0.01
0518*	1/3/90	3.0	3.00	10,370	440	108.0	30.0	748	228.0	0.0	40.40	18.70	6,962	410.00	1.90	41.00	-0.01
0518*	4/3/90	2.9	3.26	10,524	431	84.0	29.2	850	223.0	0.0	52.00	28.00	6,989	430.00	2.10	50.00	-0.01
0518*	7/10/90	3.3	2.95	9,505	415	67.0	22.3	768	198.0	0.0	34.40	16.00	6,226	299.00	1.17	36.50	-0.10
0518*	10/9/90	3.1	3.30	11,417	439	87.9	27.5	900	248.0	0.0	45.20	20.60	7,573	406.00	2.75	51.00	-0.10
0518*	1/4/91	3.4	3.62	7,402	476	85.7	33.5	168	158.0	0.0	12.60	0.58	4,846	128.00	1.00	19.80	-0.10
0518*	4/10/91	3.8	4.11	7,370	471	38.3	14.2	686	119.0	0.0	8.80	-0.01	4,597	82.10	0.70	11.13	-0.10
0518*	7/16/91	3.7	3.64	7,248	467	23.8	12.8	685	136.0	0.0	7.60	-0.01	5,539	64.90	0.96	16.40	-0.10
0518*	10/14/91	3.6	3.30	7,257	363	41.8	11.1	493	145.0	0.0	7.20	-0.01	4,652	73.20	0.97	16.80	-0.10
0518*	1/14/92	3.6	3.79	7,008	385	66.8	12.9	645	128.0	0.0	9.30	-0.01	4,442	63.10	1.43	14.00	-0.10
0518*	4/7/92	3.7	3.44	7,028	419	32.7	15.5	581	150.0	0.0	6.87	-0.10	4,452	41.20	0.86	18.10	-0.10
0518*	7/7/92	3.4	3.07	8,076	428	47.8	25.5	574	244.0	0.0	17.00	-0.10	5,279	161.00	1.13	20.80	-0.10
0518*	10/13/92	3.5	2.99	8,062	447	48.2	17.8	613	168.0	0.0	17.30	-0.10	5,260	123.00	1.17	20.30	-0.10

Refer to Page 1 for explanatory notes.

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

January 31, 1996

Mr. William C. Olson
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

RE: Semi-annual Report of Groundwater Remediation Activities
Transwestern Pipeline Company Thoreau Compressor Station
McKinley County, New Mexico

Dear Bill,

The attached report is submitted pursuant to the NMOCD's requirements for semi-annual reporting of groundwater remediation activities at the subject facility. Because this is the first semi-annual report to be submitted, this report also contains some information regarding activities completed prior to the 3rd and 4th quarters, 1995.

If you have any questions or comments regarding this report, please contact me at (713) 646-7318 or George Robinson at (713) 646-7327.

Yours Very Truly,

Ted

Fenley "Ted" Ryther, Jr., PE
Environmental Affairs

TR/gcr

xc w/attachments:	Julie Curtiss	NNEPA Superfund Program
	Denny Foust	NMOCD Aztec District Office
	Larry Campbell	TW Technical Operations
	George Robinson	Cypress Engineering Services

THE
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P.O. BOX 9000 • WINDOW ROCK, ARIZONA 86515 • (602) 871-4941

ALBERT HALE
PRESIDENT

THOMAS ATCITTY
VICE-PRESIDENT

January 22, 1996

Fenley Ryther, Jr.
Permits Group Manager
ENRON Operations Corporation
P.O. Box 1188
Houston, TX 77251-1188

Re: Revised Proposed Groundwater Remediation Plan, Transwestern Pipeline Company Compressor Station No. 5, Thoreau, NM

Dear Mr. Ryther,

The Navajo Nation Environmental Protection Agency (NNEPA) has completed its review of ENRON Operations Corporation's (ENRON's) "Response to Navajo Nation EPA Stipulations and Specific Comments on the Proposed Remediation Plan for Thoreau Compressor Station No. 5." NNEPA approves the Ground Water Remediation Plan, as amended, which includes the NNEPA stipulations and ENRON's responses. The Remediation Plan is viewed as a strong set of guidelines, subject to change based on future discussions and decisions about outstanding or new issues.

NNEPA has the following comments regarding ENRON's responses:

Stipulation 3: Based on discussions with ENRON staff, the configuration of the Phase II and Phase III systems may be changed in the future, depending on levels of contaminants extracted at the SVE wells. Specifically, if contaminant levels reach zero within the first year of operation at Well SVE-2, sparge points may be moved to the east end of the system, in the vicinity of Well 5-5B.

Section 4.2, PCBs: NNEPA concurs with the proposal to address PCBs separately. Any changes to the Remediation Plan based on these discussions will be commemorated as amendments to the Plan.

Section 4.3, Well Designations: NNEPA concurs with ENRON's categorization of Well 5-23B as a "clean perimeter well," provided that DOC levels stay steady or increase above the current level, and no BTEX is detected during future sampling events.

NNEPA approval of this Plan and its amendments does not relieve ENRON of liability should their action fail to adequately remediate contamination related to ENRON's activities, or should contamination exist that is outside the scope of this Plan. NNEPA approval does not relieve ENRON of responsibility for compliance with any other federal or state laws or regulations. NNEPA will work cooperatively with the New Mexico Oil Conservation Division (NMOCD) in overseeing remediation at this Site.

I would like to express my gratitude to ENRON for the open and cooperative attitude displayed during discussion and development of this Remediation Plan, and its incorporation of stipulations and comments. My staff look forward to continuing to work with you.

Please contact Julie Curtiss, Navajo Superfund Program, (520) 871-6859, with any further comments or questions.

Sincerely,

Lorenda Joe, Acting Director
Navajo Nation Environmental Protection Agency

xc: George Robinson
Cypress Engineering Services, Inc.
16300 Katy Freeway, Suite 105
Houston, TX 77094

William C. Olson, Project Manager
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Jim Walker, Groundwater Protection Program, NNEPA
Bill Johnson, DOJ
Mike Johnson, Water Development
Chrono: J. Curtiss
ENRON file

FAX (505) 625-8060

Phone (505) 623-2761

Transwestern Pipeline Company
TECHNICAL OPERATIONS
6381 North Main • Roswell, New Mexico 88201

January 11, 1996

Mr. William C. Olson
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

RE: Reporting Requirements for Ground Water Remediation Projects
Transwestern Pipeline Company

Dear Bill,

In the course of the past year, the NMOCD has approved several soil and ground water remediation plans submitted by Transwestern. Each of these plans include reporting requirements with specific dates for submittal of reports. Due to timing considerations, Transwestern proposes to modify the reporting schedule as shown below:

Project Site	Project Objective	Reporting Frequency	Current Reporting Dates	Proposed Reporting Dates
NNG Eunice Station	ground water monitoring	semi-annual	Jan. 1 & Jul. 1	Feb. 1 & Aug. 1
TW Thoreau Station	ground water remediation	semi-annual	Jan. 1 & Jul. 1	Feb. 1 & Aug. 1
TW WT-1 Station (Dehy Area)	ground water remediation	semi-annual	Feb. 1 & Aug. 1	Mar. 1 & Sep. 1
TW Atoka-1 Station	ground water remediation	semi-annual	Mar. 1 & Sep. 1	Mar. 1 & Sep. 1
Highlands Bell Lake Plant (formerly a TW asset)	ground water remediation	annual	Jul. 31	Mar. 1

The primary motivation for these changes is to avoid a January 1st reporting date which is difficult to achieve due to the inevitable end of the year rush and holiday season.

If you have any questions or comments regarding this issue, please contact me at (505) 625-8022 or George Robinson at (713) 646-7327.

Sincerely,

Larry Campbell

Larry Campbell
Division Environmental Specialist

gcr/LC

xc: George Robinson Cypress Engineering Services, Inc.

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

January 2, 1996

Ms. Lorenda Joe
Acting Director, Navajo EPA
P.O. Box 9000
Window Rock, AZ 86515

RE: Proposed Groundwater Remediation Plan
Transwestern Pipeline Company
Thoreau Compressor Station No. 5

Dear Ms. Joe,

Attached with this letter is ENRON's response to the comments and stipulations presented by the NNEPA with your letter dated October 18, 1995, regarding the subject remediation plan. George Robinson, ENRON's internal consultant for this project, was assigned the primary responsibility for preparing this response and has already discussed the more complex issues with Julie Curtiss, NNEPA Superfund Program. We presume that this response, if acceptable to the NNEPA, will be incorporated into the proposed remediation plan as an addendum and ENRON can proceed with implementation of the plan in the February to March 1996 time frame.

Please contact me at (713) 646-7318 or George Robinson at (713) 646-7327 if you have any questions or comments regarding this response.

As an additional note, George and I wish to express our appreciation to you and your staff for the diligent effort that has been made to move this project forward. In particular we wish to acknowledge the efforts of Julie Curtiss. It is readily apparent by the depth and quality of the comments presented by the NNEPA that Ms. Curtiss invested considerable time and effort in her review of the remediation plan. This kind of effort can only improve the effectiveness of the remediation activities at this site and is greatly appreciated.

Yours Very Truly,

Fenley "Ted" Ryther, Jr., PE
Environmental Affairs

TR/gcr

xc w/attachments:

Julie Curtiss	NNEPA Superfund Program
Bill Olson	New Mexico Oil Conservation Division
George Robinson	Cypress Engineering Services

RESPONSE TO NAVAJO NATION EPA STIPULATIONS AND SPECIFIC COMMENTS ON THE PROPOSED REMEDIATION PLAN FOR THOREAU COMPRESSOR STATION NO. 5

I. Stipulations

1. ENRON will include field water quality parameters (temperature, pH, electrical conductivity, and dissolved oxygen) in the semiannual reports to the Navajo Nation Environmental Protection Agency (NNEPA) and the NMOCD.

2. A complete record of past applications and permits for the remediation system has been delivered to the NNEPA Air Quality Program office. ENRON will also notify this office of any future relevant activities.

3. ENRON has amended its Phase II and Phase III plans (see attached modified figures, Figures 23 & 27) to include the installation of two additional SVE wells during implementation of the Phase II system. The well designated SVE-1 will be located approximately 75 feet west of 5-34B and the well designated SVE-2 will be located approximately 130 feet west of 5-34B. During operation of the Phase II system, SVE-1 will be utilized as an extraction well and SVE-2 will be utilized only as an observation and ground water monitor well. During operation of the Phase III system, both SVE-1 and SVE-2 will be utilized as extraction wells.

4. Due to the relative simplicity of the proposed remediation system, ENRON did not intend to generate engineering design drawings/diagrams prior to construction, rather, the system is to be "field constructed". However, ENRON will prepare and submit "as built" drawings of the installed system to the NNEPA. The NNEPA has expressed the concern that ENRON incorporate operational flexibility into the vapor conveyance system and that ENRON construct the system in a manner as to avoid accumulation of liquids in the vapor conveyance system. ENRON shares these same concerns and will make every effort to address them adequately in the constructed system.

5. During operation of the Phase I system, ENRON has periodically collected vapor samples for off-site analysis. During three of the most recent sample events, vapor concentrations were also analyzed on-site with an organic vapor meter (OVM). A summary of the results is provided as Table 1. ENRON will continue to periodically check vapor concentrations with an OVM during the remaining phases of remediation in order to monitor VOC emissions and to develop a correlation between on-site and off-site analyses.

6. ENRON began sampling all monitor wells on a quarterly basis in November 1995. However, ENRON will exclude wells 5-34B, 5-35B, and 5-37I from the sampling list for the following reasons:

   A. Monitor wells 5-34B and 5-35B will be converted to SVE wells for use throughout the remaining phases of corrective action.
   B. Wells 5-37I and 5-35B were originally installed for use during a pilot scale bioremediation test conducted during 1992. Both 5-37I and 5-35B are located less than 15 feet from extraction well 5-36E which was also installed for the pilot test.

   During corrective action activities, ENRON proposes to use extraction well 5-36E as the representative monitoring point for the immediate area around the four monitor wells 5-34B, 5-35B, 5-36E, and 5-37I.

7. ENRON acknowledges NNEPA concerns over attainable ground-water cleanup standards.

8. The NNEPA has indicated that a decision to terminate remediation would be made "in conjunction with other relevant agencies, including NMOCD and NMED". ENRON proposes to amend this statement to include only the NMOCD. In a memorandum dated July 21, 1989, the State of New Mexico Water Quality Control Commission (NMWQCC) delegated the authority and jurisdiction to the NMOCD to administer and enforce applicable NMWQCC regulations pertaining to surface and ground water discharges at natural gas transmission facilities.

9. ENRON will notify the Navajo Nation Water Resources Department of any changes to the status of any ENRON wells located on Navajo Nation property.

II. Specific Comments

Section 3.3:

The estimated effective porosity of 0.12 for the alluvial aquifer represents the decimal percentage of the aquifer which can be drained by gravity. Whereas, the 0.35 decimal percentage for porosity represents the total pore space within the alluvial sediments. For the vadose zone, it was assumed that vapor can fill the entire pore space. The distinction made in the remediation plan is the fluid (air or water) occupying the pore space, and the ability of each fluid to move through the pores within the alluvial sediments. The alluvial sediments above and below the water table do not vary appreciably in respect to composition.

Section 4.2:

ENRON maintains the opinion that the low concentrations of PCBs in monitor wells 5-1B and 5-6B resulted from drilling through near surface soil which contained PCBs. Unfortunately, this is a difficult issue to resolve based solely on the information currently available. Furthermore, this issue is not likely to be resolved in the brief context of this response. Therefore, rather than delay implementation of the ground water remediation system designed to address BTEX constituents, ENRON proposes to address this issue separately in a letter to be delivered to the NNEPA no later than March 1, 1996. This will allow ENRON and the NNEPA more time to discuss this issue and to more closely consider some options which might lead to a resolution of the issue.

Section 4.3:

Monitor well 5-22B will be re-designated as a "perimeter clean well". Monitor well 5-23B contained detectable concentrations of BTEX from October 1990 to January 1992. However, the six sampling events since February 1992 did not detect BTEX at the 5-23B sample location. Monitor well 5-23B bounds the western edge of the dissolved phase plume. Therefore, ENRON maintains its opinion that 5-23B represents a "perimeter clean well".

Section 4.4.2:

In regard to the mix-up with figure numbers, the NNEPA statement is correct.

In regard to the statement regarding detections of PCB compounds, please refer to the response under Section 4.2.

Section 7.0:

Alternate remedial options and/or modifications will be evaluated if air sparging/SVE does not appear to be accomplishing the remedial objectives.

Section 7.2:

In regard to the value used for the effective porosity, please refer to the response under Section 3.3. Also note that using a larger value results in a more conservative estimate of the time required to remove one pore volume.

In regard to the extraction well radius of influence, ENRON notes the typographical error in the text. What was written as 75 feet should read 60 feet. However, note that 60 feet was used in the calculation and therefore the resulting value is correct.

Section 7.3.2:

During Phase II and Phase III of the proposed remediation plan, ENRON plans to use existing wells 5-34B, 5-35B, and 5-4B as SVE wells. Each of these wells are screened across the water table. The two proposed SVE wells to be installed west of 5-34B will also be screened across the water table. Table 3 summarizes the SVE well screen placement relative to the water table for the five wells.

ENRON does anticipate that air sparging will raise the water table near each sparge point. Typically water table rises are greatest in fine grain sediments. For instance, there would be a greater rise near the well bore in a clay media than in a sandy media. In regard to the Thoreau site, the anticipated rise of the water table near the sparge points is on the order of 1 foot.

ENRON acknowledges NNEPA's comments and concerns regarding the screen type. However, based on the SVE pilot tests performed by AcuVac in November 1993, frictional losses across the screen interval are not a significant design issue. The alluvial sediments are sufficiently permeable to allow air flow to the SVE wells without inducing high vacuum pressures. Also note that the rate of partitioning of VOCs from the soil matrix to the vapor phase will be the limiting process for VOC mass removal from the subsurface.

Section 7.3.3:

As discussed in the response under Section 7.3.2, frictional losses across the screen interval are not a significant design issue at this site. Therefore, ENRON will use 0.010 inch machine slotted PVC screen as originally planned.

Section 7.3.4:

Vapor samples will be collected immediately downstream of the vacuum blower at a sampling port located on the exhaust stack. An air flow meter will also be installed on the discharge side of the SVE blower. A vacuum gage and ball valve will be installed at each SVE well head so that the extraction rate from each well may be adjusted. ENRON will install an hour meter on the air compressor so that run time can be monitored. VOC mass removal will be estimated using hydrocarbon vapor concentrations, the total operation time, and average flow rate.

Section 8.1:

System operation and maintenance during Phase I consisted of periodic site visits to record air flow rates, maintain equipment, and to empty accumulated liquid in the moisture separator. The limited nature of the Phase I system did not warrant a more formal O&M plan. However, an O&M plan as described in the proposed remediation plan will be developed and implemented for all subsequent phases.

Table 6:

The proposed monitoring at MW-4B has been completed. Table 4 provides a summary of the analytical results for monitor well 5-4B.

Section 8.2:

A summary of SVE emissions has been provided as Table 1. The NMED Air Pollution Control Bureau (APCB) requires that only the air emission performance test results at the start-up of each phase are submitted to their office. The performance test results and all other air emission test results will be submitted in the semi-annual reports to the NNEPA and the NMOCD. The analytical laboratory reports are also available to NNEPA, NMED APCB, and NMOCD at any time upon request.

Section 9.1:

ENRON acknowledges NNEPA's request to be involved in future remedial actions.

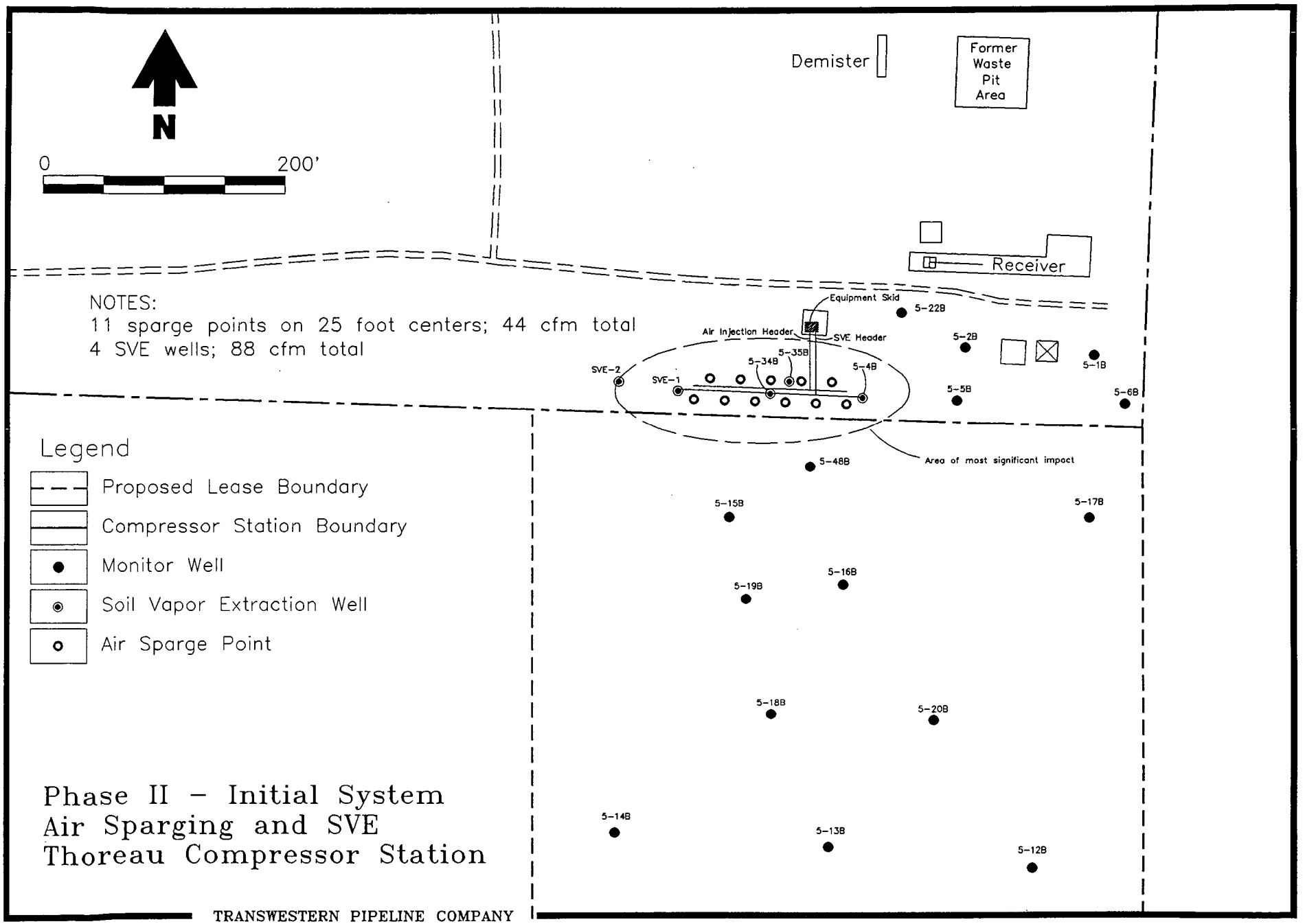
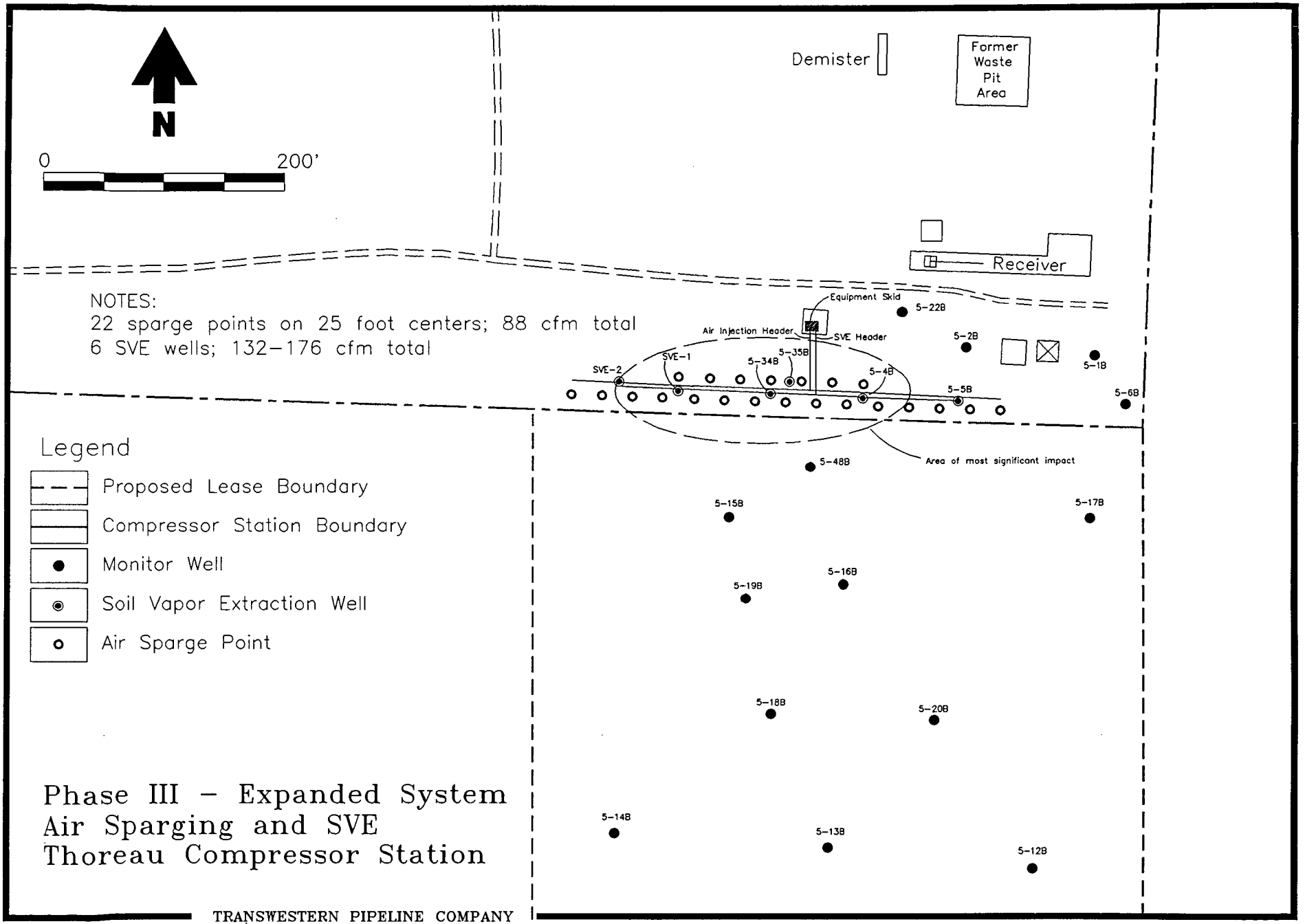

N
0
200'
Demister
Former Waste Pit Area
Receiver
NOTES:
11 sparge points on 25 foot centers; 44 cfm total
4 SVE wells; 88 cfm total
Equipment Skid
Air Injection Header
SVE Header
SVE-2
SVE-1
5-34B
5-35B
5-4B
5-22B
5-2B
5-1B
5-5B
5-6B
Area of most significant impact
5-48B
5-15B
5-17B
5-16B
5-19B
5-18B
5-20B
5-14B
5-13B
5-12B
Legend
Proposed Lease Boundary
Compressor Station Boundary
Monitor Well
Soil Vapor Extraction Well
Air Sparge Point
Phase II – Initial System
Air Sparging and SVE
Thoreau Compressor Station
TRANSWESTERN PIPELINE COMPANY

Figure 23



Phase III – Expanded System
Air Sparging and SVE
Thoreau Compressor Station

TRANSWESTERN PIPELINE COMPANY

Figure 27

Table 1. Summary of Phase I SVE Emissions
Thoreau Compressor Station No. 5

Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Non-Methane Hydrocarbons	PID Readings
	(ppmv)					
12/12/94	42	49	4	16	5,379	NA
01/10/95	34	134	2	39	3,163	NA
02/02/95	4	23	3	7	4,210	934
03/07/95	7	9	<1	<1	1,300	NA
06/08/95	6	75	7	57	1,400	300[a]
09/06/95	20	94	7	44	2,300	NA
11/17/95	ND	10	ND	ND	500	695

All air samples analyzed by Core Laboratories of Houston, Texas

ppmv = Parts per million by volume
PID = Photoionization detector
NA = Not analyzed

[a] PID reading from 05/02/95

Table 2. Summary of Ground-Water Analyses for Select Organic Constituents
Reporting Year 1995
Thoreau Compressor Station No. 5
Page 1 of 3

Monitor Well	Date	Lab[a]	Concentration (µg/L)				
			PCB	Benzene	Toluene	Ethyl-benzene	Total Xylenes
5-01B	06/27/95	HEAL/NET**	4.18[4]	ND	ND	ND	ND
	10/06/95	HEAL/NET**	ND	ND	ND	ND	ND
	11/20/95	HEAL/NET**	ND	ND	ND	ND	ND
5-02B	06/26/95	HEAL	NA	1200	2700	130	1200
	10/06/95	HEAL	NA	490	1600	66	640
	11/20/95	HEAL	NA	740	2900	160	1100
5-98*	11/20/95	HEAL	NA	670	2000	120	990
5-03B	06/26/95	HEAL	NA	ND	ND	ND	ND
	10/03/95	HEAL	NA	ND	ND	ND	ND
	11/15/95	HEAL	NA	ND	ND	ND	ND
5-04B	01/10/95	HEAL	NA	9.8	2.3	ND	2.0
	03/07/95	HEAL	NA	93	1.5	6.1	1.9
	06/08/95	HEAL	NA	9.4	1.4	0.6	ND
	06/26/95	HEAL	NA	15	ND	0.7	ND
	10/05/95	HEAL	NA	44	1.7	3.1	ND
	11/16/95	HEAL	NA	9.9	1.1	0.6	ND
5-05B	06/26/95	HEAL	NA	17	0.7	1.6	0.9
	10/05/95	HEAL	NA	8.2	ND	0.9	ND
	11/16/95	HEAL	NA	5.0	ND	ND	ND
5-06B	06/27/95	HEAL/NET**	26.3[4]	2.2	ND	ND	ND
	10/06/95	HEAL/NET**	30.1[4]	4.6	ND	ND	ND
	11/21/95	HEAL/NET**	44.4[4]	6.2	ND	ND	ND
5-99*	11/21/95	HEAL/NET**	37.8[4]	NA	NA	NA	NA

[a] HEAL = Hall Environmental Analysis Laboratory (Albuquerque)
NET = National Environmental Testing, Inc. (Carrollton, Texas)

NA = Not analyzed
ND = Not detected

* Sample replicate
**PCBs analyzed by NET

[1] Aroclor 1016
[2] Aroclor 1221
[3] Aroclor 1232
[4] Aroclor 1242
[5] Aroclor 1248
[6] Aroclor 1254
[7] Aroclor 1260

Table 2. Summary of Ground-Water Analyses for Select Organic Constituents
Reporting Year 1995
Thoreau Compressor Station No. 5
Page 2 of 3

Monitor Well	Date	Lab[a]	Concentration (µg/L)				
			PCB	Benzene	Toluene	Ethyl-benzene	Total Xylenes
5-12B	10/03/95	HEAL	NA	ND	ND	ND	ND
	11/16/95	HEAL	NA	ND	ND	ND	ND
5-13B	10/05/95	HEAL	NA	0.6	2.5	0.5	1.9
	11/20/95	HEAL	NA	ND	ND	ND	2.0
5-14B	10/04/95	HEAL	NA	ND	ND	ND	ND
	11/16/95	HEAL	NA	ND	ND	ND	ND
5-15B	10/05/95	HEAL	NA	ND	ND	ND	ND
	11/16/95	HEAL	NA	ND	ND	ND	ND
5-16B	10/05/95	HEAL	NA	610	5900	300	2600
	11/20/95	HEAL	NA	970	7100	430	3100
5-17B	10/06/95	HEAL/NET**	ND	ND	ND	ND	ND
	11/20/95	HEAL/NET**	ND	ND	ND	ND	ND
5-18B	10/05/95	HEAL	NA	87	8.4	9.0	26
	11/17/95	HEAL	NA	240	24	22	53
5-19B	10/05/95	HEAL	NA	1.0	0.7	ND	ND
	11/20/95	HEAL	NA	ND	ND	ND	ND
5-20B	10/05/95	HEAL	NA	3.2	0.7	3.5	ND
	11/17/95	HEAL	NA	12	2.3	ND	2.6
5-22B	10/03/95	HEAL	NA	ND	ND	ND	ND
	11/15/95	HEAL	NA	ND	ND	ND	ND
5-23B	10/04/95	HEAL	NA	ND	ND	ND	ND
	11/16/95	HEAL	NA	ND	ND	ND	ND
5-24B	10/03/95	HEAL	NA	ND	ND	1.0	1.0
	11/17/95	HEAL	NA	1.2	0.8	0.5	1.0

[a] HEAL = Hall Environmental Analysis Laboratory (Albuquerque)
NET = National Environmental Testing, Inc. (Carrollton, Texas)

NA = Not analyzed
ND = Not detected

* Sample replicate
**PCBs analyzed by NET

[1] Aroclor 1016
[2] Aroclor 1221
[3] Aroclor 1232
[4] Aroclor 1242
[5] Aroclor 1248
[6] Aroclor 1254
[7] Aroclor 1260

Table 2. Summary of Ground-Water Analyses for Select Organic Constituents
Reporting Year 1995
Thoreau Compressor Station No. 5
Page 3 of 3

Monitor Well	Date	Lab[a]	Concentration (µg/L)				
			PCB	Benzene	Toluene	Ethyl-benzene	Total Xylenes
05-41B	11/15/95	HEAL	NA	ND	ND	ND	ND
5-47B	10/04/95	HEAL	NA	7.2	2.0	0.6	4.6
	11/15/95	HEAL	NA	ND	ND	ND	ND
5-48B	10/05/95	HEAL	NA	550	940	290	1900
	11/20/95	HEAL	NA	820	1700	390	2600
5-57B	10/04/95	HEAL	NA	ND	ND	ND	ND
	11/15/95	HEAL	NA	ND	ND	ND	ND
5-58B	10/04/95	HEAL	NA	ND	ND	ND	ND
	11/15/95	HEAL	NA	ND	ND	ND	ND

[a] HEAL = Hall Environmental Analysis Laboratory (Albuquerque)
NET = National Environmental Testing, Inc. (Carrollton, Texas)

NA = Not analyzed
ND = Not detected

* Sample replicate
**PCBs analyzed by NET

[1] Aroclor 1016
[2] Aroclor 1221
[3] Aroclor 1232
[4] Aroclor 1242
[5] Aroclor 1248
[6] Aroclor 1254
[7] Aroclor 1260

Table 3. SVE Well Screen Placement

SVE Well	Screened Interval (feet bgs)	Depth to Water (feet bgs)
SVE-1	35.0-60.0	~50.0
SVE-2	35.0-60.0	~50.0
5-34B	34.0-64.0	52.3
5-35B	31.3-61.3	52.0
5-4B	38.7-58.7	50.2

bgs = Below ground surface

Table 4. Summary of Ground-Water Analytical Results
Monitor Well 5-04B
Thoreau Compressor Station No. 5

Monitor Well	Date	Lab†	Concentration (µg/L)							
			Benzene	Reporting Limit	Toluene	Reporting Limit	Ethyl-benzene	Reporting Limit	Total Xylenes	Reporting Limit
5-04B	02/19/92	ER	42	1.0	ND	1.0	3.4	1.0	39	1.0
	03/18/92	ATI-P	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	04/28/92	ATI-P	86	2.5	80	2.5	60	2.5	570	2.5
	10/13/92	ATI-P	230	2.0	40	2.0	19	2.0	260	2.0
	04/21/93	ATI-A	170	5	130	5	26	5	280	25
	12/12/94	HEAL	12	0.5	2.2	0.5	3.4	0.5	3.3	0.5
	12/20/94	HEAL	2.7	0.5	0.7	0.5	ND	0.5	1.3	0.5
	01/10/95	HEAL	9.8	0.5	2.3	0.5	ND	0.5	2.0	0.5
	03/07/95	HEAL	93	0.5	1.5	0.5	6.1	0.5	1.9	0.5
	06/08/95	HEAL	9.4	0.5	1.4	0.5	0.6	0.5	ND	0.5
	06/26/95	HEAL	15	0.5	ND	0.5	0.7	0.5	ND	0.5
	10/05/95	HEAL	44	0.5	1.7	0.5	3.1	0.5	ND	0.5
	11/16/95	HEAL	9.9	0.5	1.1	0.5	0.6	0.5	ND	0.5

† ATI-P = Analytical Technologies, Inc., Phoenix
ER = Enseco (Rocky Mountain Analytical)
HEAL = Hall Environmental Analysis Laboratory - (Albuquerque)

ND = Not detected

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

December 1, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-982

Mr. James Russell
Transwestern Pipeline Company
4001 Indian School Road, NE
Summit Office Bluiding, Suite 250
Albuquerque, NM 87110

RE: Discharge Plan GW-80 Renewal
Thoreau CS
[redacted] County, New Mexico
McKinley

Dear Mr. Russell:

On November 14, 1996, the groundwater discharge plan, GW-80, for the Transwestern Pipeline Company CS located in SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico, **will expire.** The plan was approved by the Director of the New Mexico Oil Conservation Division (OCD). This discharge plan was required and submitted pursuant to Water Quality Control Commission (WQCC) regulations and was approved for a period of five years.

If your facility continues to have potential or actual effluent or leachate discharges and you wish to continue operation, you must renew your discharge plan. The OCD is reviewing discharge plan submittals and renewals carefully and the review time can extend for several weeks to months. Please indicate whether you have made, or intend to make, any changes in your system, and if so, please include these modifications in your application for renewal.

The discharge plan renewal application for the Thoreau CS is subject to the WQCC Regulations 3114 discharge plan fee. Every billable facility submitting a discharge plan renewal will be assessed a fee equal to the filing fee of fifty (50) dollars plus a flat fee of $690 for Compressor Stations over 3,000 horsepower.

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

Please submit the original and one copy to the OCD Santa Fe Office and one copy to the OCD Aztec District Office. **Note that the completed and signed application form must be submitted with your discharge plan renewal request.** The following information is enclosed: Application form, Guidelines, and WQCC regulations.

If you no longer have any actual or potential discharges, a discharge plan is not needed, please notify this office, and provide a closure plan for the facility. If you have any questions regarding this matter, please do not hesitate to contact Mr. Patricio W. Sanchez at (505) 827-7156.

Sincerely,

Roger C. Anderson for
Environmental Bureau Chief

RCA/pws

xc: Mr. Denny Foust

Enclosures

Z 765 962 982

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to GW-BD Renewal	
Street and No. Notice letter.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, March 1993

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

November 2, 1995

Mr. Jim Shively, Permits Section
State of New Mexico Environment Department
Air Pollution Control Bureau
2048 Galisteo Street
Santa Fe, NM 87505

RE: Air Quality Permit No. 1507

Dear Jim,

This confirms our discussions on October 27th in your office relating to a minor change in Transwestern Pipeline Company's (TW) soil vapor extraction (SVE) Phase I soil and ground water remediation system located at the Thoreau Station.

The system was permitted (Permit No. 1507) with the intention that the Phase I system would only operate for a brief period of one to three months. However, prolonged negotiations with the adjacent property owner have delayed implementation of the Phase II remediation system. As a result, the Phase I system has been in operation for eleven months and will likely continue in operation for an additional four months before the Phase II system is implemented. Therefore, in order to more effectively utilize the Phase I system for its intended purpose over the next four months, TW will switch the SVE extraction point from monitor well MW-35B to MW-34B (see attached figure).

Emissions from the Phase I system were demonstrated to be well below the permitted levels during the performance tests completed shortly after the Phase I system startup. Furthermore, emissions from monitor well MW-34B are not anticipated to be significantly different from MW-35B, primarily due to their close proximity to each other and because no changes will be made to the surface equipment other than switching the extraction point. Therefore, as you and I agreed, TW will not perform a second performance test for this Phase I system. Of course, performance testing is still planned for the Phase II installation when it is implemented.

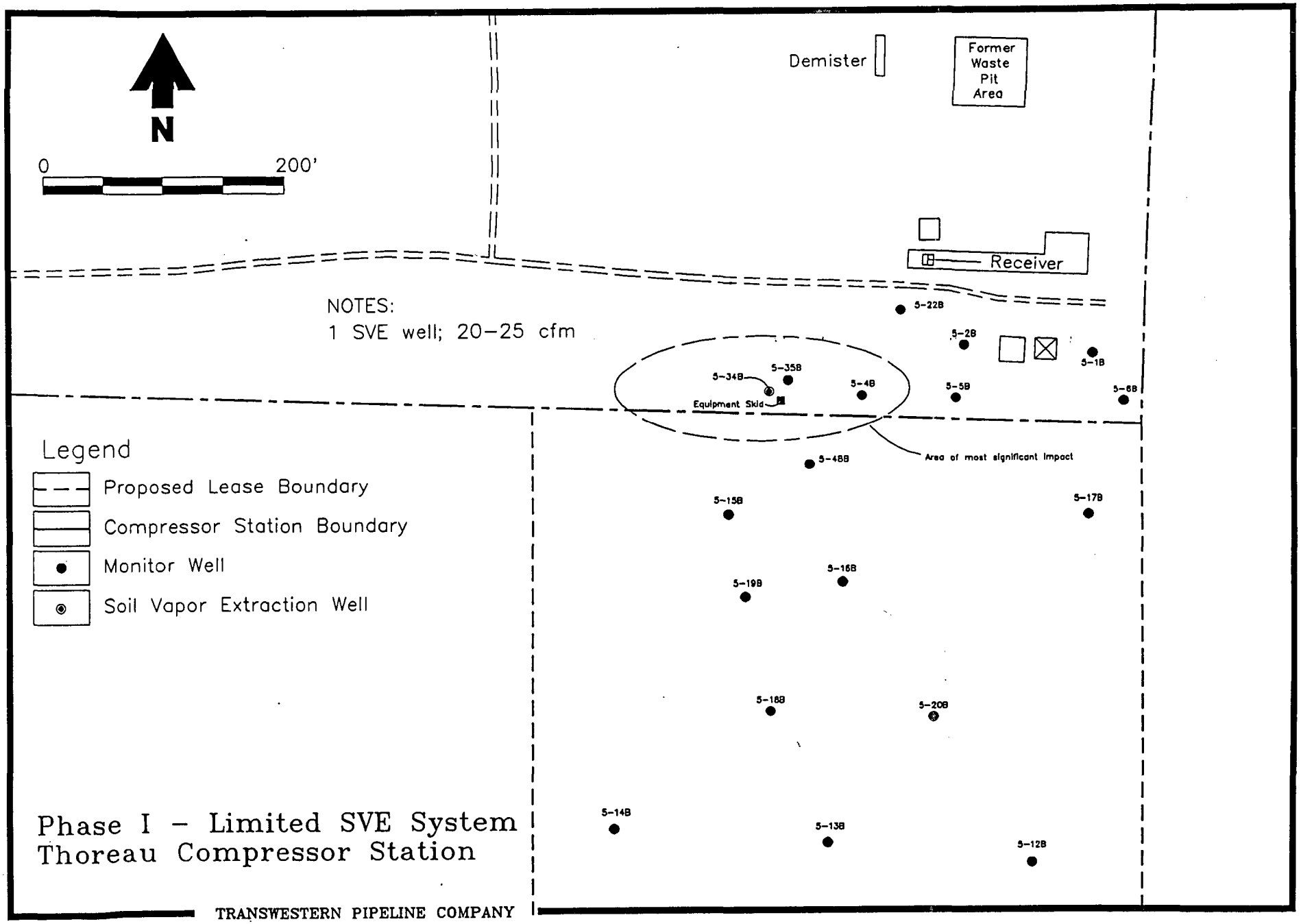
If you have any questions or comments, please call me at (713) 646-7318.

Yours Very Truly,

Fenley "Ted" Ryther, Jr., P.E.
Permits Group Manager
EOC Environmental Affairs

gcr/TR

xc: Bill Olson State of New Mexico Oil Conservation Division



Phase I – Limited SVE System
Thoreau Compressor Station

TRANSWESTERN PIPELINE COMPANY

Figure 22

THE
NAVAJO
NATION

P.O. BOX 9000 • WINDOW ROCK, ARIZONA 86515 • (602) 871-4941

ALBERT HALE
PRESIDENT

THOMAS ATCITTY
VICE-PRESIDENT

October 18, 1995

Fenley Ryther, Jr.
Permits Group Manager
ENRON Operations Corporation
P.O. Box 1188
Houston, TX 77251-1188

Re: Proposed Groundwater Remediation Plan, Transwestern Pipeline Company Compressor Station No. 5, Thoreau, NM

Dear Mr. Ryther,

The Navajo Nation Environmental Protection Agency (NNEPA) has completed its review of ENRON Operations Corporation's (ENRON's) proposed Groundwater Remediation Plan for contamination at the Thoreau Compressor Station (Site). NNEPA approves the selected remediation method, with the following comments and stipulations. Please respond in writing to the comments; responses to the stipulations are not required. The responses will be incorporated into the Plan as an addendum or as corrected pages to be inserted in the Plan.

NNEPA approval of this Plan and its amendments does not relieve ENRON of liability should their action fail to adequately remediate contamination related to ENRON's activities, or should contamination exist that is outside the scope of this Plan. NNEPA approval does not relieve ENRON of responsibility for compliance with any other federal or state laws or regulations. NNEPA will work cooperatively with the New Mexico Oil Conservation Division (NMOCD) and the New Mexico Environment Department (NMED) in overseeing remediation at this Site.

NNEPA would like to express its gratitude to ENRON for the open and cooperative attitude displayed during discussion and development of this Remediation Plan.

Please contact Julie Curtiss, Navajo Superfund Program, (520) 871-6859 with any comments or questions about this document.

Sincerely,

Lorenda Joe, Acting Director
Navajo Nation Environmental Protection Agency

Attachment

xc: George Robinson
Cypress Engineering Services, Inc.
16300 Katy Freeway, Suite 105
Houston, TX 77094

William C. Olson, Project Manager
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Akhtar Zaman, Director, Minerals Department
Bill Johnson, DOJ

Chrono: J. Curtiss
ENRON file

Stipulations:

1. ENRON will list all water quality parameters, i.e., pH, DOC, conductivity, etc., in the semiannual reports, both for past and future sampling events. These factors will be critical for evaluating the progress of natural and induced remediation over time.

2. The New Mexico Environment Department Air Pollution Control Bureau issued a new source permit to ENRON on July 25, 1994. The NNEPA Air Quality Program must receive parallel notification of any future activities, and a complete record of past applications and permits for the Site. This information should be sent to:

   David Kelly, Environmental Specialist III
   Air Quality Program, Navajo EPA
   P.O. Box 529
   Fort Defiance, Navajo Nation (AZ) 86504

3. After discussions with ENRON, NNEPA is requesting that ENRON redesign the Phase II and Phase III systems to concentrate the Phase II activities in the zone of highest known contamination. For Phase II, a fourth extraction well would be drilled as proposed, but would be located 70 to 75 feet west of 5-34B, rather than 130 feet west as currently proposed. This would leave the total extraction wells for Phase II at four. For Phase III, another extraction well would be drilled 130 feet west of 5-34B. In this way, the eleven Phase II sparge wells would be completely encompassed by the theoretical zone of influence of the four extraction wells, as would the twenty-two Phase III wells by the six extraction wells.

4. NNEPA requests that ENRON supply a copy of the Remedial Design engineering drawings/diagrams for the Phase II and Phase III systems before the start of construction. These will not be subject to NNEPA approval prior to the start of remediation, but will be reviewed for efficacy, and will be used for reference.

5. During Phase I, Phase II, and the first month of Phase III, soil vapor samples should also be analyzed on-site with the OVM that will be used for the remainder of the Phase III period, in order to determine the correlation plot between the OVM results and the laboratory results. This will allow greater confidence in the OVM results during the remainder of Phase III.

6. ENRON should sample all monitoring wells listed in Table 9 on a quarterly basis throughout the period of remediation. Based on the proposed project time line (Phase II starting in January-March, 1996; Phase III starting late 1996 or early 1997), NNEPA would like to wait until late 1996 to designate wells to be sampled throughout Phase III. ENRON should sample all monitor wells, as well as the new extraction well, quarterly from October 1995 to October 1996, at which time NNEPA, NMOCD and ENRON can decide which wells should continue to be monitored.

7. Under the Navajo Nation Primary Drinking Water Regulations, Section 208(A), Table 200.4, "Maximum Contaminant Levels for Volatile Organic Compounds," the MCL for benzene is **5 ppb**. NNEPA requires that this standard be met at the wells on Navajo Nation land. NNEPA, along with NMOCD, will consider modifications to this standard based on technical infeasibility of the proposed groundwater remediation method. If PCBs continue to be present in Wells 5-1B and 5-6B, or if PCBs are noted in any wells on Navajo Nation lands, then NNEPA will determine if additional remediation for PCBs should be undertaken.

8. ENRON may apply to NNEPA at any time to terminate remediation. NNEPA, in conjunction with other relevant agencies, including NMOCD and NMED, will determine whether remediation should be terminated. After active remediation ceases, NNEPA will require at least four consecutive quarters of monitoring, and may also require ENRON to use additional methods of remediation, such as pulse operation, rather than the continuous operation now proposed, to help insure complete remediation. Monitoring will continue beyond the four quarters at any well showing a clear trend toward increasing benzene or other contaminant levels, with the possibility of starting up remediation again. Decommissioning and abandonment of individual wells will be determined by NNEPA and NMOCD on an as-proposed basis.

9. Section 12.2, Page 28: The Navajo Nation Water Resources Department should be informed of the time, place, and method of proposed well abandonment. WRD also requires notification if the use of any of the 16 wells is changed, e.g., from monitoring to SVE use.

Specific Comments:

Section 3.3, Page 7: An effective porosity value of 0.12 for the alluvial aquifer is provided. In Section 7.2.1 (page 16), an effective porosity of 0.35 is used in the equation. Do the two zones being measured differ in composition? Is the effective porosity being measured differently for the vadose zone than for saturated zones?

Section 4.2, Page 8: NNEPA does not agree with the conclusions about the source of PCBs in Wells 5-1B and 5-6B. First, BTEX is definitely present in the two wells. As can be seen in Figures 1 and 2 *(attached)*, there is a clear negative correlation between BTEX levels and PCB levels in the two wells, indicating that PCBs are being carried in groundwater, not with the BTEX. As shown by Figures 3 and 4 *(attached)*, the level of PCBs in these wells has declined since 1992, with Well 5-1B going to non-detect at this time. Both of these wells showed non-detects during 1991; without additional data, future PCB levels in these wells cannot be predicted. At this time, it is NNEPA's belief that the PCB levels in Wells 5-1B and 5-6B point to a continuing source outside the well bore. It is reasonable to believe that the anomalous PCB levels in Wells 5-5B, 5-22B, and 5-23B could have come from poor drilling practices, since the analysis of soil samples taken September 29, 1990 (Table E.11, DBSA 7/26/91 report) show no signs of PCBs in the soil of Wells 5-22B and 5-23B. However, this raises a concern about Wells 5-12B, 5-13B, and 5-15B. The 7/26/91 DBSA report

mentions (Page 11) that PCBs were detected in these wells. Is this also due to PCBs on the surface being carried down to the screened interval? If so, what was the surface source of these PCBs?

Section 4.3, Page 9, and Table 9: Based on contaminant geochemistry, NNEPA feels the designations for Wells 5-22B and 5-23B should be changed.[1] Based on the available BTEX sampling data and dissolved oxygen content (DOC) levels, Well 5-22B is clean. NNEPA requests that this well continue to be sampled, but that it would be better designated a "perimeter clean well" despite its location. Conversely, NNEPA feels that Well 5-23B is an interior impacted well, given the previous BTEX levels and the most recent, low DOC level.

Section 4.4.2, Page 10: This section incorrectly cites Figure 14 rather than Figure 16. According to the DBSA summary report (4/20/94), PCB hits have been detected in the following wells: 5-1B, 5-5B, 5-6B, 5-22B, and 5-23B (*see* Section 4.2 discussion, *above*).

Section 7.0, Page 16: There is no mention of possible groundwater extraction for wells which begin to show elevated levels of free product. While this may not be likely, given the data presented by ENRON, it should be considered that such a contingency plan may be requested if air sparging/SVE do not have significant impact in areas of heavy contamination.

Section 7.2, Page 16: Comments on Phase I may be irrelevant, given the fact that ENRON has already begun Phase I activities; however, the figures used in the equation for pore volume duration are incorrect. See the comment on Section 3.3, *above*, with regard to effective porosity. Also, the extraction well radius of influence is incorrectly given as 75 feet, rather than 60 feet.

Section 7.3.2, Page 18, and Figure 24: The diagram of the SVE well does not show the relationship of the screened section to the water table. After air sparging begins, it is expected that there will be some mounding of the groundwater table. How will this impact the SVE wells? How far above the water table are the wells currently screened? Will the screened section be above the capillary fringe? NNEPA suggests that any well in which the water table rises above the screened interval be shut down, rather than becoming a water extraction well. NNEPA suggests that any new extraction wells be constructed with 0.02" slot wire wrap screen, to allow much higher extraction rates and higher induced pressures.

Section 7.3.3, Page 19, and Section 7.4.3, Page 21: What slotting will be used in the air sparging wells? NNEPA suggests 0.02".

Section 7.3.4, Page 19: Where and how will the vapor sampling be done? No sampling ports are listed. Each SVE well should have a vacuum gauge, in order to insure the appropriate extraction rate at each well. Will there be throttling valves or some other regulator on each SVE well to adjust the extraction rate? The vapor flowmeter should show both instantaneous and total flow.

---

[1]All well designations will be reevaluated as necessary based on the results of the 10/4/95 sampling event.

Section 8.1, Page 22: Has the O&M Plan for Phase I been completed?

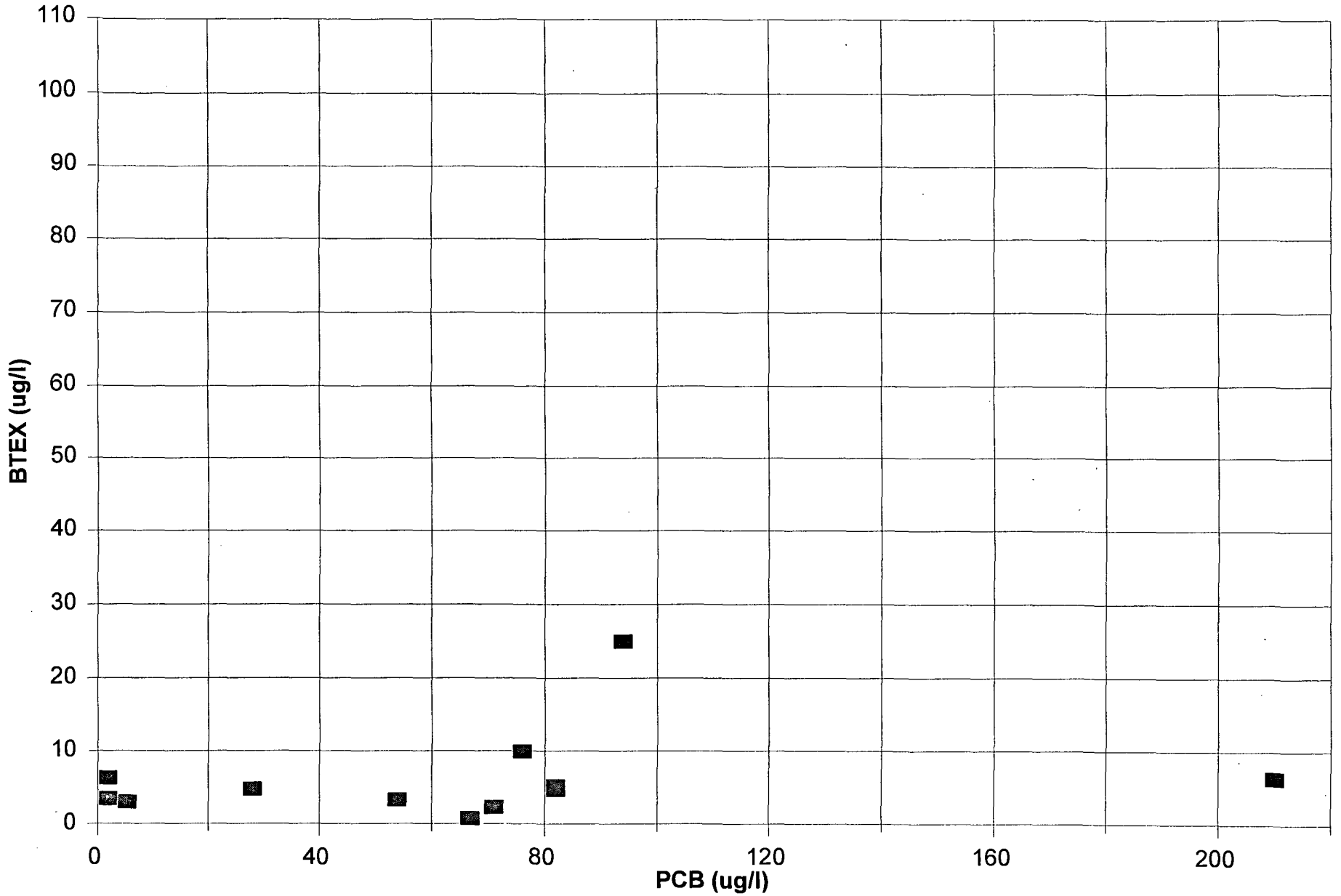
Table 6, Page 22: Has the required monitoring been done at Well 5-4B?

Section 8.2, Page 22: What will be done with the vapor sample results? Will they be reported to NMED, NNEPA, USEPA, or maintained on site?

Section 9.1, Page 25: NNEPA reserves the right to request that ENRON modify the remediation system if NNEPA feels that the system is not functioning to contain the contamination, remove the contaminant source, or lower the overall concentration of constituents of concern within the impacted area, especially that portion of the impacted area within Navajo Nation lands.

Thoreau Compressor Station

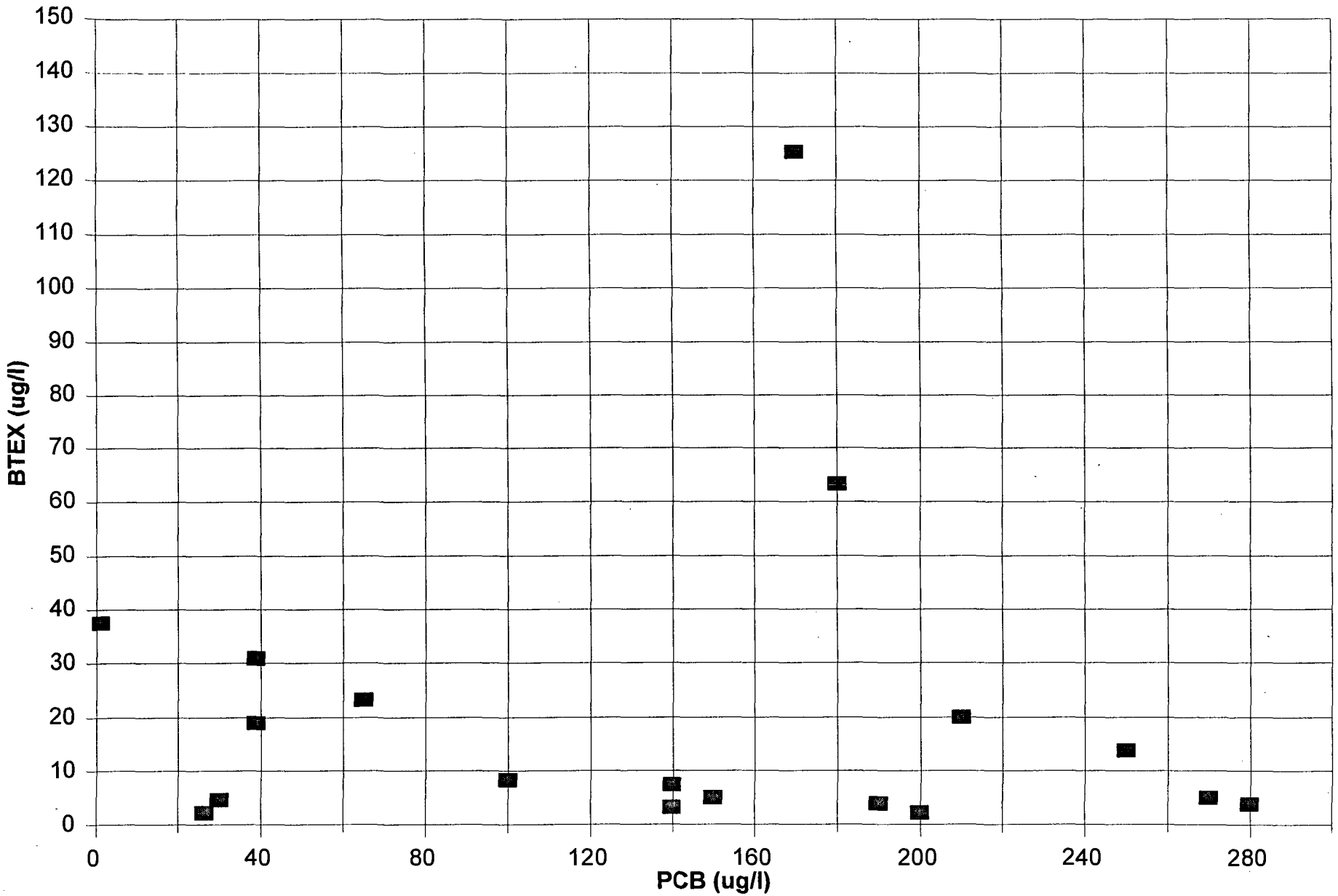
BTEX v. PCB - Well 5-1B



25-Oct-95

Thoreau Compressor Station

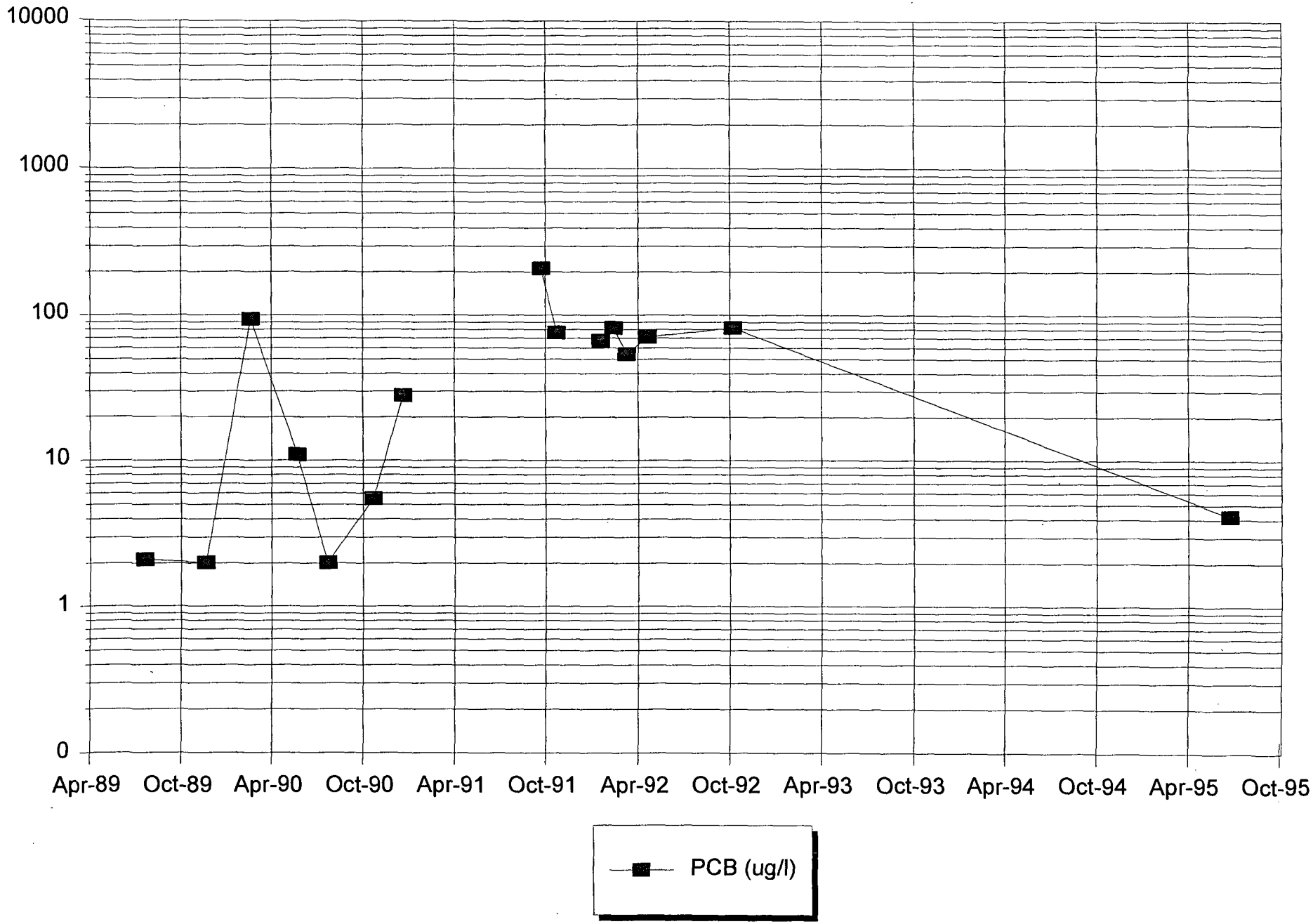
BTEX v. PCB - Well 5-6B



25-Oct-95

Thoreau Compressor Station

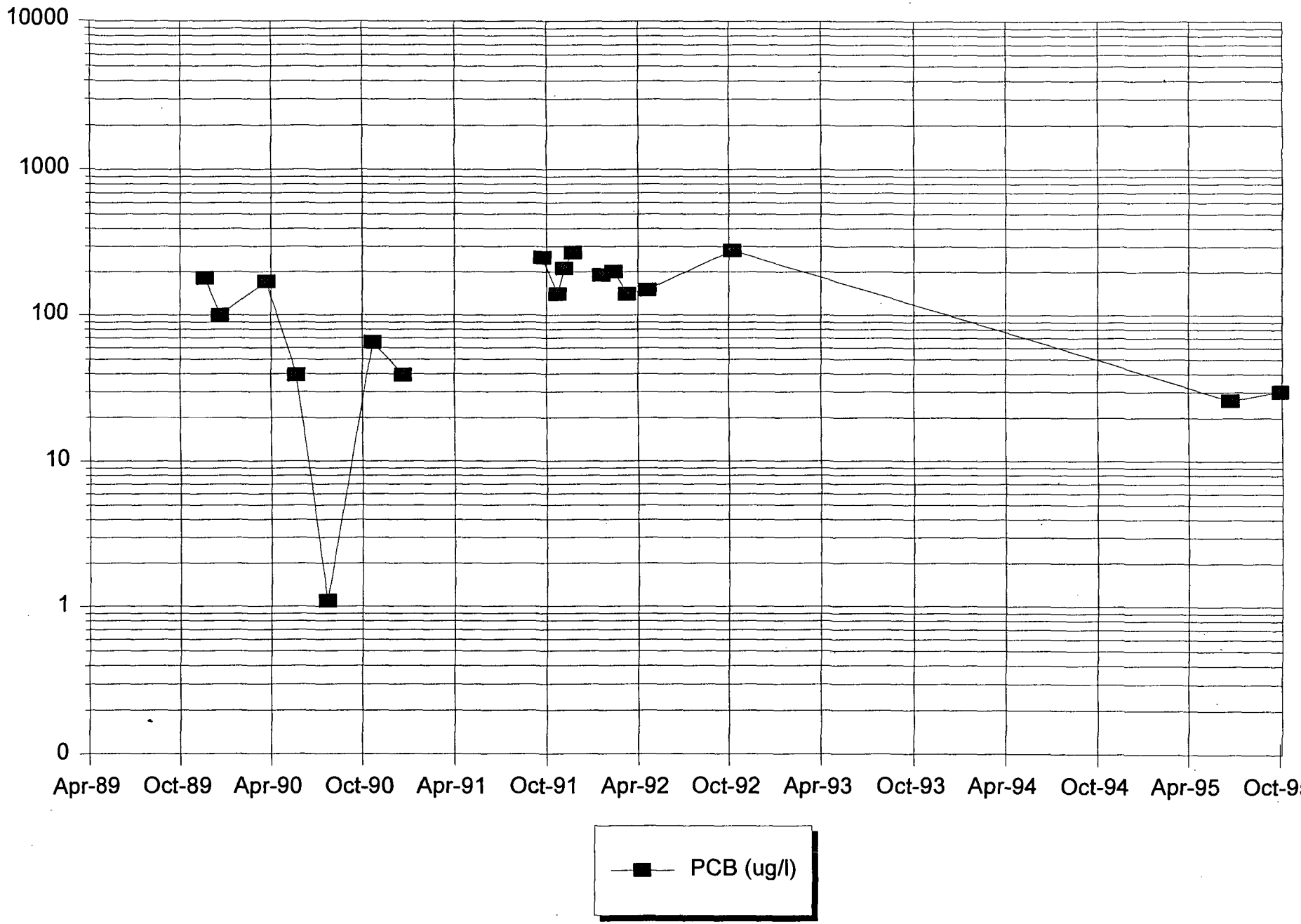
PCB Trends - Well 5-1B



25-Oct-95

Thoreau Compressor Station

PCB Trends - Well 5-6B



25-Oct-95

Transwestern Pipeline Company

An ENRON Company

Patricio W. Sanchez
State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

May 9, 1995

Re: Discharge Plan (GW-80)
Thoreau Compressor Station No. 5
McKinley County, New Mexico

Dear Ms. Sanchez:

Per your letter dated May 1, 1995, please find enclosed a check from Transwestern Pipeline Company for the $690.00 flat fee on the GW-80 discharge plan referenced above.

In regards to the $50.00 filing fee check, as stated in attached letter from William J. LeMay, dated May 14, 1993 the OCD has already received this fee. Our accounting system has archived all checks issued in 1993 and as for our department obtaining a copy of this check, it would involve extensive costs and time in doing so.

Thank you for your cooperation in this matter. If you have any questions or concerns please call Butch Russell (505) 260-4011 or Larry Campbell (505) 625-8022.

Sincerely,

James Russell

JAMES RUSSELL
Environmental Specialist

CC: L. Campbell
File

SUMMIT OFFICE BUILDING, SUITE 250 4001 INDIAN SCHOOL ROAD, NE ALBUQUERQUE, NM 87110 (505) 260-4000 FAX (505) 260-4010

PAT

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 5/9/95,
or cash received on 5/12/95 in the amount of $ 690.00
from Transwestern Pipeline Co
for Thoreau C.S. (Facility Name) GW080 (DP No.)
Submitted by: _____ Date: _____
Submitted to ASD by: Roger Anderson Date: 5/12/95
Received in ASD by: _____ Date: _____
Filing Fee X New Facility ____ Renewal ____
Modification X Other _____ (specify)

Organization Code 521.07 Applicable FY 95

To be deposited in the Water Quality Management Fund.
Full Payment X or Annual Increment ____

CHECK NO. [redacted]

DATE OF CHECK
5-9-95

TRANSWESTERN PIPELINE COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

ENRON CORP

PAY EXACTLY Six Hundred Ninty and 00/100 - - - - - - - DOLLARS 690.00
This check is VOID unless printed on BLUE background

PAY TO THE ORDER OF
NMED-Water Quality Management
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

NOT VALID OVER $5,000 UNLESS COUNTERSIGNED

NORWEST BANK GRAND JUNCTION

[redacted]

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

May 14, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO.P-111-334-186

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

RE: Discharge Plan GW-80 Modifications
Thoreau Compressor Station No. 5
McKinley County, New Mexico

Dear Mr. Campbell:

The groundwater discharge plan modification for the Transwestern Pipeline Co. Thoreau Compressor Station No.5 located in the NE/4, SW/4, SE/4 Section 14, Township 13 North, Range 13 West, NMPM, McKinley County, New Mexico **is hereby approved** under the conditions contained in the enclosed attachment. The modification consists of the discharge plan as approved November 14, 1991 and the modification application dated March 23, 1993.

The modification application was submitted pursuant to Section 3-109.F of the Water Quality Control Commission Regulations. It is approved pursuant to Section 3-109.A. Please be advised that approval of this plan does not relieve you of liability should your operation result in actual pollution of surface or ground waters or the environment which may be actionable under other laws and/or regulations.

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

Your proposed modifications are to construct a centralized landfarm facility at the specified location.

Please note that Section 3-104 of the regulations requires that "When a plan has been approved, discharges must be consistent with the conditions of the plan". Pursuant to Section 3-107.C you are required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

The discharge plan modification application for the Transwestern Pipeline Company Thoreau Compressor Station is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan modification will be assessed a fee equal to the filing fee of fifty (50) dollars plus the flat rate fee of six-hundred ninety (690) dollars for compressor stations in excess of 3000 horsepower.

The OCD has received your $50 filing fee. The flat rate fee may be paid in a single payment due at the time of approval, or in equal installments over the duration of the plan, with the first payment due upon receipt of this letter.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

On behalf of the staff of the Oil Conservation Division, I wish to thank you and your staff for your cooperation.

Sincerely,

William J. LeMay
Director

WJL/cee

xc: OCD Aztec Of

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Larry Campbell
Transwestern Pipeline Co.
PO Box 1717
Roswell, NM 88202-1717

4a. Article Number
P-111-334-186

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
5-17-93

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)
Carmelita Holland

PS Form 3811, October 1990 ☆U.S. GPO: 1990—273-861

DOMESTIC RETURN RECEIPT

Thoreau Modi

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 8, 1995

CERTIFIED MAIL
RETURN RECEIPT NUMBER P-667-242-254

Mr. Fenley Ryther, Jr.
Permits Group Manager
ENRON Operations Corp.
P.O. Box 1188
Houston, TX 77251-1188

RE: GROUND WATER REMEDIATION PLAN
ENRON THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Ryther:

The New Mexico Oil Conservation Division (OCD) has completed a review of the following ENRON documents which were submitted to the OCD on January 17, 1995:

- January 3, 1995 "GROUND WATER REMEDIATION PLAN FOR THE TRANSWESTERN PIPELINE COMPANY COMPRESSOR STATION NO. 5, THOREAU, NEW MEXICO".
- March 31, 1994 "NEW SOURCE PERMIT APPLICATION, THOREAU COMPRESSOR STATION, TRANSWESTERN PIPELINE COMPANY, MCKINLEY COUNTY, NEW MEXICO".
- December 2, 1992 "PCB INVESTIGATION, THOREAU MONITOR WELLS 5-1B AND 5-6B".
- December 1992 "AN ARCHAEOLOGICAL SURVEY OF WATER TESTING UNITS AT THE THOREAU COMPRESSOR STATION AT THOREAU, MCKINLEY COUNTY, NEW MEXICO FOR THE TRANSWESTERN PIPELINE COMPANY".
- July 26, 1991 "GROUND-WATER ASSESSMENT REPORT FOR COMPRESSOR STATION NO. 5, THOREAU, NEW MEXICO".
- February 1990 "HYDROGEOLOGY AT THE TRANSWESTERN PIPELINE COMPRESSOR STATION NO. 5, THOREAU, NEW MEXICO".
- January 8, 1990 "AN ARCHEOLOGICAL SURVEY OF THREE PARCELS ADJACENT TO THE THOREAU, LEUPP, AND KLAGETOH COMPRESSOR STATIONS".

These documents contain the results of ENRON's investigation of the extent of ground water contamination at the Thoreau Compressor Station. The documents also contain ENRON's proposed work plan for remediation of contaminated ground water.

The above referenced investigation actions are satisfactory and the proposed ground water remediation work plan is approved with the following conditions:

1. ENRON will sample ground water from monitor wells 5-12B, 5-14B, 5-15B, 5-17B, 5-57B and 5-58B on a quarterly basis. Ground water from these monitor wells will be sampled and analyzed for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX) using EPA approved methods.

   NOTE: Since there is no New Mexico Water Quality Control Commission (WQCC) ground water standard for total petroleum hydrocarbons (TPH), the OCD does not require that ENRON analyze ground water samples for TPH.

2. ENRON will submit semiannual reports on the remedial actions and site monitoring to the OCD by January 1 and July 1 of each respective year with the first report due on January 1, 1996. The reports will contain:

   a. A description of all remediation and monitoring activities which occurred during the previous semiannual period including as built construction diagrams of all remediation systems which have been installed.

   b. A summary of the laboratory analytic results of water quality sampling of the monitor wells and all other remedial system sampling. The data will be presented in tabular form showing past and present sampling results.

   c. A water table elevation map using the water table elevation of the ground water in all monitor wells as measured during that period.

   d. If free phase product is present, a product thickness map.

3. ENRON will notify the OCD within 24 hours of discovery of a ground water contaminant in monitor wells 5-12B, 5-14B, 5-15B, 5-17B, 5-57B and 5-58B which is in excess of the WQCC ground water standards.

4. The OCD defers comment on the termination of corrective action activities until such time that ENRON applies for termination of the corrective actions.

5. ENRON will supply the OCD with a report about the 1990/1991 PCB soil removal actions at the former unlined surface impoundment.

6. ENRON 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.

7. All original documents submitted for approval will be submitted to the OCD Santa Fe Office with copies provided to the OCD Aztec District Office.

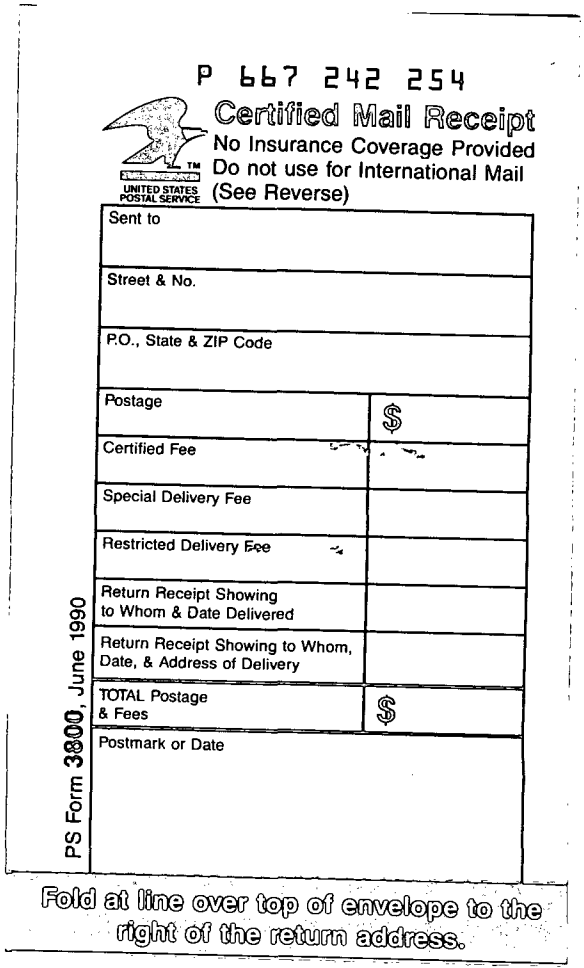
Please be advised that OCD approval does not relieve ENRON of liability should their actions fail to adequately remediate contamination related to ENRON's activities or should contamination exist which is outside the scope of the work plan. In addition, OCD approval does not relieve ENRON of responsibility for compliance with any other federal, state or local laws and/or regulations.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office



Bill Olson

From: Bill Olson
To: Frank Chavez
Cc: Denny Foust
Subject: ENRON Thoreau Compressor
Date: Thursday, May 04, 1995 8:35AM
Priority: High

Attached you will find a draft approval letter for ENRON's ground water remediation plan for the TRhoreau Compressor Station. Please provide me with any comments by 8:30 am on 5/5/95. Thanks!

<<File Attachment: REMEDY1.APR>>

Bill Olson

From: Frank Chavez
Date sent: Thursday, May 04, 1995 1:52PM
To: Bill Olson
Subject: Registered: Frank Chavez

Your message
To: Frank Chavez
Subject: ENRON Thoreau Compressor
Date: Thursday, May 04, 1995 8:35AM
was accessed on
Date: Thursday, May 04, 1995 1:52PM

Bill Olson

From: Denny Foust
Date sent: Friday, May 05, 1995 8:34AM
To: Bill Olson
Subject: Registered: Denny Foust

Your message
To: Denny Foust
Subject: ENRON Thoreau Compressor
Date: Thursday, May 04, 1995 8:35AM
was accessed on
Date: Friday, May 05, 1995 8:34AM

Bill Olson

From: Denny Foust
To: Bill Olson
Subject: RE: ENRON Thoreau Compressor
Date: Friday, May 05, 1995 8:46AM

Bill, please note you have requested materials be sent to Hobbs District office.

From: Bill Olson
To: Frank Chavez
Cc: Denny Foust
Subject: ENRON Thoreau Compressor
Date: Thursday, May 04, 1995 8:35AM
Priority: High

Attached you will find a draft approval letter for ENRON's ground water remediation plan for the TRhoreau Compressor Station. Please provide me with any comments by 8:30 am on 5/5/95. Thanks!

<<File Attachment: REMEDY1.APR>>

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

April 12, 1995

Mr. Denny Foust
NMOCD Aztec District Office
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Thoreau Compressor Station No. 5
Transwestern Pipeline Company

Dear Mr. Foust,

Mr. Bill Olson at the NMOCD office in Santa Fe asked that Transwestern Pipeline Company provide your office with a copy of all reports associated with the investigation and remediation of potentially contaminated soil and ground water at the subject facility. Therefore, I have enclosed with this letter a copy of the proposed ground water remediation plan for the Thoreau Compressor Station. Also enclosed is a copy of the following supporting documents:

- "Hydrogeology at the Transwestern Pipeline Compressor Station No. 5, Thoreau, New Mexico, Volume I & Volume II" (DBS&A, February 1990),
- "Ground -Water Assessment Report for Compressor Station No. 5, Thoreau, New Mexico, Volume I & Volume II" (DBS&A, July 26,1991),
- "PCB Investigation, Thoreau Monitor Wells 5-1B and 5-6B" (DBS&A, December 1992),
- "Summary of Hydrogeological Investigations Conducted at the Thoreau Compressor Station, July 1991 Through February 1994" (DBS&A, April 20, 1994),
- "An Archeological Survey of Three Parcels Adjacent to the Thoreau, Leupp, and Klagetoh Compressor Stations" (Office of Contract Archeology, UNM, January 8, 1990),
- "An Archeological Survey of Water Testing Units at the Thoreau Compressor Station at Thoreau, McKinley County, New Mexico for the Transwestern Pipeline Company" (Navajo Nation Archaeology Department, December 1992), and
- "New Source Permit Application; Thoreau Compressor Station, Transwestern Pipeline Company, McKinley County, New Mexico", (CES, March 31, 1994).
- "Performance Tests for Volatile Organic Compounds; Soil Vapor Extraction Unit; NM Air Quality Permit #1507; Compressor Station #5; Transwestern Pipeline Company; near Thoreau, New Mexico", (Kramer & Associates, January, 1995).

We will continue to keep your office informed with copies of all future reports and correspondence sent to the NMOCD office in Santa Fe. Please call me at (713) 646-7318 if you have any comments or questions regarding the enclosed information.

Sincerely,

Bill Kendrick, for

Fenley "Ted" Ryther, Jr., PE
Permits Group Manager
EOC Environmental Affairs

TR/gcr

xc: Mr. Bill Olson NMOCD Santa Fe, New Mexico

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 1, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-674

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, NM 88202-1717

Re: Discharge Plan (GW-80)
Thoreau Compressor Station No. 5
McKinley County, New Mexico

Dear Mr. Campbell:

A review of the file for discharge plan GW-80, Thoreau Compressor Station No. 5, located in the NE/4 SW/4 SE/4 of Section 14, Township 13 North, Range 13 West, NMPM, McKinley County, New Mexico, has revealed that the May 14, 1993 discharge plan modification payment of the discharge plan GW-80 has not been submitted to the Oil Conservation Division (OCD). This fee, in the amount of $690.00 for the flat fee, was due on May 14, 1993 respectively. The OCD also requests that Transwestern Pipeline Company please provide a copy of the $50 filing fee check as we do not have a copy of this check in OCD files.

In order to continue to be in compliance with Water Quality Control Commission (WQCC) Regulation 3-114 B.6, please remit the remaining balance in full to the OCD immediately. All checks should be made payable to: NMED-WATER QUALITY MANAGEMENT and addressed to the OCD Santa Fe office.

If there are any questions on this matter, please contact me at (505) 827-7156.

Sincerely,

Patricio W. Sanchez,
Petroleum Engineer

XC: Denny Foust
enclosed: GW modification dated May 14, 1993

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal | Time 11:15 AM | Date 5-1-95

Originating Party	Other Parties
RCA, PWS	Larry Campbell, Transwestern

Subject: GW-80 Fees for Land farm.

Discussion: RCA - cannot waive fees. Modification already processed.

Conclusions or Agreements: Fees will be required - PWS to send out formal letter w/ copy of Modification letter.

Distribution

Signed

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal | Time 11:10 AM | Date 5-1-95

Originating Party	Other Parties
Pat Sanchez - NMOCD	Larry Campbell Transwestern

Subject: GW-80 - no record of Discharge Plan Modification fee -

Discussion: Agency never sent - Never used Land Farm. - Do not want to use the Land Farm - per Larry Campbell.

Conclusions or Agreements: • Drop the Modification. • This is what Larry Wants to do. I told him I would Get w/ RCA and see what can be done.

Distribution

Signed Patricia W. Sanchez

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

March 17, 1995

Mr. Daren Zigich, Technical Analysis and Permits Section
State of New Mexico Environment Department
Air Pollution Control Bureau
1190 St. Francis Drive, Runnels Bldg.
P.O. Box 26110
Santa Fe, NM 87502

RE: Air Quality Permit No. 1507
Performance Test Report

Dear Mr. Zigich,

As required by the subject permit, condition 3(h), Transwestern Pipeline Company (TPC) is submitting a copy of the performance test required by the permit.

If you have any questions regarding this submittal, please contact George Robinson at (713) 646-7327.

Sincerely,

Fenley "Ted" Ryther, Jr., P.E.
Permits Group Manager
EOC Environmental Affairs

gcr/TR

xc: Roger Anderson State of New Mexico Oil Conservation Division

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

March 10, 1995

CERTIFIED MAIL
RETURN RECEIPT NUMBER P-667-242-223

Mr. Fenley Ryther, Jr.
ENRON Operations Corp.
P.O. Box 1188
Houston, TX 77251-1188

RE: GROUND WATER REMEDIATION PLAN
ENRON THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Ryther:

The New Mexico Oil Conservation Division (OCD) is in receipt of ENRON's ground water remediation plan and supporting documents which were submitted to the OCD Santa Fe Office on January 17, 1995.

The OCD notes that these documents were not also submitted to the OCD Aztec Office. The OCD requests that ENRON provide the OCD Aztec Office with a copy of these documents.

Due to the sheer volume of documents submitted and the OCD's current work load, the OCD does not expect to be able to complete a review of the ground water remediation plan and supporting documentation until April 28, 1995.

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

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office

P 667 242 223

Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

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Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, June 1990

Fold at line over top of envelope to the right of the return address.

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

January 11, 1995

Mr. Roger Anderson
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, New Mexico 87505

RE: Thoreau Compressor Station No. 5
Transwestern Pipeline Company

Dear Mr. Anderson,

Enclosed with this letter is a copy of the proposed ground water remediation plan for the Thoreau Compressor Station. Also enclosed a copy of the following supporting documents:

- "Hydrogeology at the Transwestern Pipeline Compressor Station No. 5, Thoreau, New Mexico, Volume I & Volume II" (DBS&A, February 1990),
- "Ground -Water Assessment Report for Compressor Station No. 5, Thoreau, New Mexico, Volume I & Volume II" (DBS&A, July 26,1991),
- "PCB Investigation, Thoreau Monitor Wells 5-1B and 5-6B" (DBS&A, December 1992),
- "Summary of Hydrogeological Investigations Conducted at the Thoreau Compressor Station, July 1991 Through February 1994" (DBS&A, April 20, 1994),
- "An Archeological Survey of Three Parcels Adjacent to the Thoreau, Leupp, and Klagetoh Compressor Stations" (Office of Contract Archeology, UNM, January 8, 1990),
- "An Archeological Survey of Water Testing Units at the Thoreau Compressor Station at Thoreau, McKinley County, New Mexico for the Transwestern Pipeline Company" (Navajo Nation Archaeology Department, December 1992), and
- "New Source Permit Application; Thoreau Compressor Station, Transwestern Pipeline Company, McKinley County, New Mexico", (CES, March 31, 1994).

Please call me at (713) 646-7318 if you have any questions regarding the proposed remediation plan.

Sincerely,

Fenley "Ted" Ryther, Jr., PE
Permits Group Manager
EOC Environmental Affairs

TR/gcr

PERFORMANCE TESTS
FOR VOLATILE ORGANIC COMPOUNDS

*** SOIL VAPOR EXTRACTION UNIT ***

NM Air Quality Permit #1507

COMPRESSOR STATION #5
TRANSWESTERN PIPELINE COMPANY
near
THOREAU, NEW MEXICO

by

Kramer & Associates, Inc.
4501 Bogan NE, Suite A-1
Albuquerque, New Mexico 87109
505.881.0243

January, 1995

CERTIFICATION

The following report has been reviewed and approved to accurately represent the sampling and analyses actually performed. The results reported are accurate to the best of our knowledge.

Gary R. Kramer, PE

TABLE OF CONTENTS

I N T R O D U C T I O N

A. Reason for Test: Air Quality Permit #1507

B. Testing of the Soil Vapor Extraction Unit is required within 30 days after unit startup under permit requirements. No New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPS) apply to this facility.

C. Soil vapors are passed through a knockout tank for moisture removal, then a filter and blower prior to venting to atmosphere. The sampling point is a 1.25" PVC pipe which vents to the side of the utility building (see Figure 1).

D. Company Name: Transwestern Pipeline Company
Box 1188
Houston, TX 77251

Contact Person: George Robinson, Cypress Engineering
713.646.7327

E. Facility Information: Transwestern Pipeline Company
Station #5
2.4 NNW of Thoreau, NM

F. Testing Organization: Kramer & Associates, Inc.
4501 Bogan NE, Suite A-1
Albuquerque, NM 87109
Gary R. Kramer 505.881.0243

G. Individuals Present at Test:

1. Daniel B. Stephens & Associates: Terry Deeds

2. Kramer & Associates: Rick Stallings
Mark B. Robinson

H. Date of Test: December 14, 1994

I. Unit Description and Design Capacities: Soil Vapor Extraction Unit consisting of one vapor filter assembly, one water knockout assembly, one 30-gallon reservoir tank, two vacuum gauges, one vapor flowmeter, and one Rotron EN303 1/2 HP electric regenerative blower.

J. Control Equipment: None

S U M M A R Y

A. Test Data:

A complete summary of the sampling and analytical results is presented in Table 1 below. The permit allowable for VOC emissions is 4.3 tons/year and 6.75 lb/hour.

T A B L E 1.

SUMMARY OF RESULTS

PARAMETER		TEST 1	TEST 2	TEST 3	AVERAGE
Time of Test 12/14/94	Start	12:11	13:15	14:17	
	Stop	13:11	14:15	15:17	
Temperature					
Ambient	deg F	42	50	46	46
Stack	deg F	82	82	84	83
Metered Volume					
Final Reading	acf	8.440	8.590	8.751	
Initial Reading	acf	8.285	8.440	8.590	
Test Volume	acf	0.155	0.150	0.161	0.155
	scf	0.151	0.146	0.156	0.151
Stack Flow Rate	acfm	17.2	17.2	17.2	17.2
	dscfm	16.7	16.7	16.7	16.7
VOC					
Emission Rate, lb/Hr		0.56	0.29	0.55	0.47

S U M M A R Y

(continued)

B. Unit Operating Parameters:

The blower unit was creating a vacuum of 17.8" water throughout all three tests. The exhaust flow rate measured at the chart recorder was 17.2 acfm.

C. Control Equipment Operating Parameters: Not Applicable

D. Comparison of Measured and Modeled Parameters:

No modeling was performed in the application for this permit. Although the 10 lb/hr VOC permitting limit was not triggered, NMED required a separate permit for the soil vapor extraction unit from the pipeline station (which operates under a grandfather clause). The permit limit of 6.75 lb/hr was determined by pilot tests.

TEST PROCEDURES

A. Source Sampling Location: See Figure 1

B. Sampling Train Used: See Figure 2

C. Sampling Description:

Sampling and analyses procedures followed Methods 2A (velocity and flow rate) and 18 (VOC) of the 40 CFR 60, Appendix A. The velocity of the exhaust gas was determined using a turbine meter and signal converter. The electrical signal from the turbine meter was converted to flow rate and was recorded on a Honeywell Truline circular chart recorder (see Part 1). Calibrations for the turbine meter are included in Appendix 1.

A Rockwell dry gas meter was used to measure gas sample volume. Meter temperature was monitored at the entrance using type K thermocouple with inputs on the circular chart recorder (see attached chart record). Ambient and stack temperatures were measured at the beginning of each test.

VOC samples were collected on activated carbon sorbent tubes. One primary and one backup tube were connected in series using TYGON tubing and inserted into the PVC stack with a rubber stopper. The gas sample is then pulled through a calibrated dry gas meter by a sample pump. One hour sample periods were used throughout.

After sampling, the tube ends were stoppered. Each tube was labeled by run and position in the sampling train. Sample tubes were stored on ice during transportation to the Kramer & Associates, Inc. Laboratory in Albuquerque and during storage before analysis. Volatile organics absorbed on the carbon were stripped with carbon disulfide (CS2) and analyzed by gas chromatography with flame ionization detection (GC-FID) on January 25, 1995.

A large number of compounds were present in each of the three test samples; chromatograms for all samples displayed the same qualitative characteristics. Therefore, sample #3 was analysed by gas chromatography - mass spectrometry (GC-MS), and samples 1 and 2 were quantified proportionally based on the GC-MS analyses of sample #3. GC-MS reports and GC-FID chromatograms including calculations are presented in Part 2 of the data and calculations.

D. Deviations from EPA Methods: None

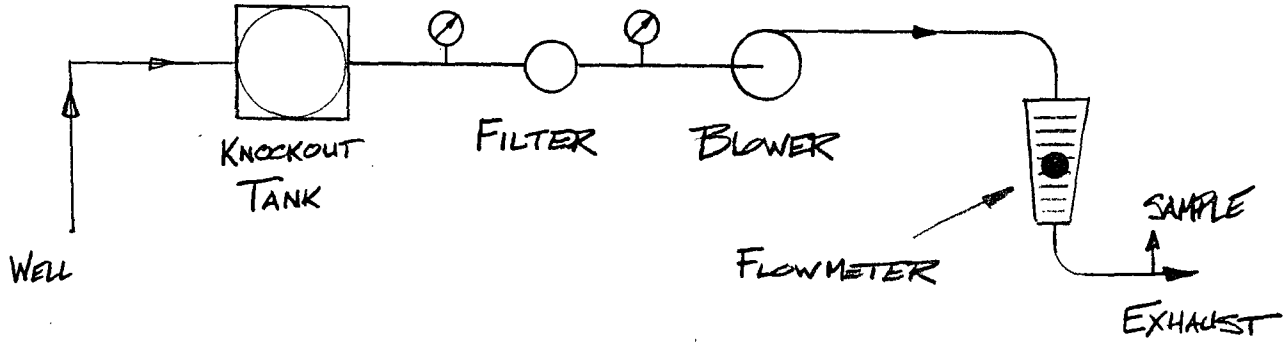


FIGURE 1A. PROCESS SCHEMATIC FLOW DIAGRAM.

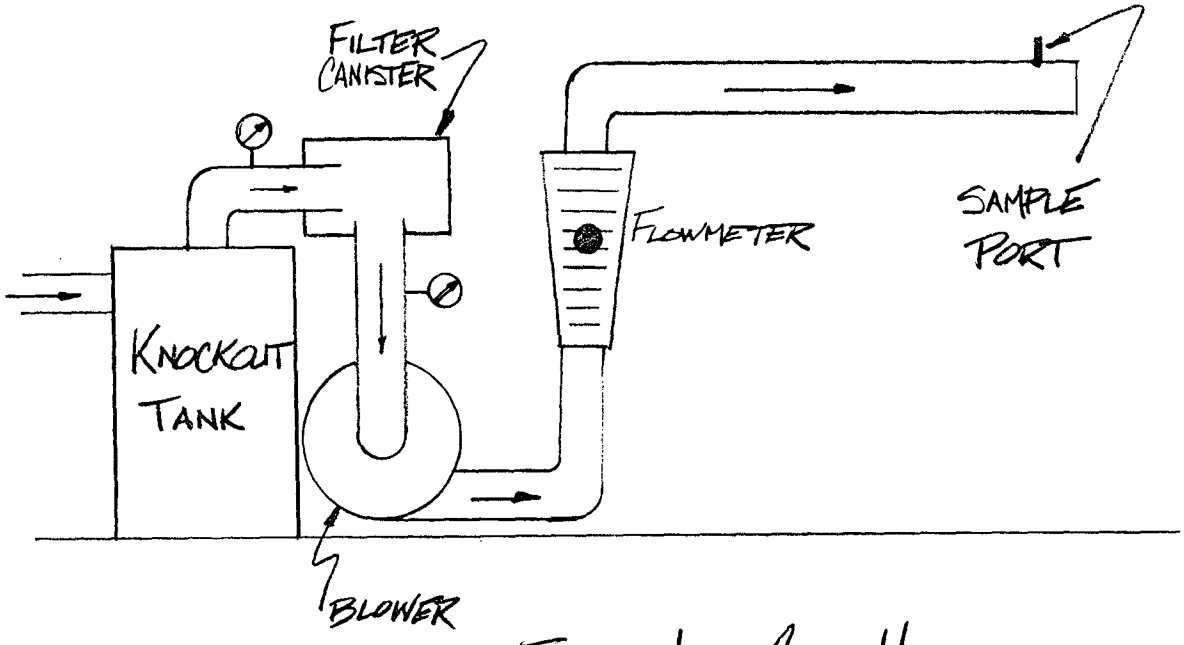


FIGURE 1B. SIDE VIEW

FIGURE 1. SOURCE SAMPLING LOCATION, SOIL VAPOR EXTRACTION UNIT.

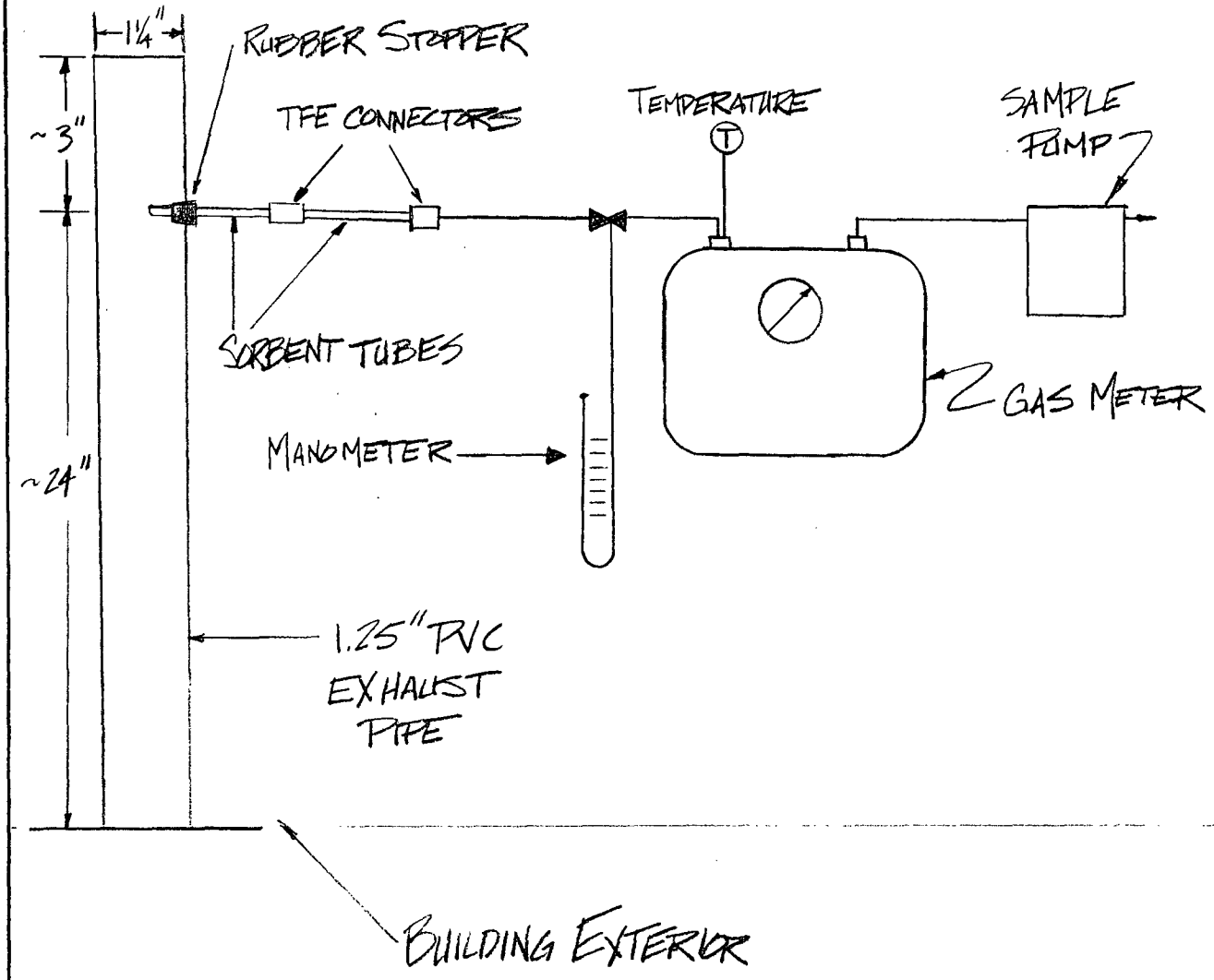


FIGURE 2. SOURCE SAMPLING SCHEMATIC
SOIL VAPOR EXTRACTION UNIT

E. Test Instrumentation:

1. EG&G Flow Technology Inc. Turbo-Probe Turbine Meter Model TP141DNXA

2. EG&G Flow Technology Inc. Signal Converter Model RI51

3. Rockwell Dry Gas Meter Model 175-S

4. SKC Personal Sampling Pump Model 224 PCXR8

5. SKC Charcoal Sorbent Tubes Model 226-01

6. SRI Gas Chromatograph with Flame Ionization Detection Model 8610

F. Unit Operating Parameters: Soil vapor vacuum was read from vacuum gauge at knockout tank. Exhaust flow was measured from circular chart recorder.

D A T A A N D C A L C U L A T I O N S

A. Field Test Data and Unit Operation: See Part 1

B. Laboratory Data: See Part 2

C. Circular Chart Record: See Part 1

D. Calculations: See Part 2

E. Calibration Gas Certifications: None used

F. Audit Sample Results: None analyzed

G. Visible Emissions Results: None performed

H. Sample Chain of Custody: Samples in Custody of Rick Stallings at all times

P A R T 1

FIELD SAMPLING AND UNIT OPERATING DATA
CIRCULAR CHART RECORD

Field Data Sheet 12/14/94

TWPL Thoreau Soil Extraction Unit

Run 1

P_b = 23.79 Tamb = 42°F Ts = 82°F

Meter Rdg: Start - 618.285 1211 Hours

Stop - 618.440 1311 Hours

ΔH = 0.8" H_2O

(Flow meter calib: - 2.79 CFM/volt ; Meter Dia = 1.125")

Run 2

Tamb = 50°F Ts = 82°F

ΔH meter = 0.8" H_2O

Meter Rdg: start - 618.440 1315 Hours

stop - 618.590 1415 Hours

Run 3

Tamb = 46°F Ts = 84°F

Meter Rdg: start - 618.590 1417 Hours

stop - 618.751 1517 Hours

FLOW
TEMP. METER
12:09
12:29
12:49
13:09
12/20/94
0 TO 50 RCFM
0 TO 100 DEG. F

P A R T 2

LABORATORY DATA CALCULATIONS

CALCULATIONS SUMMARY
TWPL - THOREAU
SOIL EXTRACTION UNIT TESTS

I. TEST #1 :

ACFM = 17.2 ; SAMPLE VOLUME = 0.155 ACF

VOC = 38.2MG

$$\text{VOC RATE} = \frac{38.2}{0.155} \times \frac{1}{453600} \times 17.2 \times 60 = 0.56 \text{ lb/HR}$$

II. TEST #2 :

ACFM = 17.2 . SAMPLE VOLUME = 0.150

VOC = 19.1MG

$$\text{VOC RATE} = \frac{19.1}{0.15} \times \frac{1}{453600} \times 17.2 \times 60 = 0.29 \text{ lb/HR}$$

III. TEST #3 : ACFM = 17.2 SAMPLE VOLUME = 0.161

VOC : 39 MG

$$\text{VOC RATE}: \frac{39}{0.161} \times \frac{1}{453600} \times 17.2 \times 60 = 0.55 \text{ lb/HR}$$

AVE VOC RATE = 0.47 lb/HR

VG LAB-BASE The TRIO-1 GC-MS Data System

Sample:CP-01399 + 20 ug/ml ISTD Instrument:Trio-1

CP01399 57

No.	Scan	RT	Area	Conc	Name
1	434	7.234	202000	20.00000	ISTD ETHYLBENZENE-d10
2	109	1.817	113000	11.00000	2-METHYLPENTANE
3	113	1.883	79200	7.80000	3-METHYLPENTANE
4	118	1.967	157000	16.00000	HEXANE
5	126	2.100	22100	2.20000	2,2-DIMETHYLPENTANE
6	130	2.167	209000	21.00000	METHYLCYCLOPENTANE
7	143	2.384	28900	2.90000	3,3-DIMETHYLPENTANE
8	149	2.484	831000	82.00000	2-METHYLHEXANE
9	151	2.517	124000	12.00000	2,3-DIMETHYLPENTANE
10	155	2.584	523000	52.00000	3-METHYLHEXANE
11	163	2.717	176000	17.00000	METHYLHEXENE
12	165	2.750	127000	13.00000	1,3-DIMETHYLCYCLOPENTANE
13	167	2.784	209000	21.00000	3,4-DIMETHYLPENTENE
14	174	2.900	1090000	110.00000	HEPTANE
15	194	3.234	37700	3.73000	2,2-DIMETHYLHEXANE
16	200	3.334	1560000	150.00000	METHYLCYCLOHEXANE
17	205	3.417	59500	5.90000	2,2,3-TRIMETHYLPENTANE
18	207	3.450	93900	9.30000	2,4-DIMETHYLHEXANE
19	212	3.534	79400	7.90000	ETHYLCYCLOPENTANE
20	220	3.667	153000	15.00000	1,2,4-TRIMETHYLCYCLOPENTANE
21	230	3.834	141000	14.00000	1,2,3-TRIMETHYLCYCLOPENTANE
22	246	4.100	100000	10.00000	2-METHYLHEPTANE
23	255	4.250	710000	70.00000	4-METHYLHEPTANE
24	260	4.334	233000	23.00000	TOLUENE
25	268	4.467	469000	46.00000	3-METHYLHEPTANE
26	281	4.684	413000	41.00000	CIS-1,3-DIMETHYLCYCLOHEXANE
27	286	4.767	145000	14.00000	TRANS-1,4-DIMETHYLCYCLOHEXANE
28	297	4.950	105000	11.00000	1,1-DIMETHYLCYCLOHEXANE
29	303	5.054	84000	8.00000	1-ETHYL-2-METHYLCYCLOPENTANE
30	323	5.384	1110000	110.00000	OCTANE
31	335	5.584	84100	8.30000	CIS-1,4-DIMETHYLCYCLOHEXANE
32	363	6.050	12000	1.20000	C9 BRANCHED ALKANE
33	366	6.100	33100	3.40000	2,3,5-TRIMETHYLHEXANE

VG LAB-BASE The TRIO-1 GC-MS Data System

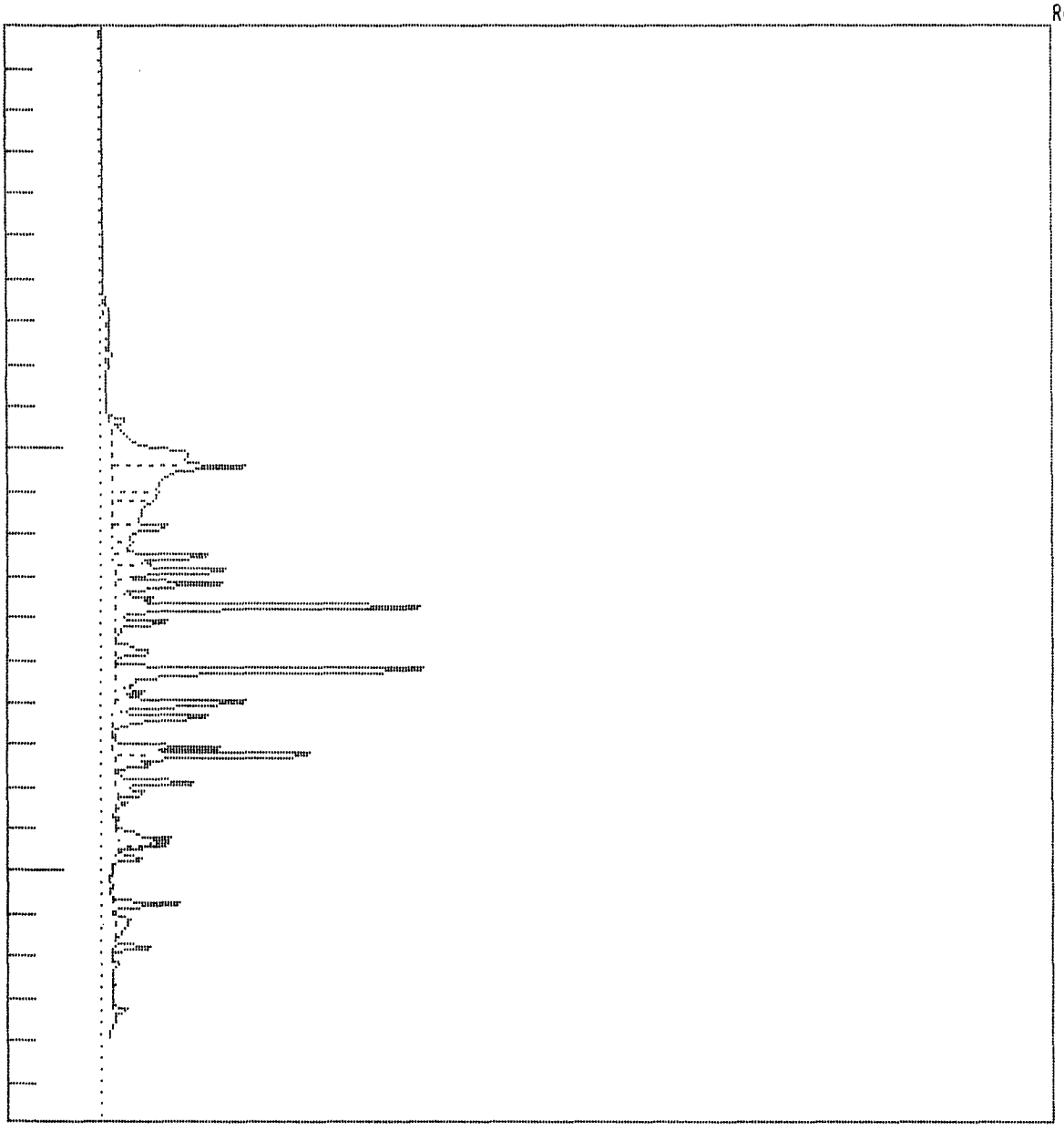
Sample:CP-01399 + 20 ug/ml ISTD Instrument:Trio-1

CP01399 57

No.	Scan	RT	Area	Conc	Name
24	388	6.367	120000	12.000000	2,6-DIMETHYLHEPTANE
25	397	6.515	37200	1.700000	1,3,5-TRIMETHYLCYCLOHEXANE
26	399	6.548	283000	30.000000	ETHYLCYCLOHEXANE
27	399	6.548	113000	11.000000	1,1,3-TRIMETHYLCYCLOHEXANE
28	400	6.564	26000	2.600000	ETHYLMETHYLCYCLOHEXANE
29	402	6.597	56200	6.000000	1,2,4-TRIMETHYLCYCLOHEXANE
30	404	6.630	21300	2.000000	ETHYLBENZENE
31	404	6.630	93500	10.000000	2,3-DIMETHYLHEPTANE
32	405	6.646	45000	4.500000	2-METHYLOCTANE
33	406	6.663	16000	1.600000	1,3-DIMETHYLBENZENE
34	407	6.679	19000	1.900000	3-METHYLOCTANE
35	408	6.695	9700	0.900000	TETRAMETHYLCYCLOHEXANE
36	409	6.712	33000	3.600000	1-ETHYL-4-METHYLCYCLOHEXANE
37	410	6.728	55000	5.500000	1,2-DIMETHYLBENZENE
38	411	6.744	276000	27.600000	NONANE
39	412	6.761	28000	2.800000	C3 CYCLOHEXANE
40	413	6.777	15000	1.500000	C3 CYCLOHEXANE
41	414	6.794	22000	2.200000	PROPYLCYCLOHEXANE
42	415	6.810	55000	5.500000	3,6-DIMETHYLOCTANE
43	416	6.826	22000	2.200000	4-METHYLNONANE + C3 BENZENE
44	417	6.843	16000	1.600000	2-METHYLNONANE
45	418	6.859	15000	1.500000	3-METHYLNONANE
46	419	6.876	30000	3.000000	DECANE
47	1076	17.935	196000	20.000000	1,2-BENZENEDICARBOXYLIC ACID

Operator :
Description : SRI 8610 GC CHANNEL 1
Conditions : TWPL: RUN 2 SECTION 1
: BTEX 2, GLASS VOLCOL COLUMN
: 1 UL OF 35 ML CS2 SAMPLE
File : SRIGC1.CHR
Temperature : BTEX2.TEM
Components :
Date : 08/01/1994
Time : 10:19:01

-100.000mV 1000.000mV



Retention	Height	Area
7.116	5.413	219.46
9.333	17.890	153.72
10.400	144.600	2868.24
11.016	47.864	513.96
11.200	46.605	1224.60
11.833	64.454	841.70
12.516	114.661	929.63
13.183	114.983	1204.31
13.716	413.919	3603.37
14.116	64.972	562.48
14.833	43.200	448.31
15.233	396.668	3463.11
16.000	153.261	1480.58
16.333	113.410	1042.17
17.066	113.185	816.78
17.250	289.762	2268.40
18.150	27.807	284.61
19.250	59.190	572.87
19.700	32.137	229.72
20.766	70.690	524.19
21.183	15.655	326.62
21.800	38.277	289.27
23.283	13.515	114.86

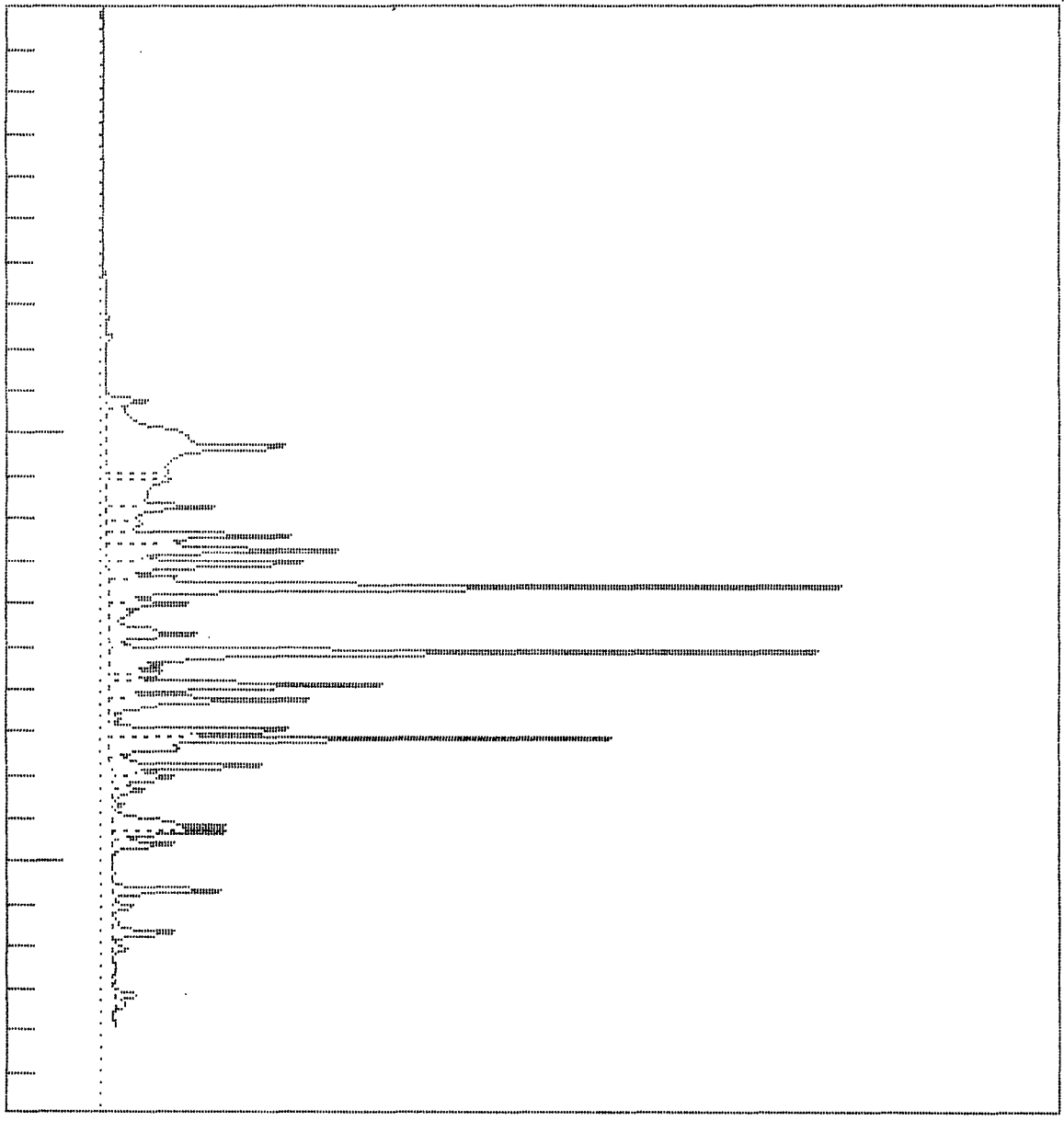
VOC: $\frac{3603}{7449} \times 1113\ mg/L = 538\ mg/L \times .035L = 18.8\ MG$

$\frac{3463}{6969} \times 1113 = 553\ mg/L \times .035L = 19.4\ MG$

AVE = 19.1 MG.

Operator :
Description : SRI 8610 GC CHANNEL 1
Conditions : TWPL: RUN 1 SECTION 1
: BTEX 2, GLASS VOLCOL COLUMN
: 1 UL OF 35 ML CS2 SAMPLE
File : SRIGC1.CHR
Temperature : BTEX2.TEM
Components :
Date : 08/01/1994
Time : 09:33:21

-100.000mV 1000.000mV



Retention	Height	Area
9.233	42.941	424.75
10.300	213.424	6275.91
10.933	66.097	641.27
11.100	67.185	1774.97
12.133	36.890	553.97
12.416	214.900	1750.67
13.083	228.452	2438.08
13.616	779.493	7266.28
14.016	87.624	1039.96
14.733	92.742	1176.80
15.133	747.473	6853.52
15.883	296.569	3025.76
16.233	221.033	2181.38
16.966	212.740	1555.72
17.166	536.105	4474.32
18.050	65.711	779.79
18.316	34.532	384.94
19.300	119.770	901.21
19.600	69.369	626.69
20.666	129.852	1008.32
21.066	22.112	227.43
22.066	13.000	104.82
23.166	24.470	224.79
23.450	9.420	101.07

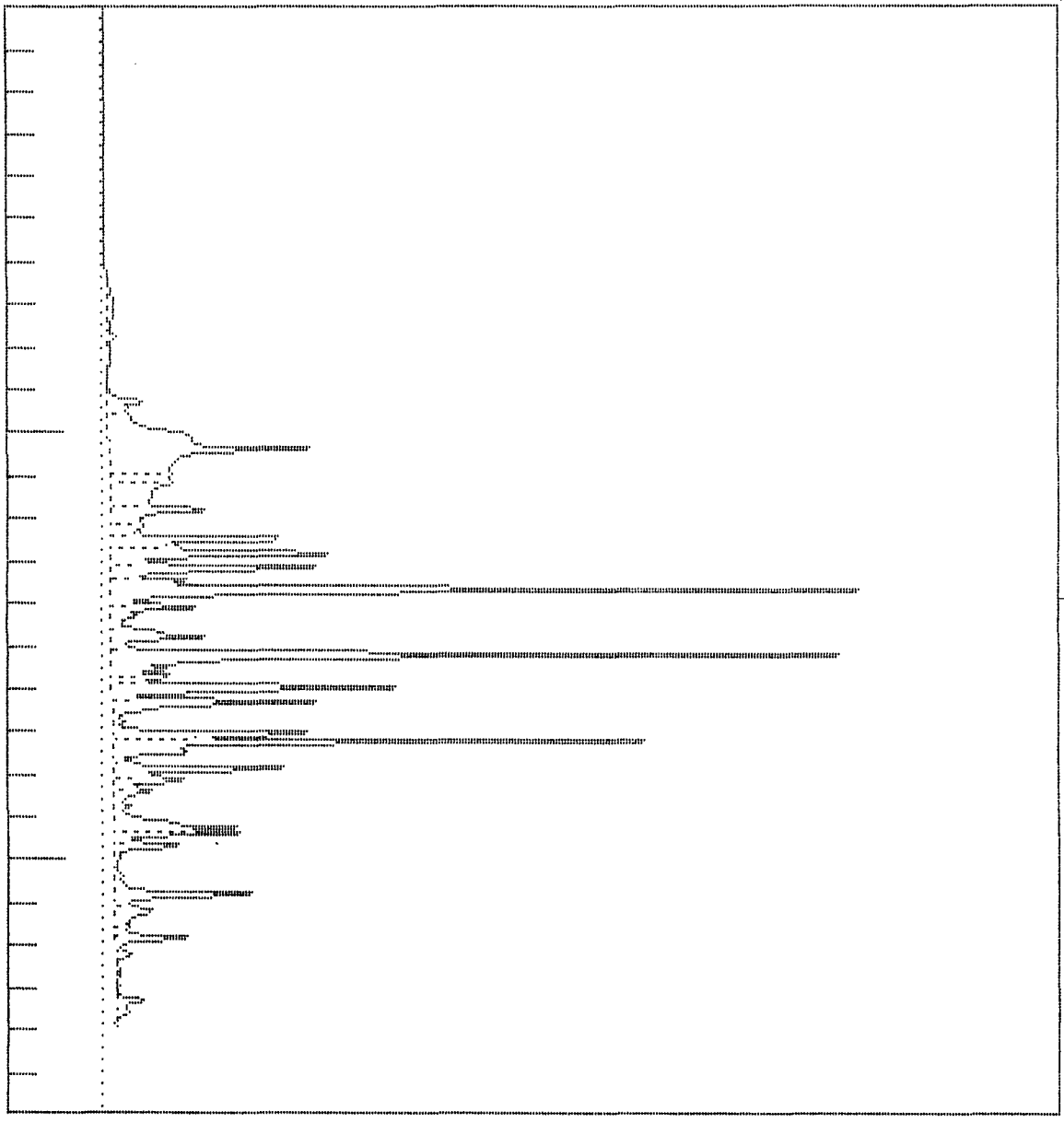
VOC : 7266/7449 × 1113 = 1086 MG/L × 0.035 L = 38 MG

6854/6969 × 1113 = 1095 × 0.035 = 38.3 MG

AVE = 38.2 MG

Operator :
Description : SRI 8610 GC CHANNEL 1
Conditions : TWPL: RUN 3 SECTION 1
: BTEX 2, GLASS VOCOL COLUMN
: 1 UL OF 35 ML CS2 SAMPLE
File : SRIGC1.CHR
Temperature : BTEX2.TEM
Components :
Date : 08/01/1994
Time : 18:24:33

-100.000mV 1000.000mV



Retention	Height	Area
7.066	5.242	186.02
9.283	37.209	491.74
10.350	213.259	5973.89
10.983	64.933	690.00
11.150	66.346	1757.25
11.783	115.220	1405.72
12.466	224.168	1791.98
13.133	224.024	2345.57
13.666	806.949	7449.56
14.083	97.234	1132.50
14.783	96.574	1243.94
15.200	776.159	6969.02
15.950	314.272	3160.91
16.300	234.391	2271.32
17.033	224.714	1671.57
17.233	581.111	4783.11
18.133	72.747	825.09
18.766	17.150	150.29
19.366	131.411	1057.06
19.683	77.348	783.82
20.783	153.880	1572.35
21.566	15.267	144.33
21.816	80.148	757.98
22.216	18.552	214.41
23.616	11.960	160.61

A P P E N D I X

A. Test Problems: None

B. Special Future Test Information: None

C. Testing Firm Experience:

Kramer & Associates, Inc. (KAI) has been performing source testing in New Mexico, Arizona, Texas, and Colorado since 1975. Most sample analyses are conducted in the KAI Laboratory in Albuquerque. The current professional staff includes: two environmental engineers (1 PE), and two chemists (1 MS-Analytical Chemistry).

D. Sampling Equipment Calibrations: see attached

DRY METER AND ORIFICE CALIBRATION DATA

Date 12-13-94 Location NMEID - SF Barometric Pressure, P_b 24.16 in Hg

Control Module Serial No. Rockwell Dry Gas Meter No. _____

Orifice Setting ΔH	Metered Gas Volume, Ft^3		Meter Temperature, °F		Metering Time Minutes t	Accuracy Ratio G *	Orifice Coefficient $\Delta H_@$ *
	Wet Test V_w	Dry V_d	Wet Test T_w	Dry(ave) T_d			
	1.97	1.945	68	74.6		1.032	
	3.68	3.705	68	76.4		1.021	

$$* G = \frac{V_w P_b (T_d + 460)}{V_d (P_b + \frac{\Delta H}{13.6})(T_w + 460)}$$

$$H_@ = \frac{0.0317\,\Delta H}{P_b (T_d + 460)} \cdot \left(\frac{(T_w + 460)t}{V_w} \right)^2$$

G = ratio of accuracy of wet test meter to dry test meter

$\Delta H_@$ = orifice pressure differential that gives 0.75 cfm of air at 70°F and 29.92 inches Hg

Kramer & Associates

I. $V_{TRUE} = \frac{A - A_o}{A} \times V_i$

A_o = AREA OBSTRUCTED BY PROBE = 0 *

$A = \left(\frac{1.125''}{12}\right) \frac{\pi}{4} = 0.00690 \text{ FT}^2$

V_i = INDICATED VELOCITY FROM CALIBRATION

II. ACFM = 0.00690 × FPM

** FOR OPERATING RANGE > 2200 FPM ; FPM = 400 × VOLTAGE

∴ ACFM = 0.00690 × 400 × VOLTAGE

= 2.76 × VOLTAGE

III. CHART READOUT = 2.76 × VOLTAGE OUTPUT FROM METER

* ALL FLOW GOES THROUGH TURBO PROBE

*SEE CALIBRATION RECORD.

CALIBRATION DATA RECORD

Turbo Probe Model # TP141DNXA-GBC-4 Serial #090703107
Rate Indicator Model #RI51-1-C-0000-7
Flow Technology, Inc.

Run No.	Frequency, Hz	Velocity, FPM	DC Volts	Meter Read'g
1	644.30	4000.00	10.00	10.0
2	517.25	3215.58	8.03	8.02
3	352.23	2204.04	5.47	5.46
4	235.81	1497.87	3.66	3.65
5	157.63	1027.63	2.48	2.43
6	101.89	687.91	1.58	1.56
7	66.72	477.73	1.03	1.01
8	42.24	329.08	0.66	0.63
9	24.95	221.83	0.39	0.36
10	12.92	147.79	0.20	0.18

Phone (505) 623-2761
FAX (505) 625-8060

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

February 3, 1995

Mr. Chris Eustice
New Mexico Oil Conservation Division
2040 South Pacheco St.
Santa Fe, New Mexico 87504

Re: Surface Impoundment Closure Thoreau Comp. Sta. (GW-80)

Dear Mr. Eustice:

Transwestern Pipeline Company, owner and operator of the Thoreau Compressor Station, presents the following information to the OCD to formally close the out of service surface impoundment present at the above referenced facility. This closure procedure incorporated the information received from the drilling investigation conducted by Cypress Engineering at the compressor station facility where contamination levels present in the soils were below regulatory target levels and recommendations provided by your agency.

The concrete impoundment has been closed in the following manner. The liquids were removed and the concrete sides were pushed into the center of the impoundment floor. Clean soil fill material was then placed and compacted into the impoundment and mounded over the backfilled impoundment.

It is Transwestern's position that this feature has been taken out of service and is no longer considered potential hazard for future contamination. In addition, Transwestern has employed sufficient security in the form of surface soil mounding to ensure that contaminants will not collect into the impoundment. Transwestern is confident that the described closure efforts will comply with the OCD's closure recommendations.

If you should require any additional information concerning the construction activity, contact our Roswell Technical Operations at (505) 625-8022.

Sincerely,

Larry Campbell

Larry Campbell

Division Environmental Specialist

xc: Greg McIlwain
Joe Hulscher
Bob Anderson
Butch Russell
file

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

October 12, 1994

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-176-012-266

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

Re: Surface Impoundment Closure
Thoreau Compressor Station No. 5 (GW-80)
McKinley County, New Mexico

Dear Mr. Campbell:

The Oil Conservation Division (OCD) has received Transwestern Pipeline Company's (Transwestern) request, dated August 15, 1994, for approval to formally close the concrete surface impoundment and unlined surface retention area present at the above referenced facility. Based upon the above referenced request and the report SHALLOW SUBSURFACE INVESTIGATION, TRANSWESTERN PIPELINE COMPANY COMPRESSOR STATION NO.5 THOREAU, NEW MEXICO, prepared by Cypress Engineering Services, Inc. on behalf of Transwestern, the request is hereby approved with the following conditions:

1. The concrete impoundment will be broken up and backfilled with clean fill dirt and mounded in a manner to inhibit ponding of rain water.

2. Transwestern will submit a final closure report to the OCD within forty-five (45) days of completing the proposed closure.

Please be advised that OCD approval does not limit you to the work proposed if the work fails to fully delineate the extent of contamination related to Transwestern's activities. Additionally, this approval does not relieve you of liability should your operation result in actual pollution of surface or groundwater or the environment actionable under other laws and/or regulations.

If you have any questions, please do not hesitate to call me at (505) 827-5824.

Sincerely,

Chris E. Eustice
Environmental Geologist

xc: OCD - Artesia Office

Phone (505) 623-2761
FAX (505) 625-8060

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

August 15, 1994

Mr. Roger Anderson
Bureau Chief
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Re: Surface Impoundment Closure, Compressor Station No. 5, Thoreau, New Mexico

Dear Mr. Anderson:

Transwestern Pipeline Company, (Transwestern) owner and operator of the above referenced facility, requests written approval from your agency to formally close the concrete lined surface impoundment and unlined surface retention area present at this location. On April 26, 1994, the report entitled, "Shallow Subsurface Investigation Transwestern Pipeline Company Compressor Station No. 5 Thoreau, New Mexico" which describes the environmental conditions at each impoundment, was submitted to your office for review. On July 29, 1994, a one day meeting was held in your office and specific items relating to the written investigation were discussed.

At this time, Transwestern requests closure of each feature at this site based upon the following conditions and observations:

1. Minor concentrations of hydrocarbon (TPH) contamination at 31,000 ppm were detected in one boring at a depth of 51 feet near the southeast corner of the concrete surface impoundment. However, field analyses of the TPH values in the same sample, did not indicate the presence of hydrocarbons at this depth.

2. BTEX constituents at 8.9 ppm have minimally impacted the surface soils at one borehole location located east of the concrete impoundment.

3. Underground aquifers were not impacted by the hydrocarbons which entered the soil, as subsurface soil samplings taken at the borehole bottom did not contact groundwater.

4. This facility is located in a semi-remote area. the present land use of the area is livestock grazing and oil and gas activity.

5. There is no public endangerment. The distance to the nearest residential receptor is estimated at one half mile.

The geological strata present throughout the region is the Chinle formation and is located at an approximate depth of fifty feet. This material consists of highly impermeable clays which are highly impervious to the vertical movement of potential hydrocarbon sources If hydrocarbons are present in the isolated vicinity described above, the Chinle formation would act as an excellent barrier for vertical movement of hydrocarbons.

The BTEX constituents which were identified in the upper soil interval at one location, represents an isolated occurrence of constituents present. At the level reported, natural conditions at the site will degrade and reduce the extremely small concentrations of contaminants present.

Transwestern's approach for removal of the constituents at this site, is to allow insitu bioremediation to occur. This degradation activity is a natural dynamic process which is present everywhere. The OCD currently allows this "inplace" remediation technique at numerous oil and gas sites in which soil remediations are in progress. Transwestern is confident that the microbial and chemical degradation of the small concentrations of hydrocarbon materials will be greatly reduced over time. In addition, this remediation activity is well suited to site conditions where low concentrations of hydrocarbon contaminants are present. To remove and transport the soils from this location to a commercial landfarm location would be an economic burden to the company, and create a greater potential liability to the adjacent area

Based upon the above points of consideration, Transwestern Pipeline Company proposes not to perform any additional investigations or remedial actions.

Should you require any additional information concerning written closure of this feature, contact our Roswell Technical Operations at (505) 625-8022.

Sincerely

Larry Campbell
Division Environmental Specialist

xc: file

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

May 17, 1994

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-176-012-215

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

Re: Disposal Request
Thoreau Compressor Station (GW-80)
McKinnley County, New Mexico

Dear Mr. Campbell:

The Oil Conservation Division (OCD) has received your request, dated May 9, 1994, for approval to dispose of approximately 100 yards of non contaminated concrete generated from the removal of two onsite company houses. Based upon the information provided, your disposal request is approved with the following conditions.

1. Onsite burial will be into a dedicated excavation area within the confines of the facility.

2. The excavation area, and soils used to cover the area, will be free of contaminants relative to the "Guidelines For Surface Impoundment Closure".

3. The concrete to be buried will be non contaminated as stated in your request.

Please be advised that this approval does not relieve you of liability should your operation result in actual pollution of surface or groundwater or the environment actionable under other laws and/or regulations.

If you have any questions, please do not hesitate to call me at (505) 827-5824.

Sincerely,

Chris E. Eustice
Environmental Geologist

ENRON
OPERATIONS CORP.

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

March 31, 1994

Mr. Jim Shively
NMED Air Pollution Control Bureau
P.O. Box 26110
Santa Fe, NM 87502

RE: New Source Permit Application

Dear Mr. Shively,

Transwestern Pipeline Company (TPC) is filing an application for permit to install a soil vapor extraction system at TPC's Compressor Station No. 5 located near Thoreau, New Mexico. The soil vapor extraction system is to be installed as part of a proposed ground water remediation project at the site. Enclosed is the permit application, required attachments, and filing fee.

If you have any questions regarding this permit application, please contact George Robinson at (713) 646-7327.

Sincerely,

Fenley "Ted" Ryther, Jr., P.E.
Permits Group Manager
EOC Environmental Affairs

George C. Robinson, P.E.
Contract Environmental Engineer
Cypress Engineering Services, Inc.

cp w/o enclosures:	Sadie Hoskie	Navajo EPA
	Roger Anderson	NMOCD
cp w/ enclosures:	David Kelly	Navajo EPA

ENRON
OPERATIONS CORP.

October 29, 1993 P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

Ms. Sadie Hoskie
Director, Navajo EPA
P.O. Box 308
Window Rock, AZ 86515

Re: Thoreau Compressor Station No. 5

Dear Ms. Hoskie,

Since our meeting with you last month, we have met with the New Mexico Oil Conservation Division (NMOCD) on October 7th. They were also favorably disposed to the conceptual plan of natural bioremediation enhanced by localized air sparging. We informed them, as we agreed with you, that we were planning to prepare a more detailed written plan as soon as we have received conceptual approval from appropriate parties. We plan to meet with EPA Region IX within the next few weeks and will then submit the more detailed written plan to you for review.

In the meantime we are continuing to develop regional data. As we mentioned in our presentation to you, we plan to use "vacuum" wells to mitigate the potential for vapor build up in the vadose zone from air sparging activities. To evaluate the effect of this, we have scheduled an on-site pilot test for November 3-5, 1993. During this test, a mobile soil vacuum extraction (SVE) unit will be used to apply a vacuum to several of the existing on-site monitoring wells. The flow rate of vapor versus vacuum applied will be measured for each well and the extracted vapor will be sampled and analyzed for volatile organic compounds. The SVE unit is equipped with an IC engine and catalytic converter to control volatile organic emissions.

I would also like to take this opportunity to inform you that ENRON's Water Use Permit application was recently denied by The Navajo Nation Water Resources Management. Therefore, the sampling event scheduled for October 1993 will be postponed until this issue, along with the issue of surface access for monitor wells outside our station, can be resolved.

If you have any questions, please contact me at (713) 646-7318.

Yours very truly,

Ted Ryther

Fenley "Ted" Ryther, Jr., PE
Manager, Permits Group

bc: Ben Bowman, ENRON Operations Corp.
Mike Terraso, ENRON Operations Corp.
Roger Anderson, New Mexico Oil Conservation Division

OCD/ENRON Meeting on Laguna/Thoreau Compressors
10/7/93 8:30 am

Attendees - Bill Olson - OCD Envir. Bureau
Roger Anderson - "
Chris Eustice - "
Ted Blythe - ENRON
George Robinson - "
Joanne Hilton - Dan Stephens & Assoc.

Thoreau Compressor Station

T.B. Handout of Thoreau Comp. invest. work
Working with Navajo; for lease on offsite land

J.H. Handout of Bioremedy Pilot test

Plots of Benzene vs time

G.R. Want to - install Air sparge / Vapor Extraction system at fence line
- former offsite cont. area
- monitor offsite cont.
- expand to offsite if increase in offsite cont.

T.B. Presented this to Navajo EPA last week
offsite land btw landfill rd. & plant farm is Navajo land obtained in trade from BLM
offsite land south of landfill rd. is original Tribal Navajo lands

R.A. State has authority over G.W. on all lands in state except original tribal reservation boundaries

T.R. -Navajo tribe doesn't have prob. with proposal but want more detailed proposal
- Monitoring permit with Navajo's for offsite has expired. Are in process of reapplying for continuation of monitoring

-Expect to meet with EPA Region 9 soon (by end of month)
-Expect to make formal remediation proposal by Jan 1994

Lagunna Compressor Station

T.R. Handout of Lagunna invest. work
Want to perform same action as at Thoreau
- monitor
- allow for natural biodegradation
Solvents in G.W.

R.A. Most likely under EPA authority for solvents as a RCRA cleanup

T.R. -OCD will get copies of all correspondence
-ENRON will meet with EPA Region 6 soon to discuss

10/7/93
OCD/Environ
meeting

PILOT TEST OF NITRATE-ENHANCED HYDROCARBON BIOREMEDIATION IN A MODERATE- TO LOW-PERMEABILITY AQUIFER

Joanne Hilton[1], Bob Marley[1], Ted Ryther, P.E.[2], Jeffrey Forbes[1]

[1]Daniel B. Stephens & Associates, Inc.
Albuquerque, New Mexico

[2]Consulting Engineering Services
Houston, Texas

Abstract

A pilot test was conducted to determine the feasibility of using nitrate as an oxidant to enhance hydrocarbon bioremediation in a moderate- to low-permeability aquifer. The aquifer consists of approximately 15 feet of saturated silty sand, with an average hydraulic conductivity of approximately 0.28 ft/day and an average depth to water of 48 feet below land surface. A recirculating injection/extraction system was used to introduce potassium nitrate into the aquifer. The injection well was installed 15 feet upgradient of the extraction well, with a monitoring well placed halfway between the two. Soil samples collected during drilling were analyzed for denitrifying bacterial population, nutrients, and hydrocarbons. Potassium nitrate, sodium bromide, and monosodium phosphate were injected into the recirculating ground water via an automatic metering pump. Field measurements of nitrate and bromide in the monitoring and extraction wells were made with ion selective electrodes, and water samples were sent to an analytical laboratory to verify the field measurements. The nitrate-to-bromide ratios were evaluated to determine nitrate consumption rates. Total petroleum hydrocarbons, benzene, toluene, ethylbenzene and total xylene were also monitored. Toluene, ethylbenzene and total xylene concentrations decreased during the pilot test period, but no reduction in benzene was observed. The presence of nitrite, along with the observed reduction in dissolved hydrocarbon concentrations, indicated that denitrification was occurring.

Introduction and Site Description

A pilot test of nitrate-enhanced hydrocarbon bioremediation was conducted at a natural gas compressor station in western New Mexico. The site is situated on the southern end of the San Juan Structural Basin within the Colorado Plateau physiographic province. The pilot test area consists of approximately 60 feet of alluvium comprised mostly of reddish-brown, silty, fine sand having moderate to low permeability. Perched ground water is encountered at approximately 48

Hilton, J.A., R. Marley, T. Ryther, and J. Forbes. 1992. Pilot test of nitrate-enhanced bioremediation in a moderate-to-low permeability aquifer. NGWA Petroleum Hydrocarbons and Organic Chemicals in Ground Water. Houston, Texas.

feet below land surface. The average natural hydraulic gradient in the perched alluvial aquifer is approximately 0.03 ft/ft, the average hydraulic conductivity is about 0.28 ft/day (10^{-4} cm/sec), and the site average ground-water flow velocity in the alluvium is approximately 30 ft/year. The alluvium is underlain by the Triassic Chinle Formation which is comprised mostly of red claystones and mudstones and is roughly 1000 to 1300 feet thick. The regional water table lies about 400 feet beneath the site, within the upper Chinle Formation.

Dissolved hydrocarbons, including benzene, toluene, ethylbenzene and xylene (BTEX) have been detected in perched ground water at the site. The source of the hydrocarbons in ground water is believed to be primarily natural gas condensate. Natural gas is composed mostly of alkane compounds, with methane being the most abundant (Eiceman, 1986). In addition, natural gas contains variable concentrations of heavier molecular weight hydrocarbons (C_{4+}) which may condense due to changes in temperature and pressure within the distribution pipelines. The condensate is removed from the pipeline through "pigging" operations, which make use of a cylindrical piston-like device known as a "pig". The pig cleans the condensate from the interior pipeline wall by scraping and brushing as it is carried through the pipeline by the pressurized gas stream. Two major classes of organic chemicals are contained in the condensate: (1) alkanes/ alkenes and (2) benzene/alkylated benzenes. While currently all condensate from pigging operations is contained, past practices resulted in release of hydrocarbons to the perched ground water beneath the site.

Nitrate-enhanced hydrocarbon bioremediation was selected for consideration at the site because moderate to low permeabilities limited the feasibility of using either pump-and-treat remediation or in-situ techniques requiring flushing of large volumes of water or air. The objective of the pilot test was to evaluate the feasibility of using nitrate to stimulate bioremediation of the dissolved hydrocarbons and to apply information from the pilot test to a site wide design.

Theory of Nitrate-Enhanced Bioremediation

Most biodegradation reactions result from oxidation of hydrocarbons to carbon dioxide (CO_2) and water (H_2O). For example, the oxidation of benzene (C_6H_6) may occur according to the following reaction:

$$\underset{-1+1}{2C_6H_6} + \underset{0}{15O_2} \longrightarrow \underset{+4-2}{12CO_2} + \underset{+1-2}{6H_2O} \qquad \text{Rxn. 1}$$

Thus oxidation of one mole of benzene requires 7½ moles of molecular oxygen. As shown by the above reaction, oxidative biodegradation usually involves molecular oxygen (O_2) as the oxidizing agent (oxidant), but this need not always be the case. In the more general sense, oxidation of an organic compound, or any other substance, simply requires transfer of electrons from the substance being oxidized to the oxidizing agent, which is thereby reduced to a lower oxidation state. The numbers above the reactants and products in Rxn. 1 give the oxidation states of the elements that make up the compounds. In this case, carbon has been oxidized through the removal of electrons, raising its oxidation state from -1 to +4. Molecular oxygen (O_2) serves as the electron acceptor and is thereby reduced from an oxidation state of 0 to -2.

Oxidants other than molecular oxygen are also possible. The nitrate ion (NO_3^-) may serve as an oxidant (electron acceptor), as shown in the following oxidation reaction:

$$\text{-CH-} + NO_3^- + H^+ \longrightarrow CO_2 + \tfrac{1}{2}N_2 + H_2O \qquad \text{Rxn. 2}$$

In this reaction, the hydrocarbon (symbolized -CH-) is oxidized to carbon dioxide and water, while nitrate is simultaneously reduced to N_2 gas, a process known as denitrification[1]. In Rxn. 2, 1 mole of nitrate is capable of oxidizing 1 mole of carbon atoms. Note also that Rxn. 2 is pH-dependent. Although thermodynamics indicate that the reaction should proceed to the right at near-neutral pH conditions, the very high activation energy causes the rate to be very slow. Therefore, denitrification would proceed exceedingly slowly were it not for denitrifying bacteria, which manufacture enzymes to facilitate the reaction. Genera of bacteria which are known to perform denitrification include Pseudomonas, Escherichia, Bacillus, and Proteus, though not all of these are capable of complete reduction of nitrate to nitrogen gas (Fenchel and Blackburn, 1979). Thus, Rxn. 2 is a simplification of a complex set of reaction steps through several transient intermediate nitrogen species, including the nitrite ion (NO_2^-), nitric oxide (NO), and nitrous oxide (N_2O). The nitrate-nitrite reduction reaction is generally the rate-limiting step in the overall reaction (Postma et al., 1991). Indeed, some laboratory experiments performed with an excess of available nitrate have been shown to proceed only as far as nitrite (NO_2^-), instead of going all the way to di-nitrogen gas (Hutchins, 1991).

Oxidation-reduction reactions that occur naturally in ground water generally follow in strict succession, with those reactions that yield the most energy occurring first at the highest redox potential, and those yielding the least energy occurring last at the lowest redox potential (Drever, 1982). Providing there is an excess of organic matter to act as a reducing agent, aerobic oxidation of the organic matter by O_2 will generally proceed until all molecular oxygen is consumed. Only then will denitrification commence. Following consumption of all of the nitrate, subsequent redox reactions may occur at successively lower redox potentials (e.g., $Fe^{3+} \rightarrow Fe^{2+}$, $SO_4^{2-} \rightarrow H_2S$). Each of these successive reactions causes a phenomenon known as "redox buffering," which causes the redox potential of the ground water to be fixed at a value close to that of the redox pair in question (Drever, 1982).

Although the ability of denitrifying bacteria to fully degrade or "mineralize" certain petroleum hydrocarbons to CO_2 and H_2O under both laboratory and field conditions is now undisputed (Kuhn et al., 1988; Hutchins et al., 1991), the full-scale application of nitrate-enhanced hydrocarbon biodegradation remains experimental. Previous laboratory "microcosm studies" conducted under controlled denitrifying conditions (anaerobic) have revealed the following phenomena (Hutchins, 1991):

1. Dissolved toluene, ethylbenzene, meta-xylene and para-xylene (TEX) initially present as sole-source substrates at mg/l levels can be successfully degraded by denitrifying bacteria to <0.5 µg/l, with toluene generally being degraded most rapidly.

2. Ortho-xylene is not degraded when present as a sole-source substrate, but is slowly degraded in the presence of other hydrocarbons.

3. Benzene is not generally degraded under strictly denitrifying (anaerobic) conditions, regardless of the presence of other hydrocarbons, but degradation of benzene has been observed in several field studies, presumably due to the presence of low concentrations of dissolved oxygen.

---

[1] "Denitrification" refers to the reduction of nitrate-nitrogen to di-nitrogen gas. The term refers to the conversion of NO_3^- to N_2, the dominant natural process by which nitrogen is removed from soils. The reverse reaction is termed "nitrification".

4. Rates of biodegradation under denitrifying conditions for those compounds which are degraded are typically slower than equivalent rates under aerobic conditions.

5. Although the stoichiometry suggests that approximately 1 kg of nitrate-nitrogen is required to oxidize 1 kg of BTEX (Rxn. 2), nearly ten times as much nitrogen is actually consumed in field applications of nitrate-enhanced bioremediation, possibly due to the oxidation of other non-BTEX hydrocarbons (e.g., alkanes).

6. Denitrification rates are pH dependent, with optimum conditions being in the range pH 6 to 8.

The principal advantage of in-situ nitrate-based bioremediation of hydrocarbons in ground water, as opposed to oxygen-based aerobic biodegradation, is that it is possible to introduce more oxidizing power into the subsurface using nitrate than would be possible using oxygen, due to the low aqueous solubility of the latter (≈9 mg/l @ 20°C with air @ 1 atm., ≈44 mg/l with oxygen). Nitrate salts, on the other hand, are extremely soluble in water (>100 g/l), and the nitrate ion is generally considered to be a conservative solute in the ground-water environment, and therefore highly mobile. Given that 1 mole of nitrate-nitrogen has the same oxidizing power as 5/4 mole of O_2, nitrate at the concentration of the drinking water standard (10 mg/l NO_3-N) has approximately three times the oxidizing capacity as dissolved oxygen at saturation (9 mg/l). If nitrate is injected at concentrations higher than 10 mg/l NO_3-N, hydrocarbons can be degraded at a more rapid rate.

Pilot System Installation and Operation

Figure 1 shows a schematic of the pilot system, which was designed to operate unattended for up to 5 days at a time. The pilot system consists of a single injection well located 15 feet upgradient of an extraction well, with a monitoring well located halfway between the injection and extraction wells (Figure 1). While this type of spacing would not be considered to be economically feasible for a full-scale remedial design, it was chosen for the pilot test so that results could be observed within a relatively short time period.

Drilling and Soil Sample Collection

The pilot test location was chosen based on the delineation of the hydrocarbon plume and proximity to the original release. Previous installation of 2-inch monitoring wells at that location, using hollow stem-auger techniques, proved difficult within the saturated, heaving sands encountered at the site. Consequently, a cable tool rig, capable of advancing casing with the bit, was chosen in hopes of minimizing flowing sands entering the boring during drilling, thereby simplifying installation of the 4-inch pilot test wells.

Pilot system wells were drilled to approximately 65 feet. Prior to each drilling operation, all drilling equipment, soil samplers, and well materials were thoroughly decontaminated by steam cleaning. In addition, down-hole sampling devices were decontaminated prior to collection of all samples by scrubbing them in a solution of deionized water and liquinox, followed by a deionized water rinse.

Soil samples were collected with a 2.5-inch ID split spoon sampler lined with brass rings. Soil samples were collected within the vadose zone immediately above the water table, the middle of the saturated alluvium, and at the bottom of the aquifer. Samples were analyzed for total and

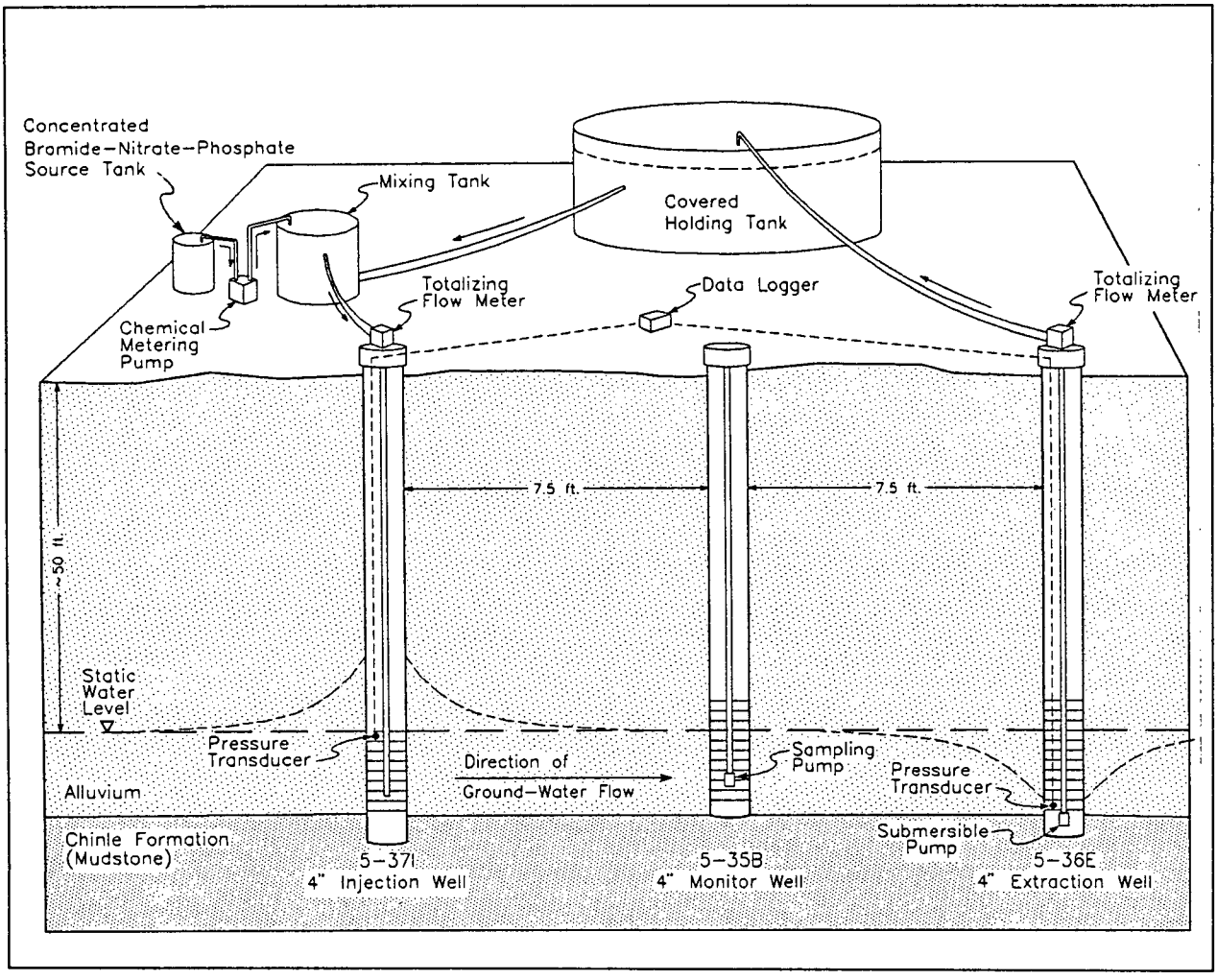


Figure 1. Pilot System Schematic

denitrifying bacteria counts, total organic carbon (TOC), total petroleum hydrocarbons (TPH), and BTEX. Plate counts revealed viable denitrifying and total bacterial populations of up to 10^4/gram and 10^6/gram, respectively. The existing denitrifying bacterial soil populations, though not extremely large, were thought to be adequate for the purpose of the pilot test.

Well Construction

The injection well was constructed with 4-inch diameter, low carbon steel casing and 0.040-inch wire-wound stainless steel screen to maximize screen open area and minimize potential screen clogging. Additionally, steel construction facilitates vigorous mechanical redevelopment should clogging become a problem. The annulus around the screen was filled with 8-12 mesh silica sand filter pack which extends to 6 inches above the well screen. A 24-inch bentonite seal was emplaced on top of the filter pack followed by a cement grout to surface. The grout sealed the well screen below the water table, and injection water was delivered via a drop pipe below the water table to further avoid potential aeration of ground water and possible iron precipitation.

Downgradient of the injection well, a 4-inch diameter PVC monitoring well with 0.010-inch PVC screen was installed to monitor nitrate and bromide breakthrough and BTEX concentrations. The

well was screened from the bottom of the aquifer to several feet above the water table. The annulus around the screen was filled with 10-20 mesh silica sand filter pack followed by a 16-40 mesh silica sand, a 24-inch bentonite seal, and cement grout to the surface.

The extraction well was constructed of 4-inch diameter low carbon steel casing and 0.025-inch wire-wound screen, with a filter pack of 10-20 mesh silica sand. The well was screened from the bottom of the aquifer to approximately 2 feet above the static water table, and was completed to the surface as described for the first two wells.

System Operation

The Figure 1 schematic outlines the operation of the pilot system. Ground water is pumped from the extraction well to a holding tank, where sediments that could potentially clog the injection well settle out. The holding tank and other system components are covered to minimize hydrocarbon volatilization, so that the effectiveness of denitrification can be evaluated with minimal interferences from dilution effects. From the holding tank, the ground water flows by gravity feed to the chemical mixing tank. Chemical source solutions of potassium nitrate, sodium bromide, and monosodium phosphate are metered from the source tank to the mixing tank via a piston type metering pump. A mechanical stirrer is used to keep the chemicals in solution. In-line flow meters measure and record the total volume of water recirculating through the system at the pumping and injection wells, and water levels in the injection and extraction wells are monitored continuously with transducers linked to a data logger. The system is equipped to automatically shut itself off in case of well clogging, overflowing tanks, and/or lack of water in the pumped well.

The extraction well is equipped with a Grunfos Redi-Flo2 pump. As shown on the summary of average pumping rates (Figure 2), the extraction well was initially pumped at a rate of approximately 0.18 to 0.22 gallons per minute (gpm). This pumping rate was the highest sustainable rate based on measured water level response in the pumped well. During the first two weeks of system operation, frequent measurements of flow rates and water levels were made to maximize the injection rate and radius of influence. The pumping rate was steadily increased until mid-July when the system hydraulics equilibrated at an average flow rate of 0.36 gpm.

Chemical Injection and Monitoring

Chemical injection began on May 15, 1992. The permit for the pilot test allowed for up to 100 mg/l of potassium nitrate (as N) to be injected under controlled conditions. However, nitrate was initially injected at 10 mg/l (as N) so that denitrification could be evaluated prior to injecting at higher levels. Sodium bromide (25 mg/l as Br^-) was also injected to serve as a conservative tracer that would allow for comparison of nitrate losses due to dilution and dispersion with those due to denitrification. Source solution was metered into the mixing tank at an average rate of 25 ml per minute.

The monitoring and extraction wells and the chemical mixing tank immediately upstream of the injection well were sampled approximately every two weeks. The samples were analyzed by Analytical Technologies, Inc. for nitrate and bromide to confirm field results, and for nitrite, phosphate, BTEX and TPH.

Field measurements of nitrate, bromide, dissolved oxygen, pH, and conductivity were made approximately three times per week at the monitoring and extraction wells and at the chemical mixing tank. The dissolved oxygen concentrations measured from the pilot test monitoring wells

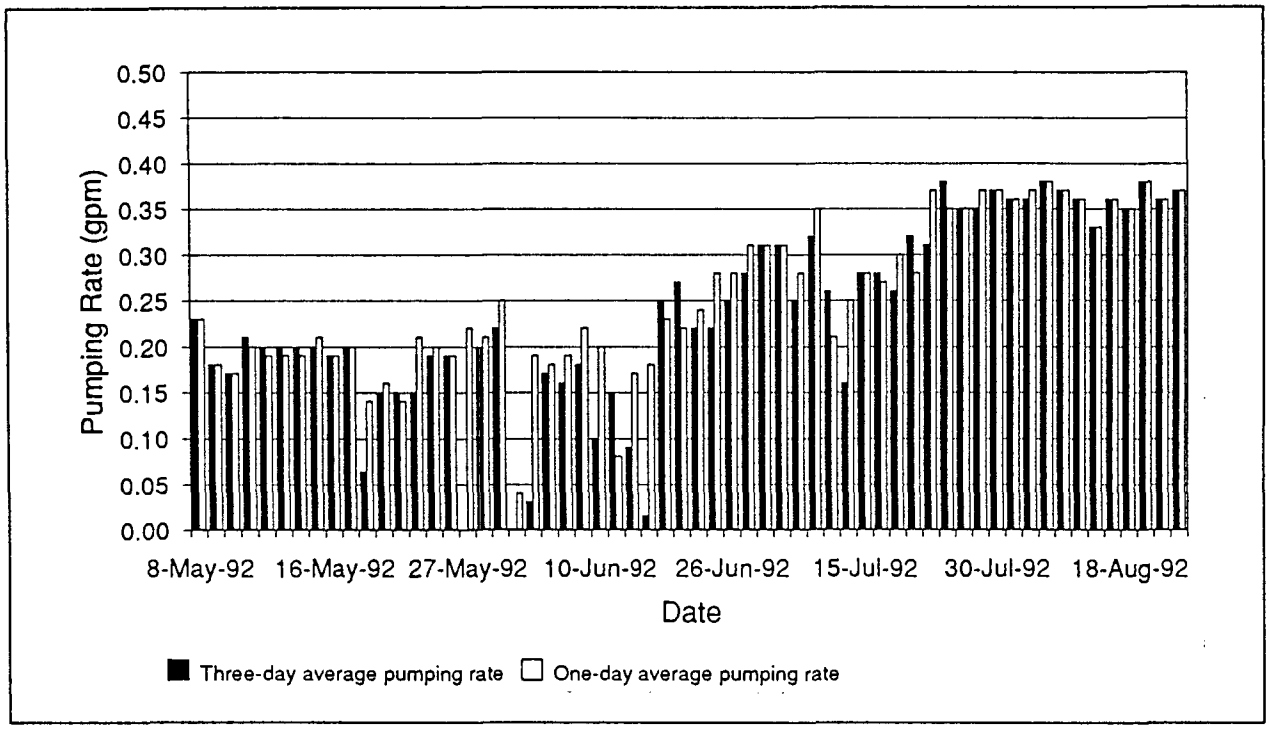


Figure 2. Pilot Test Pumping History

were less than 1 mg/l, as compared to background dissolved oxygen concentrations at the site of approximately 6 to 7 mg/l.

Orion ion selective electrodes (ISEs) were used in conjunction with a digital millivolt meter to allow rapid field determination of ground-water nitrate and bromide concentrations. The ISE operates much like a pH electrode, except that the probe is sensitive to ions other than H^+, in this case NO_3^- or Br^-. A double-junction reference electrode serves to establish the reference potential (voltage). Because the potentials of both the ISE and the reference electrode tend to vary with temperature and time, the method of standard addition (MSA) was chosen for field use, to avoid the necessity of frequent recalibration with standard solutions.

Using MSA, the ISE is immersed in the ground-water sample and the potential is measured on the millivolt meter relative to the constant potential of the reference electrode. A nitrate or bromide "spike" of known concentration is then added to the sample, and the potential measured again. The difference between the unspiked and spiked millivolt readings may then be used to calculate the initial NO_3^- (or Br^-) concentration of the sample prior to adding the spike. A programmable calculator was used to facilitate calculations in the field.

Following solute breakthrough, field (ISE) and laboratory results for nitrate were in good agreement, generally within about 30% relative difference. Prior to breakthrough, the nitrate ISE had consistently indicated concentrations of several mg/l, even when the laboratory results indicated that nitrate was below the detection limit (0.06 mg/l). It is believed that the laboratory results are correct, since the analytical method employed by the laboratory is subject to fewer interferences. The reason for the positive systematic error of the ISE at low nitrate concentrations is unknown, but hydrocarbon concentrations may be a factor.

Following bromide breakthrough, the relative percent differences between the field- and laboratory-determined values ranged from 8% to 84%. Thus, the bromide ISE exhibited somewhat lower precision than the nitrate ISE, if the laboratory values are assumed to be correct. A systematic error was also evident for bromide, with the bromide ISE consistently indicating higher concentrations than the laboratory. Although the systematic error was evident, similar general trends in bromide concentrations were apparent in both the ISE and laboratory data.

Observations

Bromide and nitrate concentrations measured in the monitoring and extraction wells are shown on Figures 3 and 4, respectively. Bromide was first detected above background levels at the monitoring well approximately eight days after injection began. This observed travel time from the injection well to the monitoring well corresponds well with the calculated travel time of seven days, obtained by using the observed hydraulic gradient between the two wells and the site average hydraulic conductivities and effective porosities. Bromide concentrations continued to rise to approximately 10 mg/l, and stabilized at that level for approximately two weeks. The plateau at the 10 mg/l level is most likely due to dilution effects resulting from mechanical problems which lowered the average injection concentration. Once injection reached a steady average bromide concentration of 25 mg/l, bromide concentrations continued to increase until approximately 95% of the bromide concentration injected was detected in the monitoring well, and approximately 80% was detected in the extraction well. The lower concentrations of bromide detected in the extraction well, which is further from the source, are indicative of dilution and dispersion. A subsequent decline in bromide concentrations is most likely due to lower-than-average injection rates resulting from temporary shutdowns of the extraction well pump.

Nitrate concentrations in the monitoring and extraction wells were not observed to be increasing at the same rate as the bromide concentrations. In fact, during the first five weeks of operation, nitrate concentrations measured by the analytical laboratory were at or below detection limits (0.06 mg/l) in both the monitoring and extraction wells, with the exception of 0.4 mg/l nitrate measured on June 22, 1992 in the monitoring well. As discussed previously, some nitrate was detected with the ISEs, but it was believed to be due to hydrocarbon interference, and greater confidence was held in the laboratory data. In mid-June, the concentrations of bromide in the monitoring well and extraction wells were approximately 60% and 30%, respectively, of the average injection concentration. Since the nitrate levels were well below those percentages, it was surmised that either the nitrate was being retarded to a higher degree than the bromide, denitrification was occurring, or a combination of both. Retardation of nitrate was considered unlikely, and nitrate consumption was believed to be responsible. Since it appeared that denitrification was occurring, the injection concentration was increased to 50 mg/l nitrate (as N).

Following the increased injection rates, an increase in nitrate concentrations was observed in both the injection and monitoring wells. Two possible explanations for the lack of total nitrate consumption are 1) there is insufficient contact time for the nitrate to be totally consumed, or 2) some essential nutrient was lacking, therefore limiting growth of the denitrifying bacteria population. Consequently, monosodium phosphate was added at 10 mg/l to determine if this nutrient would enhance denitrification. The monosodium phosphate concentration was later increased to 20 mg/l. Even with the addition of the monosodium phosphate, however, nitrate breakthrough concentrations persisted at approximately 20 mg/l in the monitoring well and 10 to 15 mg/l in the extraction well.

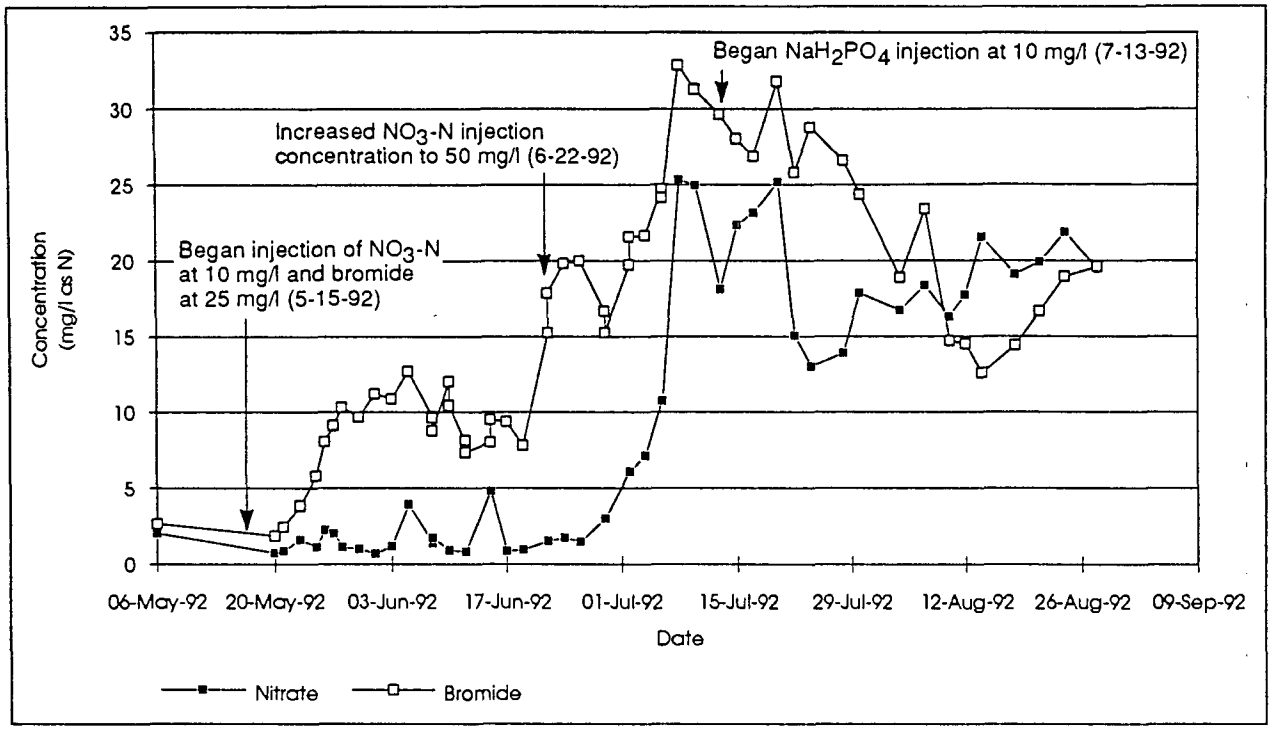


Figure 3. Monitoring Well: Nitrate and Bromide Concentrations (measured with ISEs)

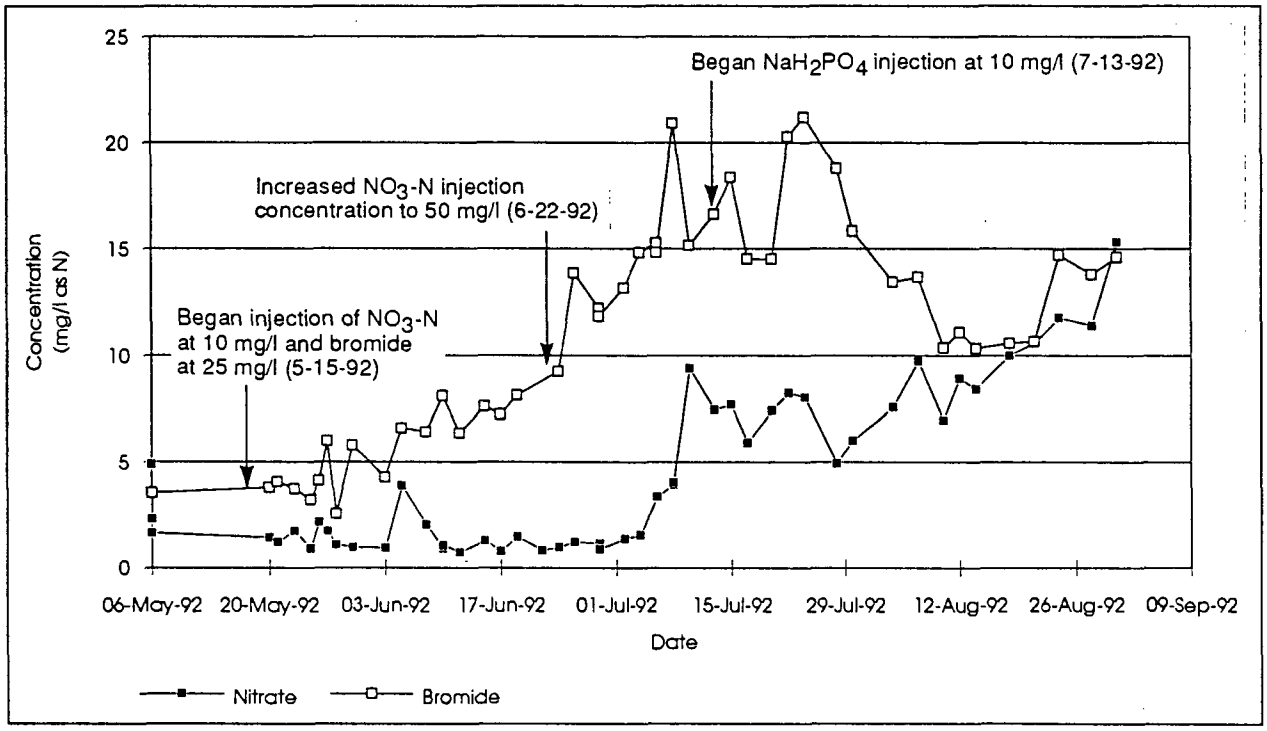


Figure 4. Extraction Well: Nitrate and Bromide Concentrations (measured with ISEs)

In spite of the nitrate breakthrough, an increase in nitrite concentrations indicated that denitrification was occurring. Nitrite concentrations measured by the analytical laboratory were initially below the detection limit of 0.06 mg/l. Following the increase in the nitrate injection rates, nitrite was measured at concentrations up to 6.1 mg/l and 2.7 mg/l in the monitoring and extraction wells, respectively. Nitrite is produced as an intermediate product in the conversion of nitrate to nitrogen gas (Rxn. 2) and is indicative of denitrification.

Concentrations of BTEX in the monitoring and extraction wells are shown in Figures 5 to 8. These plots show that toluene was the most readily degraded of the BTEX compounds. Toluene concentrations in monitoring well 5-35B decreased steadily from an initial concentration of 7600 µg/l to approximately 1000 µg/l (an 87% reduction) between May 15 and August 15. Ethylbenzene and total xylene decreased by 67% and 34%, respectively, at the monitoring well during this period. Benzene concentrations were not observed to decline during the pilot test. Previous researchers have hypothesized that once the majority of the hydrocarbons are removed, dissolved oxygen levels will increase and aerobic degradation of benzene will be initiated (Hutchins, 1991). However, hydrocarbon levels did not drop sufficiently during this test period for aerobic conditions to develop.

After approximately six weeks of continuous pumping, free product was observed pooling in the extraction well. The free product (approximately 0.4 ft) provides a persistent source which may keep dissolved hydrocarbon concentrations from continuing to drop. The slight increases in TEX concentrations shown on Figures 5 to 8, following initial reductions, may be due to contributions from the free product, and/or from additional hydrocarbons released as a result of the saturation of previously unsaturated sediments near the injection well.

Conclusions

The pilot test has been operational for approximately four months. At this point, the following conclusions can be drawn:

1. Denitrification is actively degrading hydrocarbons within the pilot study area, as evidenced by the following:

    - Nitrite production has been observed, with concentrations of up to 6.1 mg/l (NO_2-N) measured in ground water from the monitoring well.
    - After recirculation of approximately 1½ pore volumes of ground water (50,000 gallons), the concentration of nitrate being removed from the extraction well has only reached about 30% of the injection concentration, as compared with approximately 80% for the conservative bromide tracer. Since nitrate and bromide are considered equally conservative (mobile) in the subsurface, the difference is attributable to nitrate consumption.
    - Concentrations of toluene, ethylbenzene, and total xylene in the monitoring well have dropped to 13%, 33%, and 66%, respectively, of their initial concentrations since the start of nitrate injection.

2. No benzene degradation has been observed as a result of the nitrate addition.

3. At the present nitrate injection rate (95 g/day NO_3-N), approximately 88 g of hydrocarbons are being degraded per day due to denitrification.

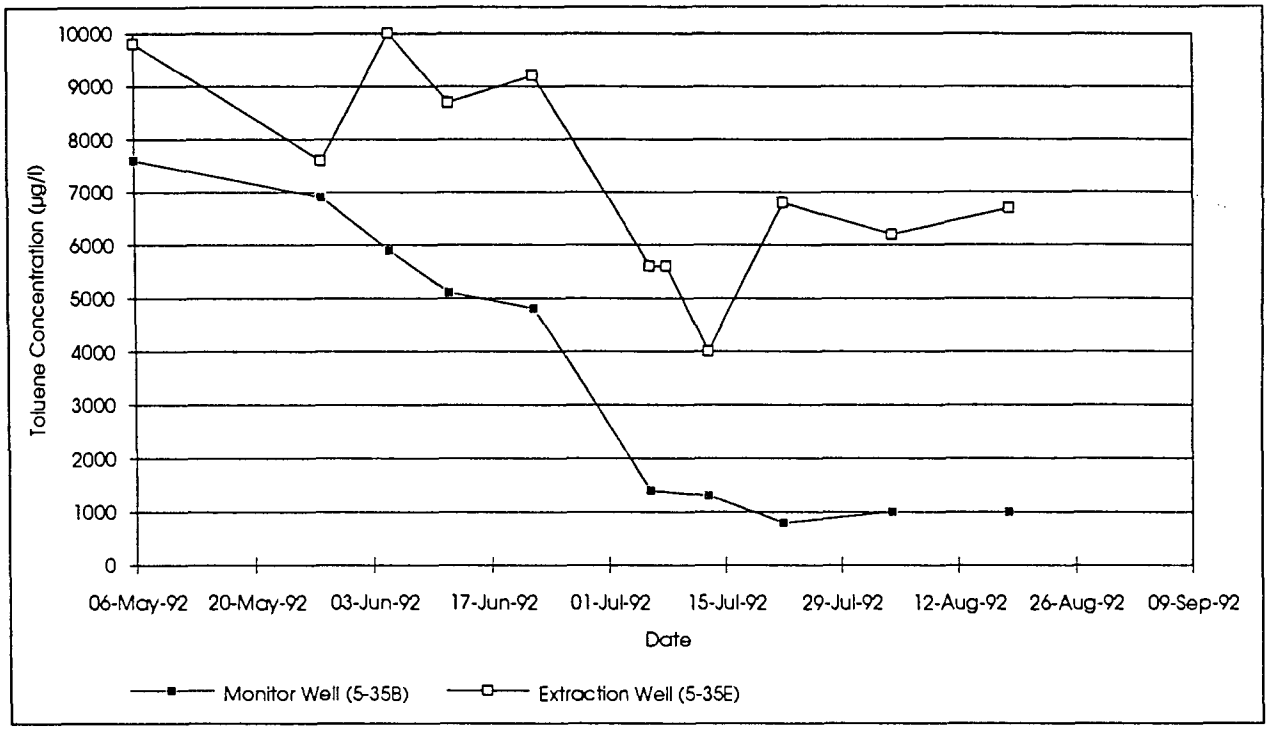


Figure 5. Toluene vs Time

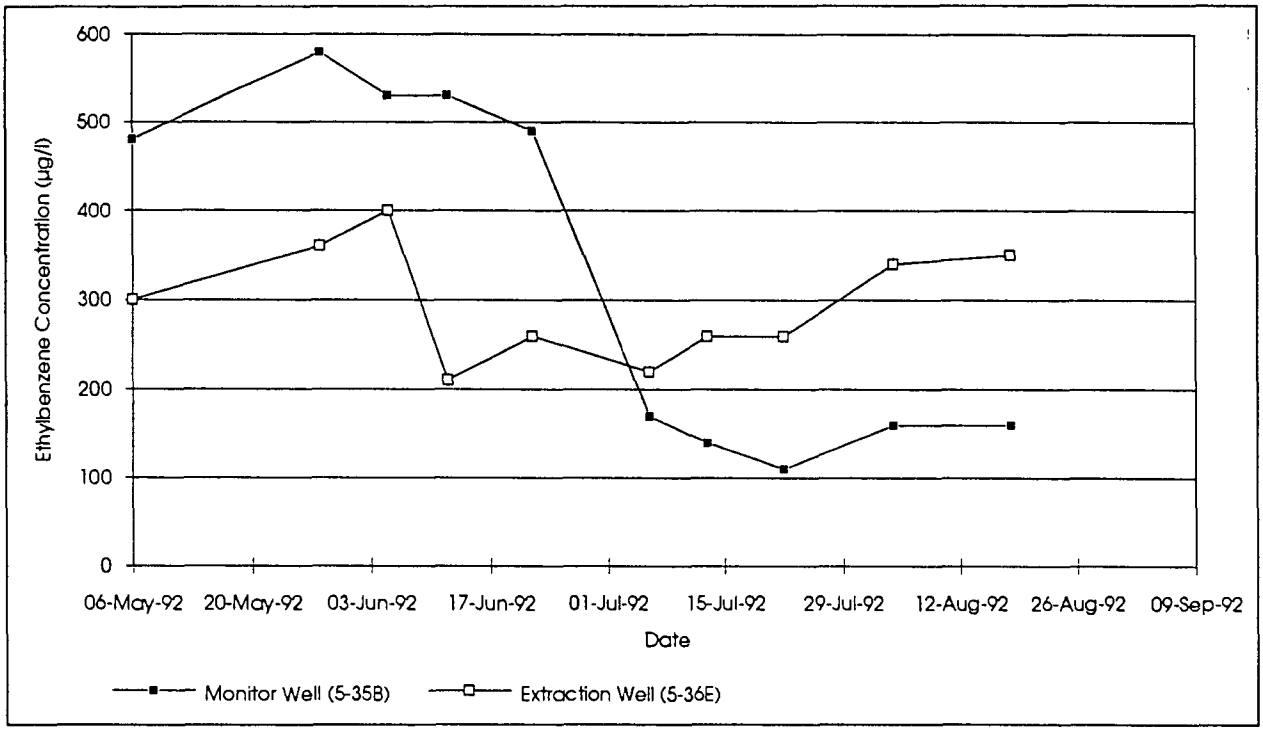


Figure 6. Ethylbenzene vs Time

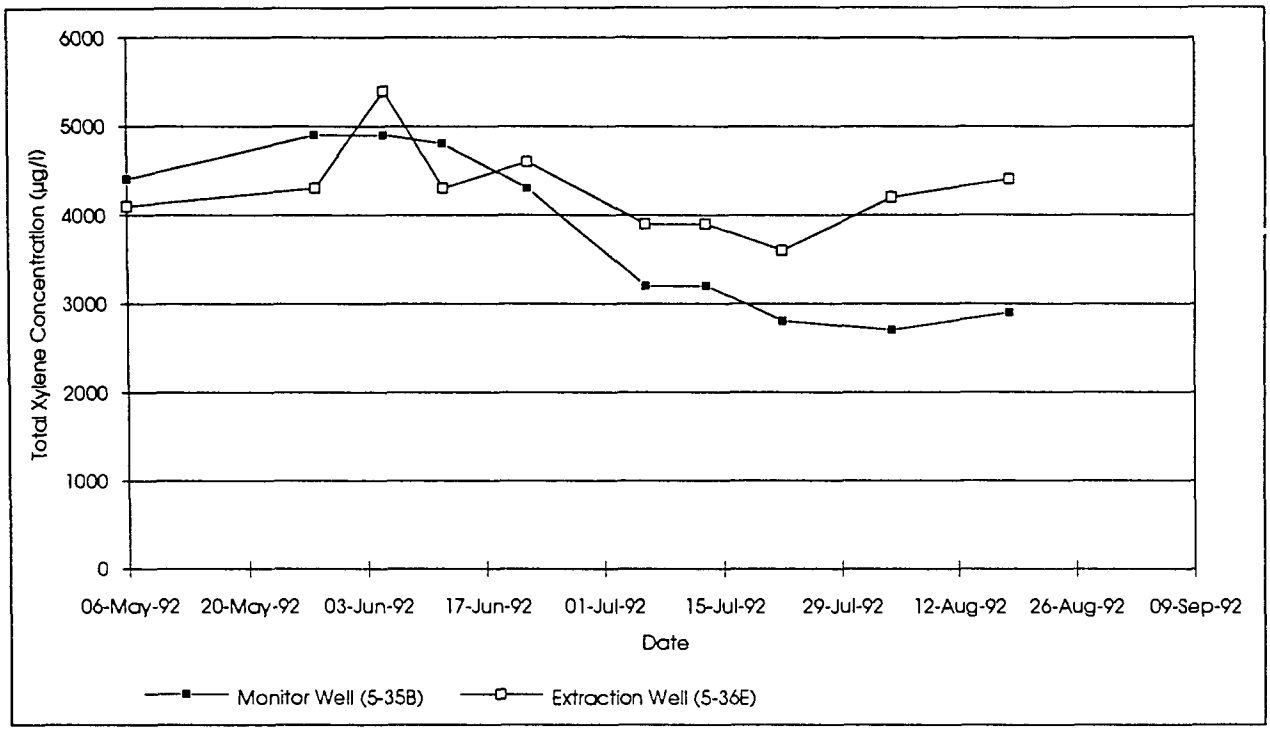


Figure 7. Xylene vs Time

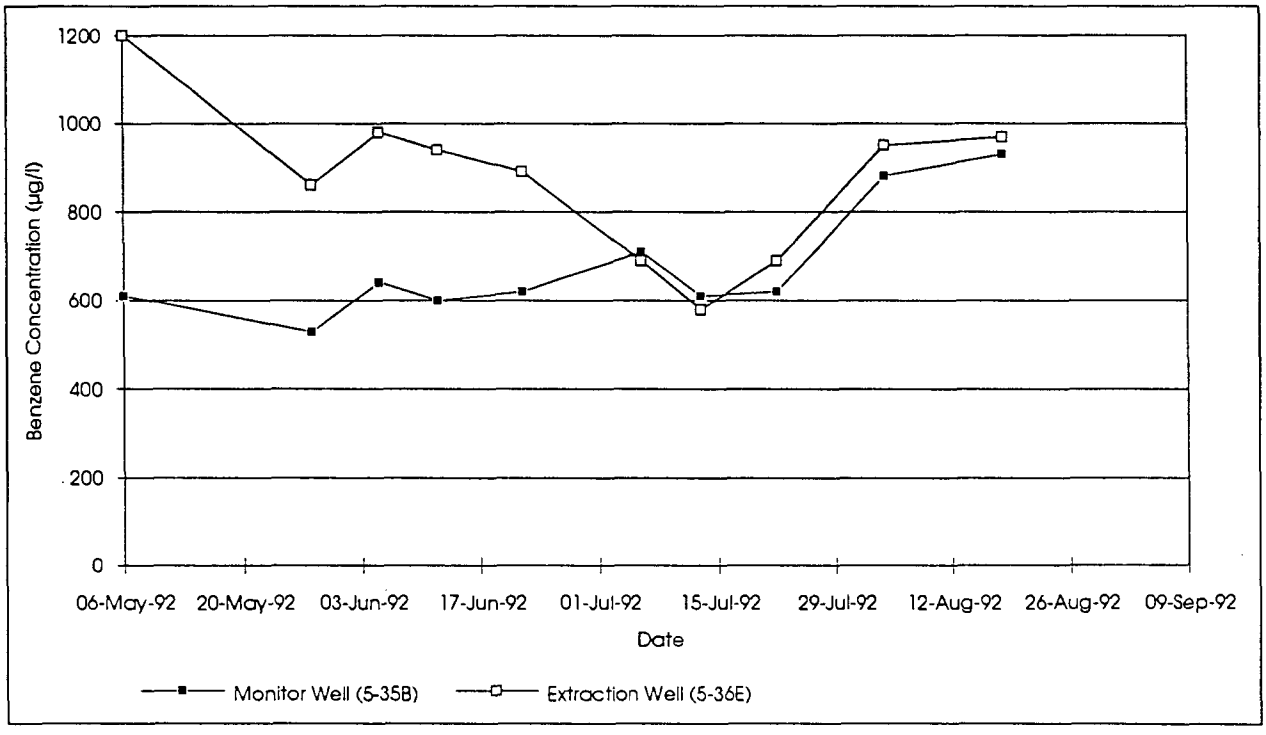


Figure 8. Benzene vs Time

References

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Biographical Sketches

Joanne Hilton is a senior hydrologist and projects group manager with Daniel B. Stephens & Associates, Inc. in Albuquerque, New Mexico. She has eight years of experience in ground-water investigations at hazardous waste sites, including landfills, mill tailings, and underground storage tank leaks. She is currently involved in numerous hydrogeologic investigations pertaining to contaminant transport and remedial design. Ms. Hilton received her bachelors degree in hydrology from the University of Arizona and her masters degree in hydrology from Colorado State University.

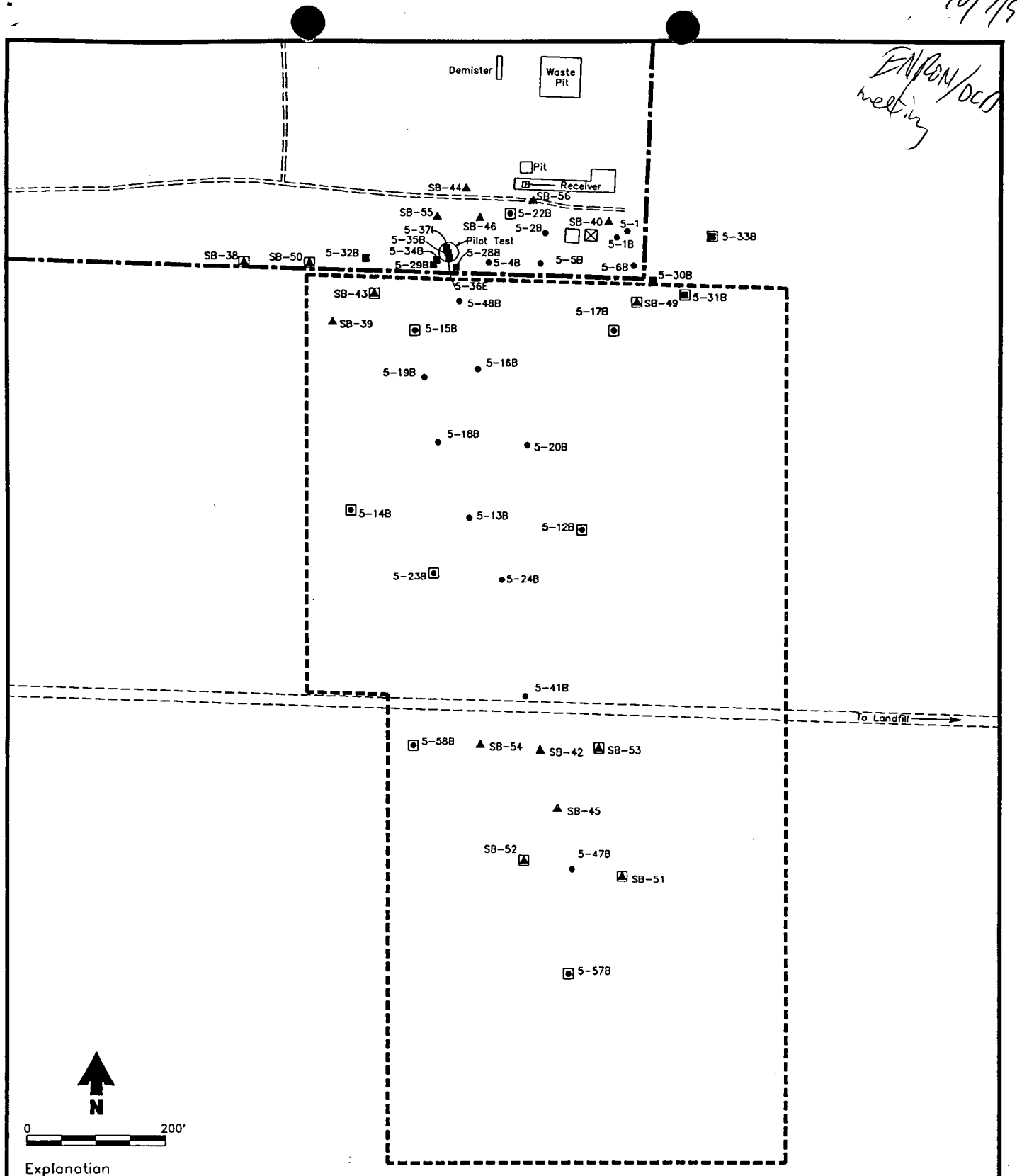
Bob Marley is a hydrogeologist with Daniel B. Stephens & Associates, Inc. in Albuquerque, New Mexico, specializing in site characterization and remediation and in-situ hydraulic testing. He has conducted contaminant transport and water supply investigations in the southwestern U.S. and Australia, and is currently involved in remedial actions at several sites in New Mexico. He holds a bachelors degree in geology from Northern Arizona University and an M.S. in hydrology from the University of Arizona.

Fenley "Ted" Ryther received his Bachelor of Civil Engineering degree from the Georgia Institute of Technology. He has practiced consulting civil and environmental engineering, including permitting, design, site investigation, and remediation of hazardous and toxic wastes in soils and ground water, for more than 35 years. He has project experience in 25 states and 8 foreign countries. He is a registered Professional Engineer in six states, a member of the National Society of Professional Engineers and the Air and Waste Management Association, and a Fellow and Past President of the Houston Branch of the American Society of Civil Engineers.

Jeffrey Forbes is a senior hydrogeochemist with Daniel B. Stephens & Associates, Inc. in Albuquerque, New Mexico. He has seven years of experience in the analysis and interpretation of geochemical data pertaining to environmental site investigations. He has also worked as an analytical chemist performing laboratory analysis of water and soil samples for major elements, trace metals, and isotopic composition. Mr. Forbes received a bachelors degree in geology from Indiana University and a masters degree in geological sciences from the University of Washington. He is a Registered Geologist in Arizona and Indiana and is a member of the American Chemical Society.

10/7/93

ENRON/OCD meeting



Explanation

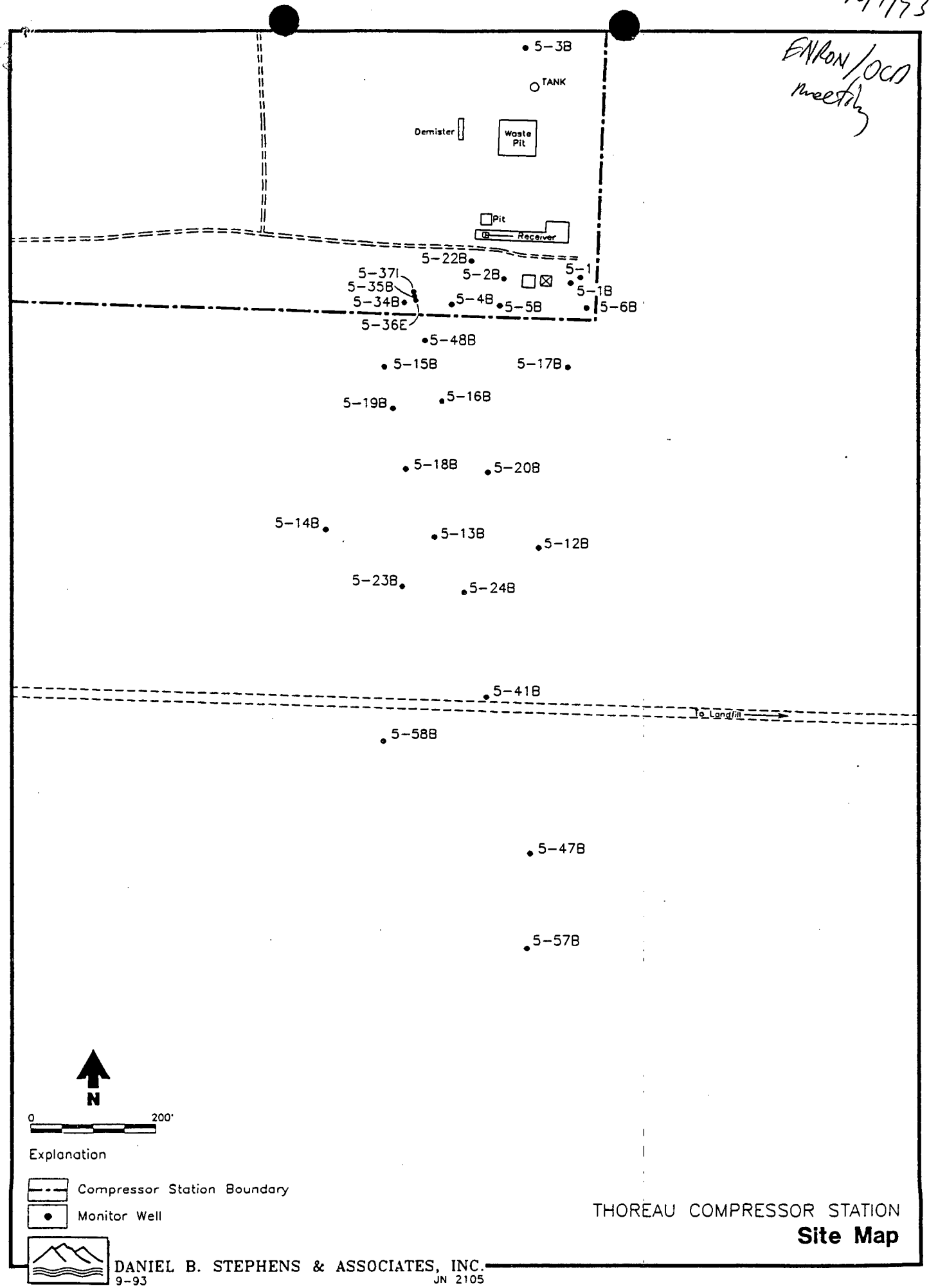
- Proposed Addition
- Compressor Station Boundary
- Monitor Well
- Exploratory Boring Drilled May 1991
- Exploratory Boring Drilled July/August 1992
- Well or Boring with no Significant Level of Condensate Detected

Locations of Monitor Wells and Exploratory Borings Thoreau Compressor Station

DANIEL B. STEPHENS & ASSOCIATES, INC.
4-93 JN 2105

10/7/93

ENRON/OCD meeting



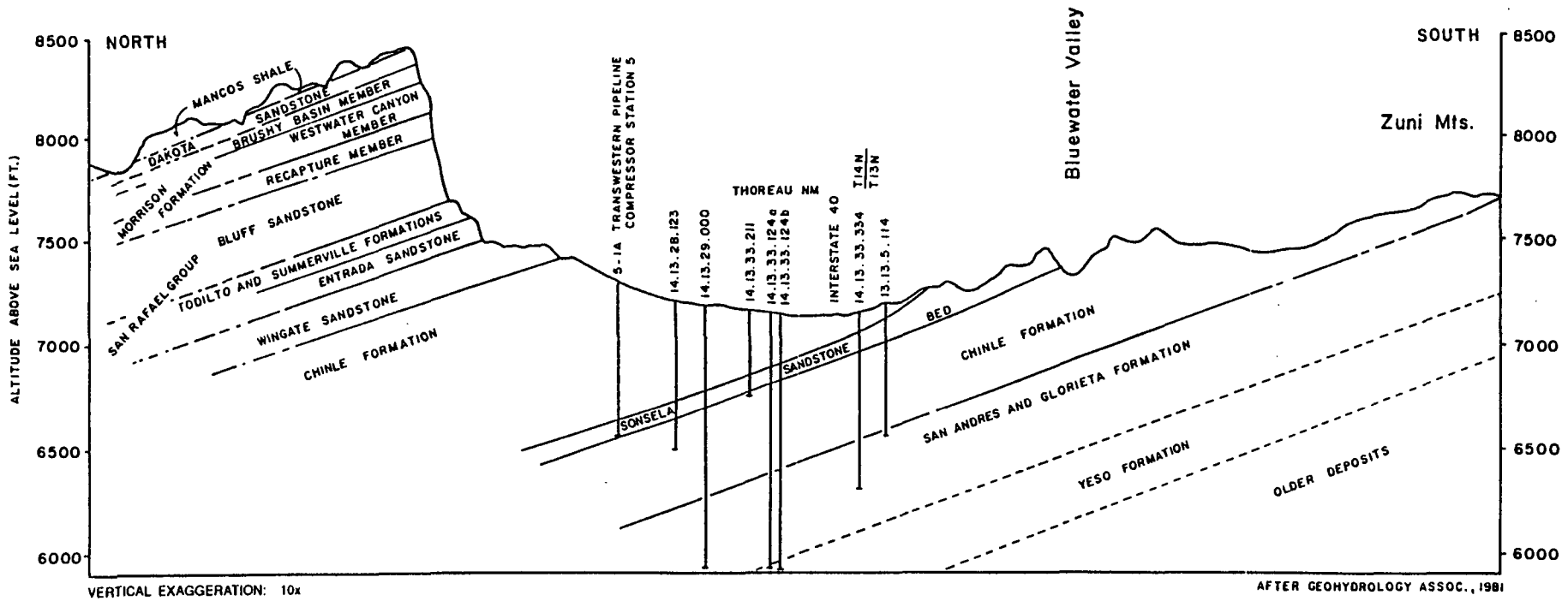
THOREAU COMPRESSOR STATION

Site Map

DANIEL B. STEPHENS & ASSOCIATES, INC.

9-93

JN 2105



LEGEND

Geologic Contact (dashed where inferred)

Well 14.13.28.123 = Township North.Range West.Section.1/4 Sections

0 1 2 Miles

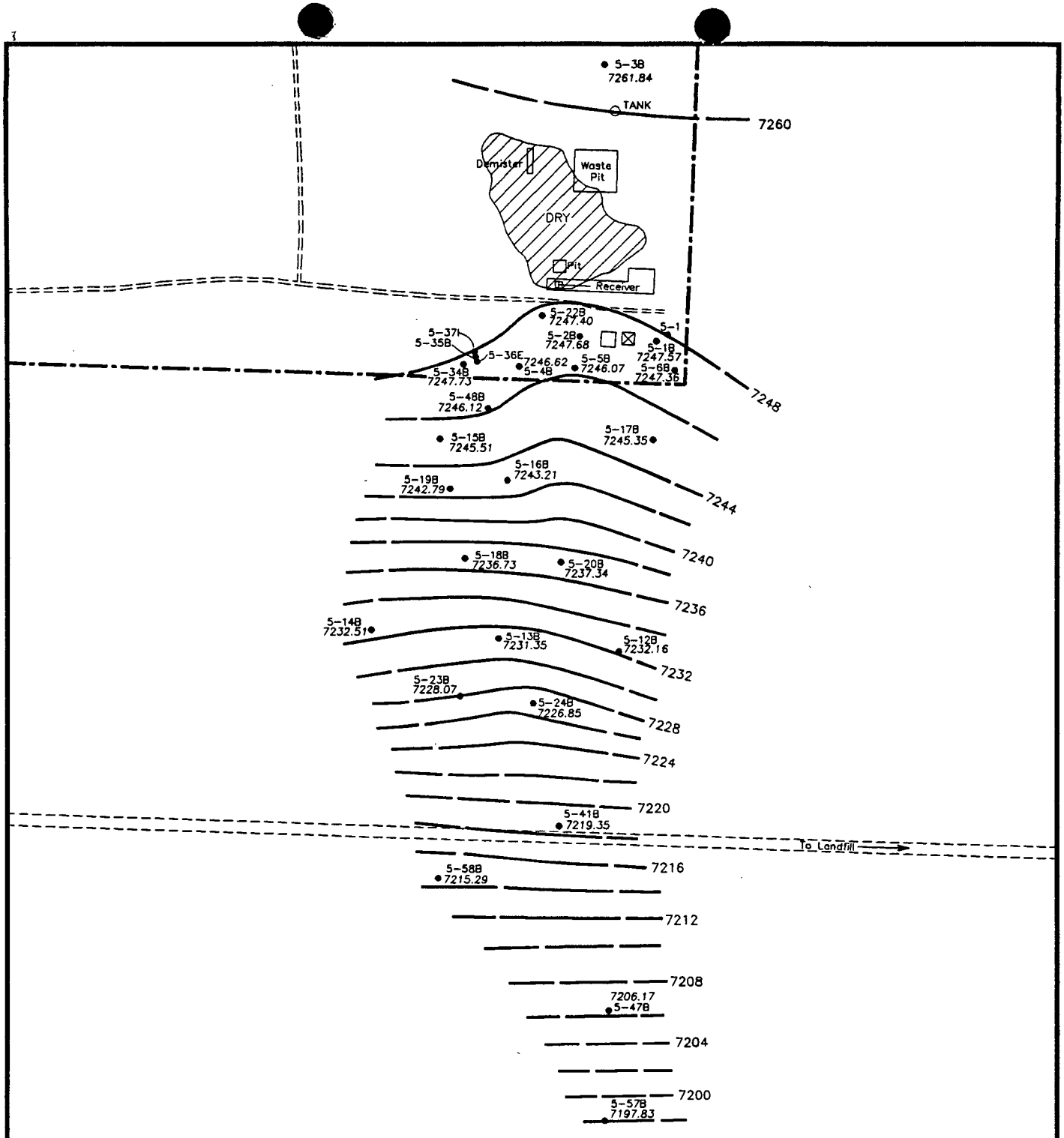
DANIEL B. STEPHENS & ASSOCIATES, INC.

ENVIRONMENTAL SCIENTISTS AND ENGINEERS
ALBUQUERQUE, NEW MEXICO

FIGURE 3.3

GEOLOGIC CROSS-SECTION
NEAR THOREAU, NEW MEXICO

DATE	PROJECT NO	DESIGNED BY	DRAWN BY	CHECKED BY
2/19/90	89-030T	BM	EE	JH



Explanation

- Water Level Contour (feet above m.s.l.)
- Compressor Station Boundary
- Monitor Well

Water Table Elevation for the Perched Alluvial Aquifer, April 19, 1993 Thoreau Compressor Station

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4-93

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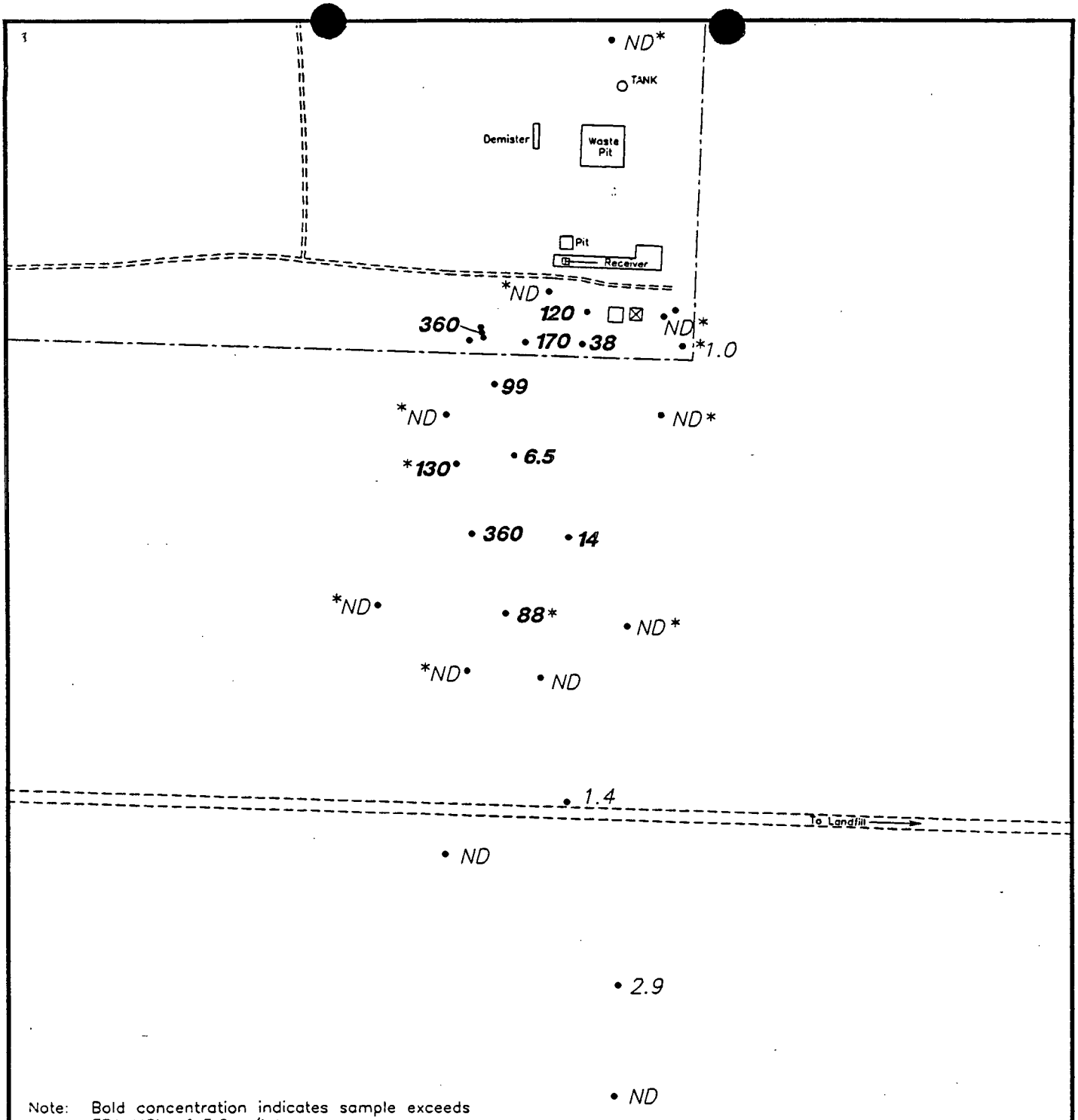


Note: Bold concentration indicates sample exceeds EPA MCL of 5.0μg/l benzene.

N

0 200'

Explanation

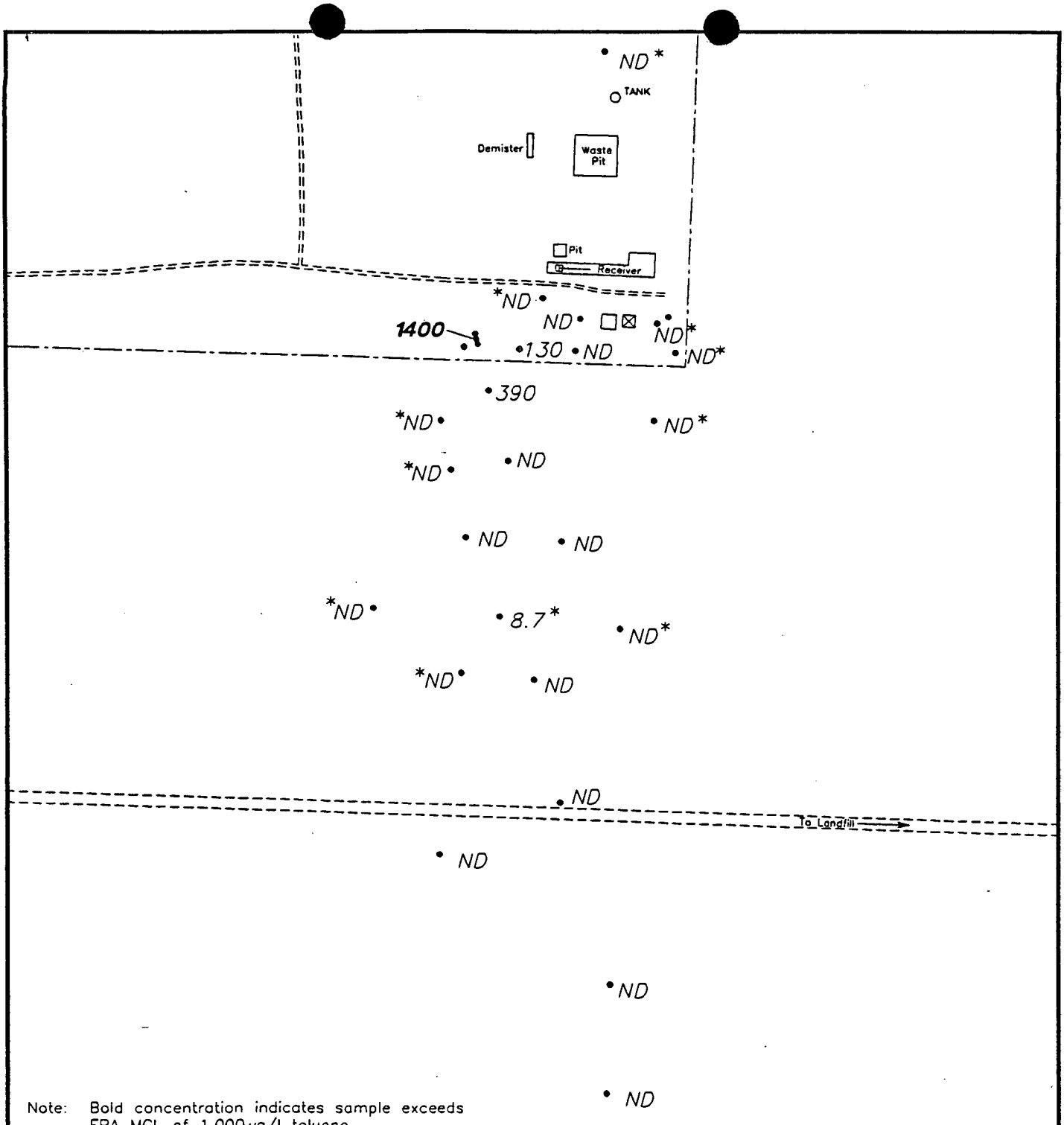
- • 82 — Monitor Well Showing Benzene Concentration (μg/l) Sampled 4/93
- * — Sampled 10/92
- ND — Not Detected
- Compressor Station Boundary

THOREAU COMPRESSOR STATION

Benzene Concentration In Ground Water April 1993

DANIEL B. STEPHENS & ASSOCIATES, INC.

9-93 JN 2105



Note: Bold concentration indicates sample exceeds EPA MCL of 1,000 μg/l toluene.

N

0 200'

Explanation

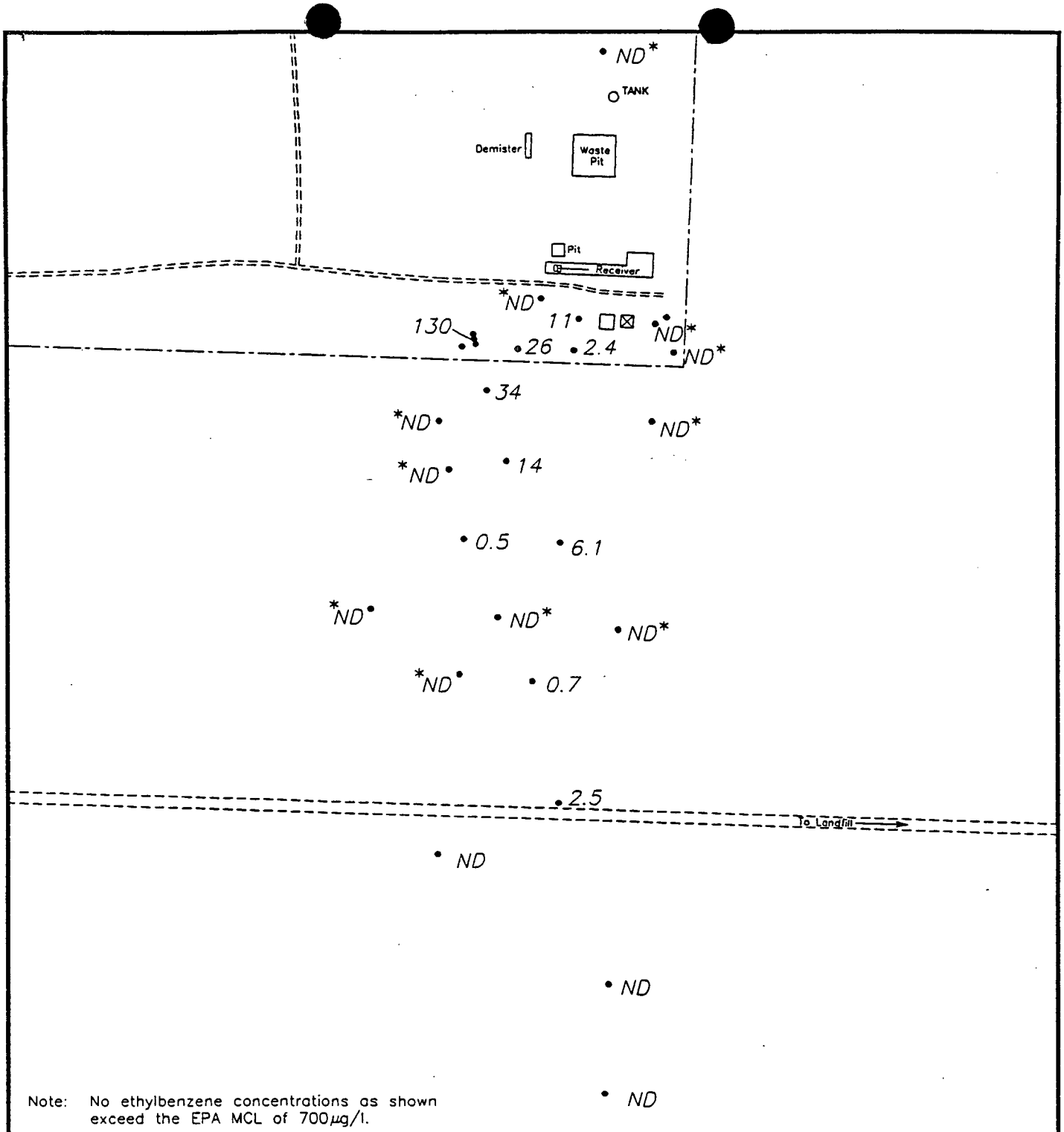
- • 82 — Monitor Well Showing Toluene Concentration (μg/l) Sampled 4/93
- * — Sampled 10/92
- ND — Not Detected
- Compressor Station Boundary

THOREAU COMPRESSOR STATION

Toluene Concentration in Ground Water April 1993

DANIEL B. STEPHENS & ASSOCIATES, INC.

9-93 JN 2105



Note: No ethylbenzene concentrations as shown exceed the EPA MCL of 700µg/l.

Explanation

- • 82 — Monitor Well Showing Ethylbenzene Concentration (µg/l) Sampled 4/93
- * — Sampled 10/92
- ND — Not Detected
- Compressor Station Boundary

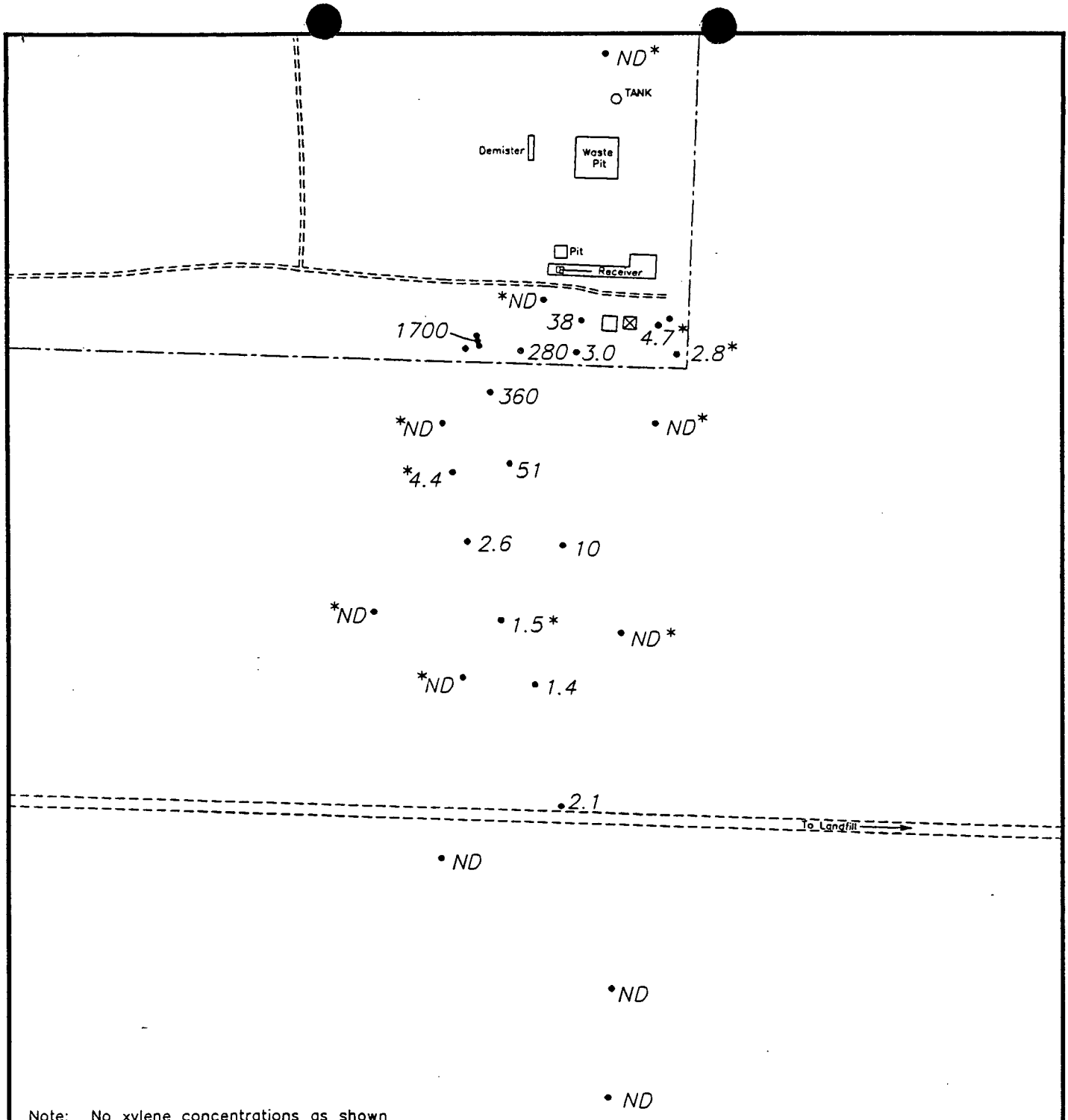
THOREAU COMPRESSOR STATION

Ethylbenzene Concentration in Ground Water April 1993

DANIEL B. STEPHENS & ASSOCIATES, INC.

9-93

JN 2105



Note: No xylene concentrations as shown exceed the EPA MCL of 10,000μg/l.

N

0 200'

Explanation

- 82 — Monitor Well Showing Xylene Concentration (μg/l) Sampled 4/93
- * — Sampled 10/92
- ND — Not Detected
- Compressor Station Boundary

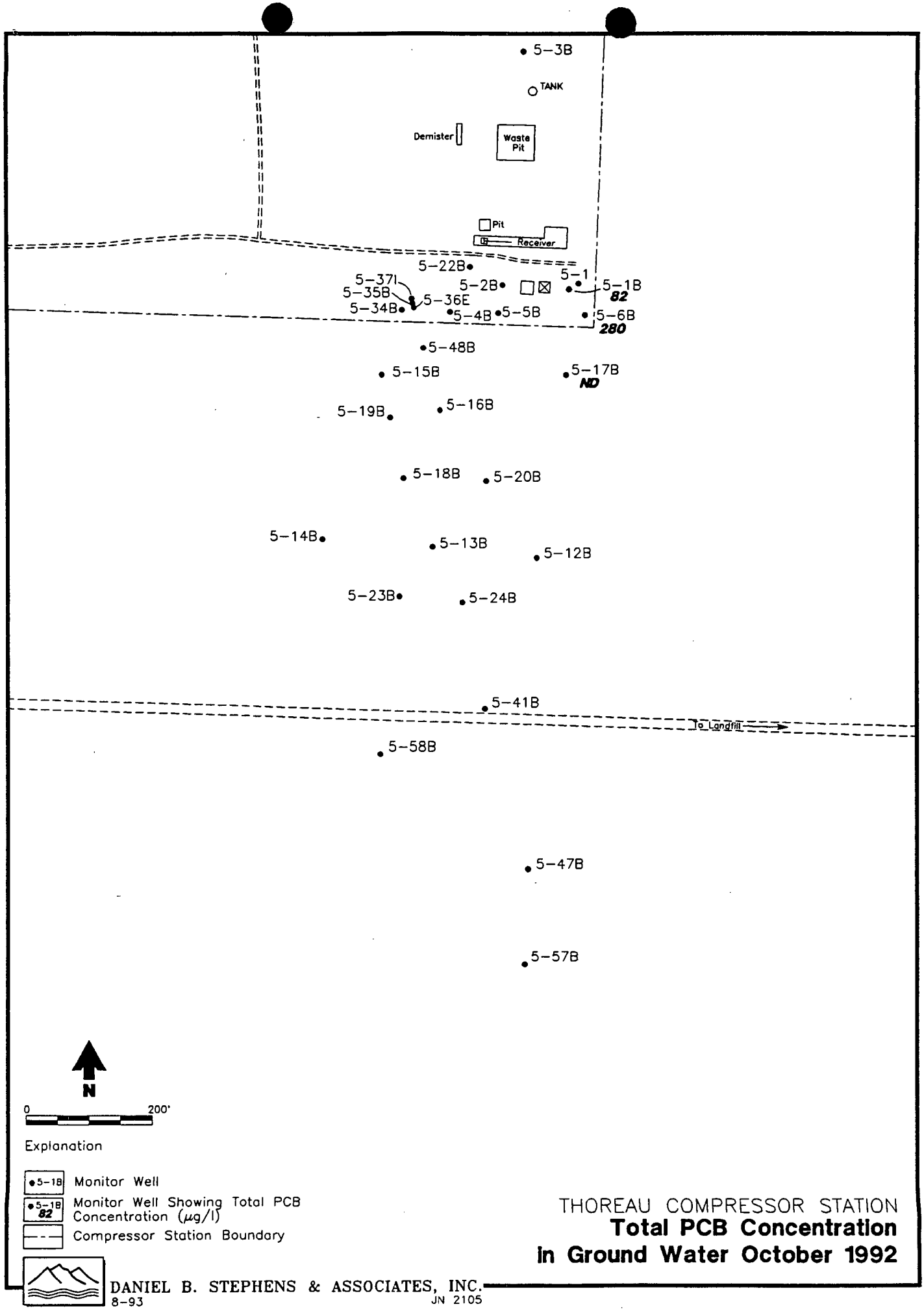
THOREAU COMPRESSOR STATION

Xylene Concentration in Ground Water April 1993

DANIEL B. STEPHENS & ASSOCIATES, INC.

9-93

JN 2105



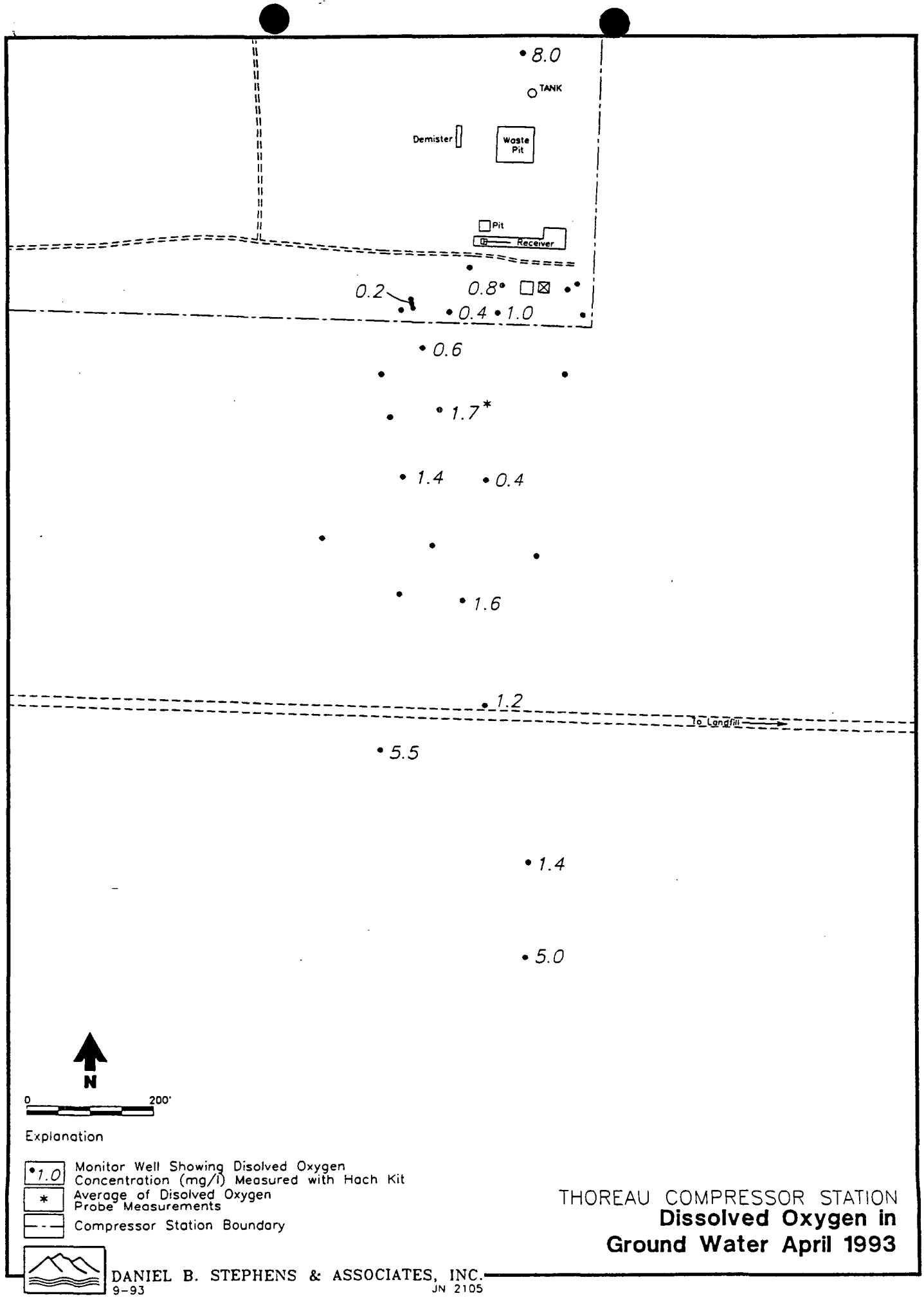
THOREAU COMPRESSOR STATION

Total PCB Concentration in Ground Water October 1992

DANIEL B. STEPHENS & ASSOCIATES, INC.

8-93

JN 2105



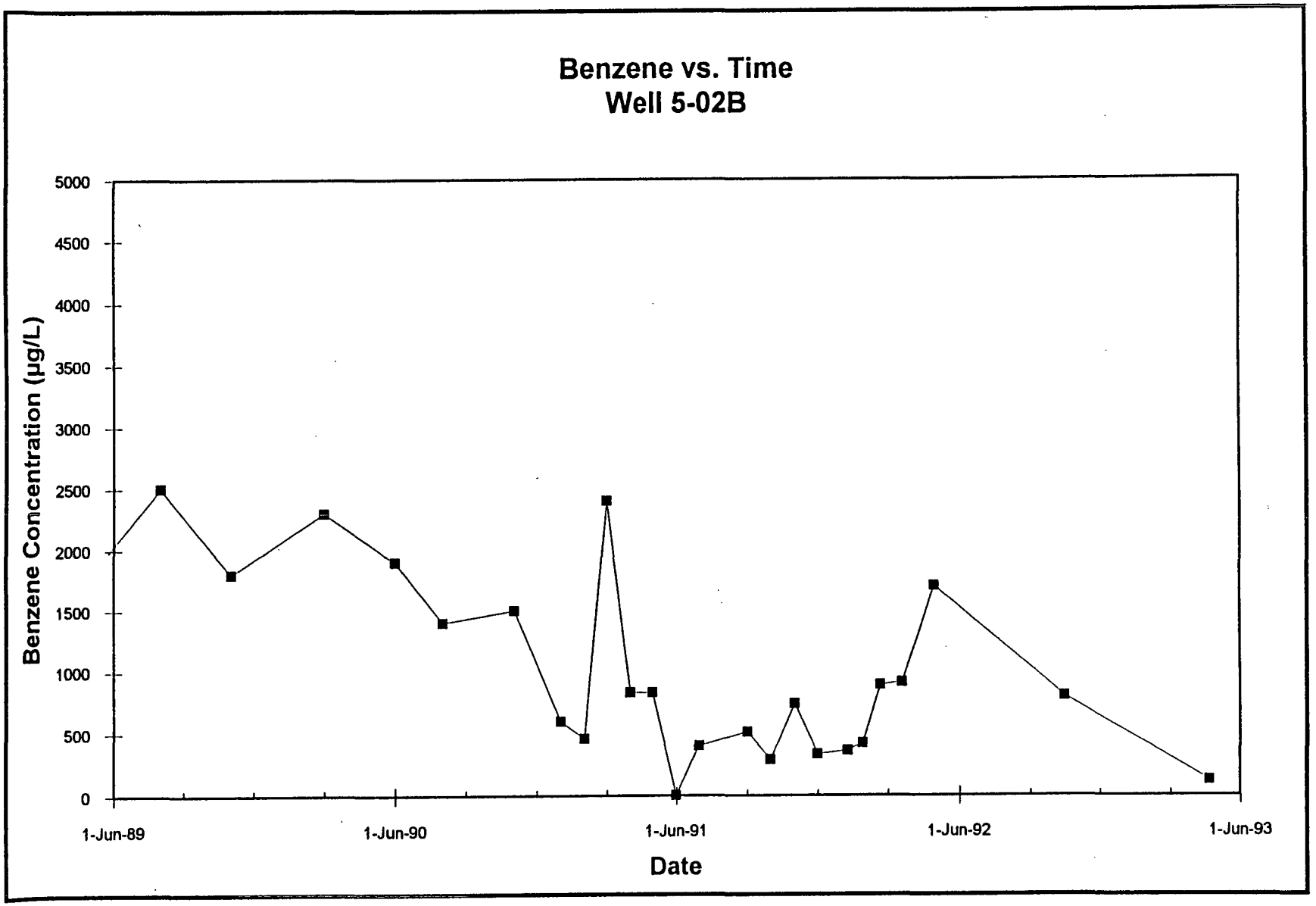
THOREAU COMPRESSOR STATION

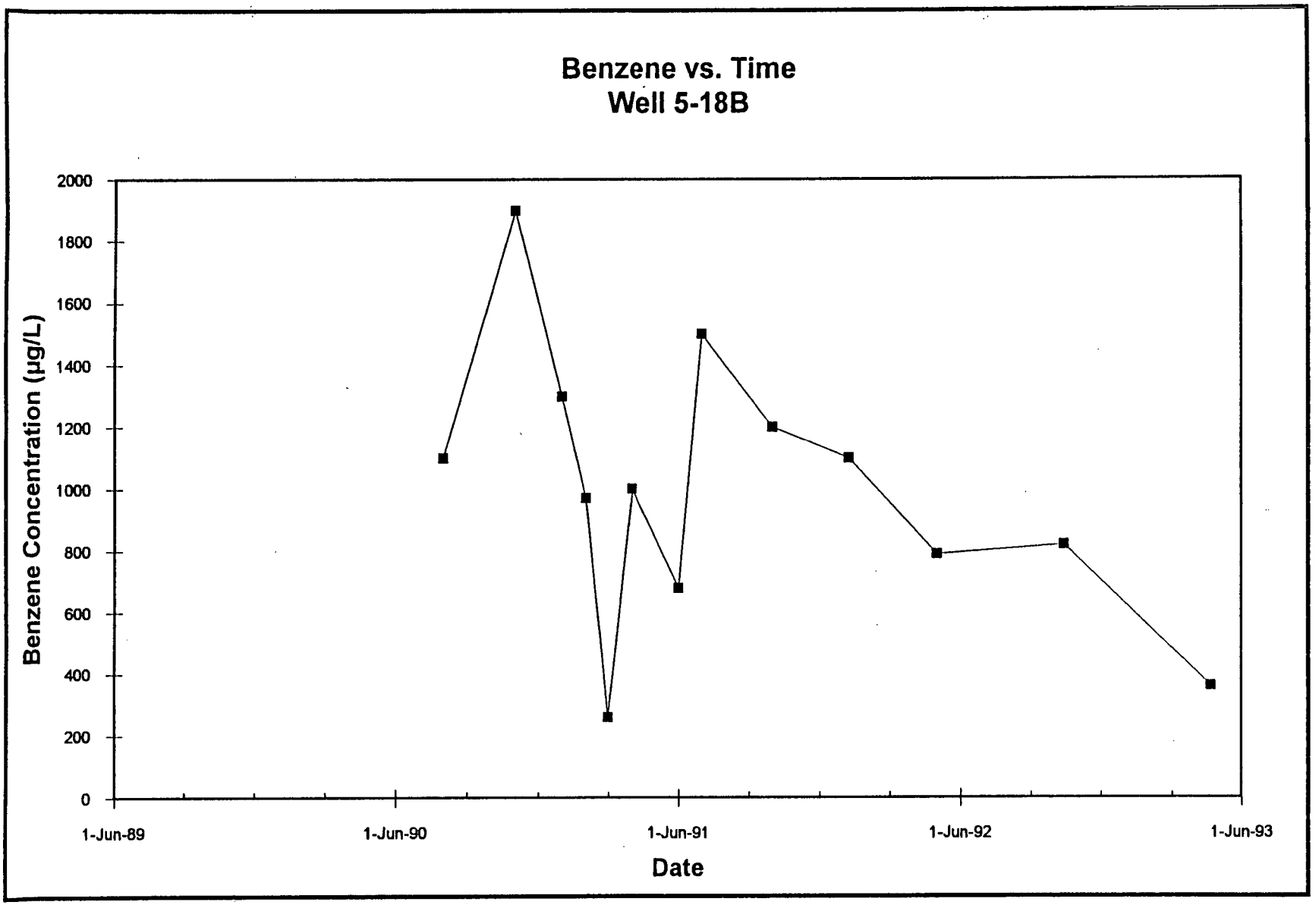
Dissolved Oxygen in Ground Water April 1993

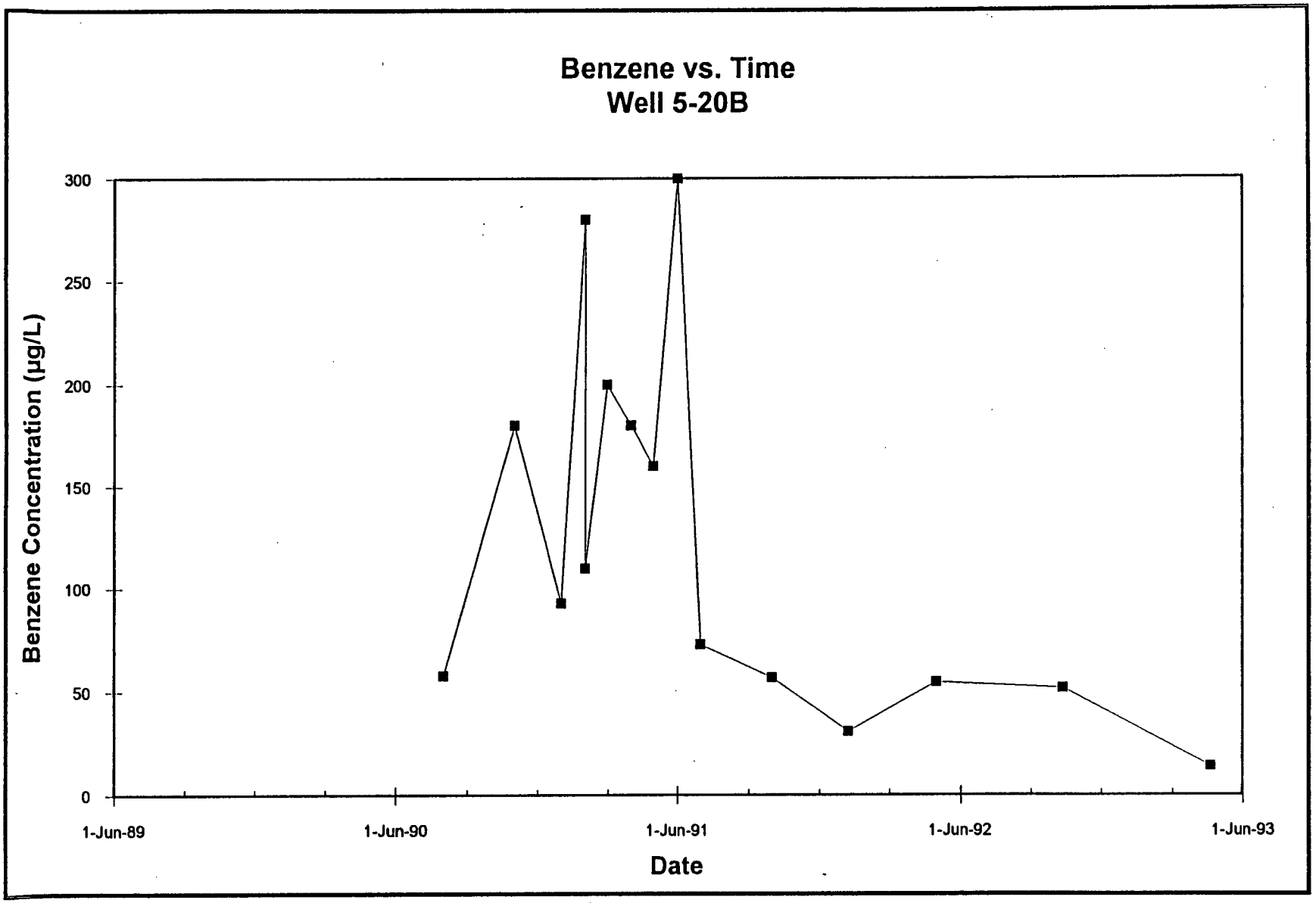
DANIEL B. STEPHENS & ASSOCIATES, INC.

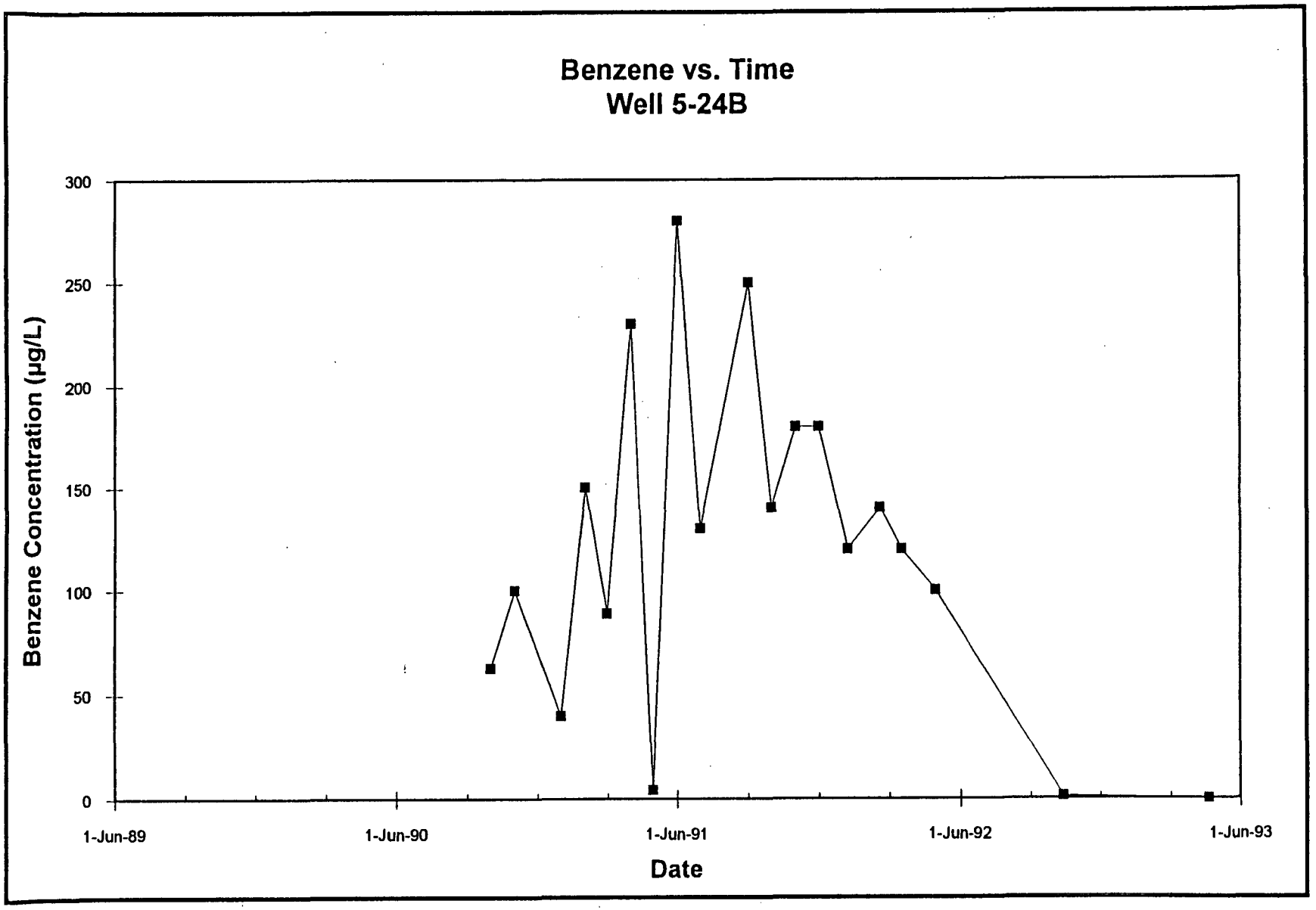
9-93

JN 2105


Benzene vs. Time
Well 5-02B
Benzene Concentration (µg/L)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1-Jun-89
1-Jun-90
1-Jun-91
1-Jun-92
1-Jun-93
Date


Benzene vs. Time
Well 5-18B
Benzene Concentration (µg/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1-Jun-89
1-Jun-90
1-Jun-91
1-Jun-92
1-Jun-93
Date


Benzene vs. Time
Well 5-20B
Benzene Concentration (µg/L)
300
250
200
150
100
50
0
1-Jun-89
1-Jun-90
1-Jun-91
1-Jun-92
1-Jun-93
Date


Benzene vs. Time
Well 5-24B
Benzene Concentration (µg/L)
300
250
200
150
100
50
0
1-Jun-89
1-Jun-90
1-Jun-91
1-Jun-92
1-Jun-93
Date

BIOLOGICALLY MEDIATED REACTIONS RESULTING IN OXIDATION OF HYDROCARBONS

(In Order of Decreasing Redox Potential)

Aerobic Respiration:

$$2\ \text{-CH}_2\text{-} + 3\ O_2 \longrightarrow 2\ CO_2 + 2\ H_2O$$

0.29 g $\text{-CH}_2\text{-}$ per g O_2

Denitrification:

$$5\ \text{-CH}_2\text{-} + 6\ NO_3^- + 6\ H^+ \longrightarrow 5\ CO_2 + 3\ N_2 + 8\ H_2O$$

0.19 g $\text{-CH}_2\text{-}$ per g NO_3^-

Iron (III) Reduction:

$$\text{-CH}_2\text{-} + 6\ Fe^{3+} + 2\ H_2O \longrightarrow CO_2 + 6\ Fe^{2+} + 6\ H^+$$

0.04 g $\text{-CH}_2\text{-}$ per g Fe^{3+}

Sulfate Reduction:

$$4\ \text{-CH}_2\text{-} + 3\ SO_4^{2-} + 3\ H^+ \longrightarrow 4\ CO_2 + 3\ HS^- + 4\ H_2O$$

0.19 g $\text{-CH}_2\text{-}$ per g SO_4^{2-}

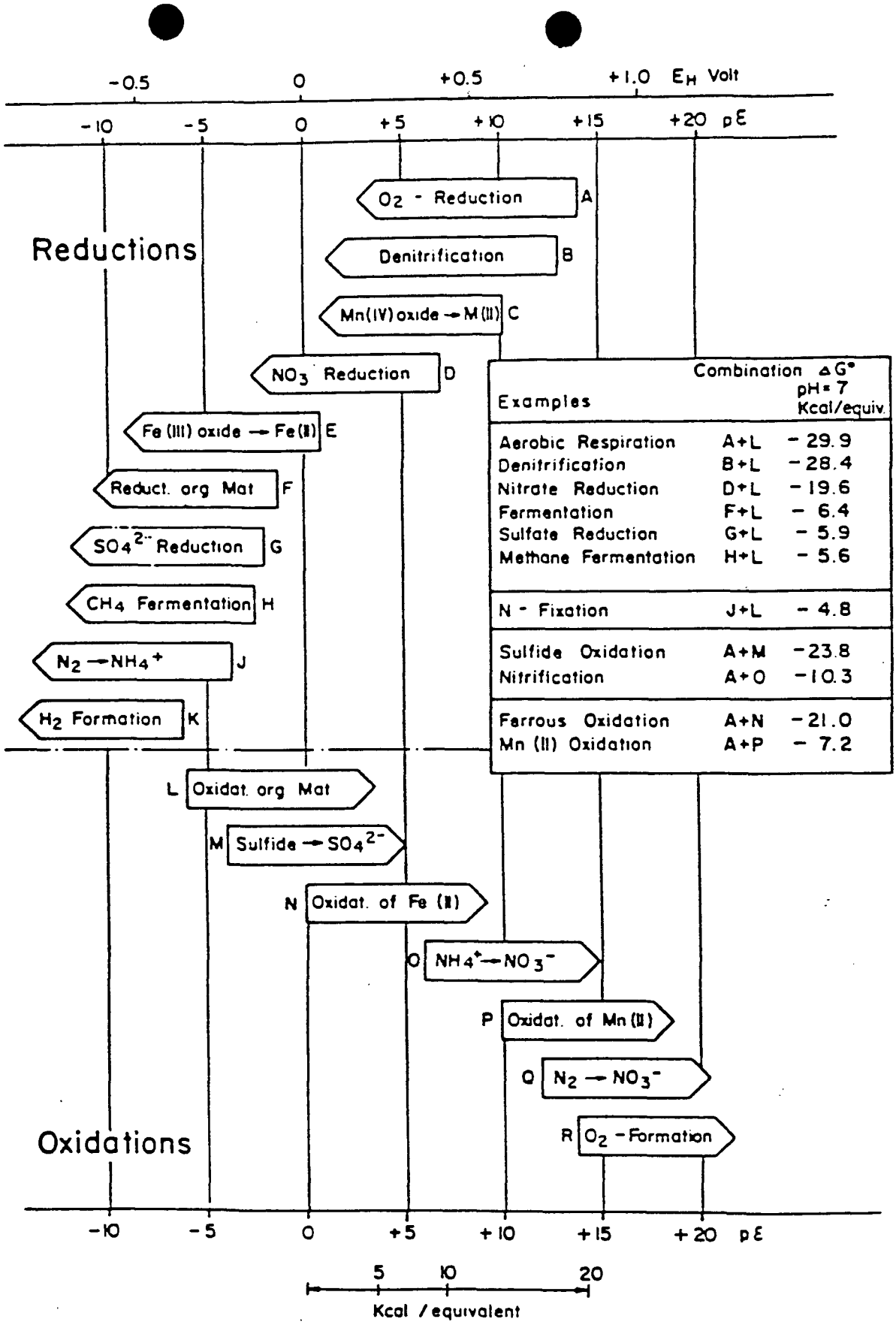


Figure 7.11 Sequence of microbially mediated redox processes.

Table 2. Relative Stoichiometric Efficiency of Common Bioremediation Reactions

Reaction	Eh[1] (volts)	ΔG_f° [2] (kJ/mole)	Application Concentration[3] (mg/l)	Hydrocarbon Oxidizing Capacity Per Liter[4] (mg CH_2/l)
O_2 Respiration	+0.8	–2,870	–8 (as O_2)	**2.3**
Denitrification	+0.7	–2,900	45 (as NO_3^-)	**8.5**
Iron (III) Reduction	0.0		1.0 (as Fe)	**0.04**
Sulfate Reduction	–0.2	–790		
1. NM ground water standard			600 (as SO_4^-)	**118**
2. Solubility limit			1400	**275**
3. Colloidal transport			1400+	**275+**

[1] Approximate redox potential below which reaction can proceed at pH=7.
[2] Standard free energy change for reaction. More negative values indicate increasing tendency for reaction to proceed.
[3] Maximum application concentration equal to maximum water solubility (O_2) or New Mexico Ground Water Standards (NO_3, $Fe_{(d)}$, SO_4^-).
[4] Mass of hydrocarbon potentially oxidized by one liter of ground water containing the maximum application concentration of the oxidant.

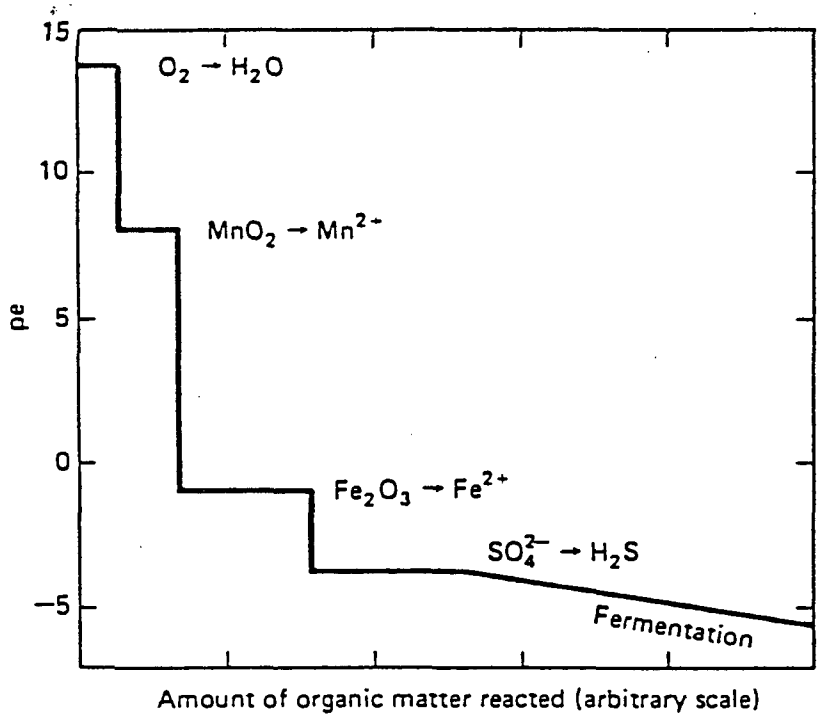


Figure 12-3 Change in pe of a fresh water in contact with sediment as a function of the amount of organic matter decomposed. The lengths of the various horizontal segments are arbitrary, depending on the amounts of specific solid phases available for reaction. pH is assumed constant at 7.0.

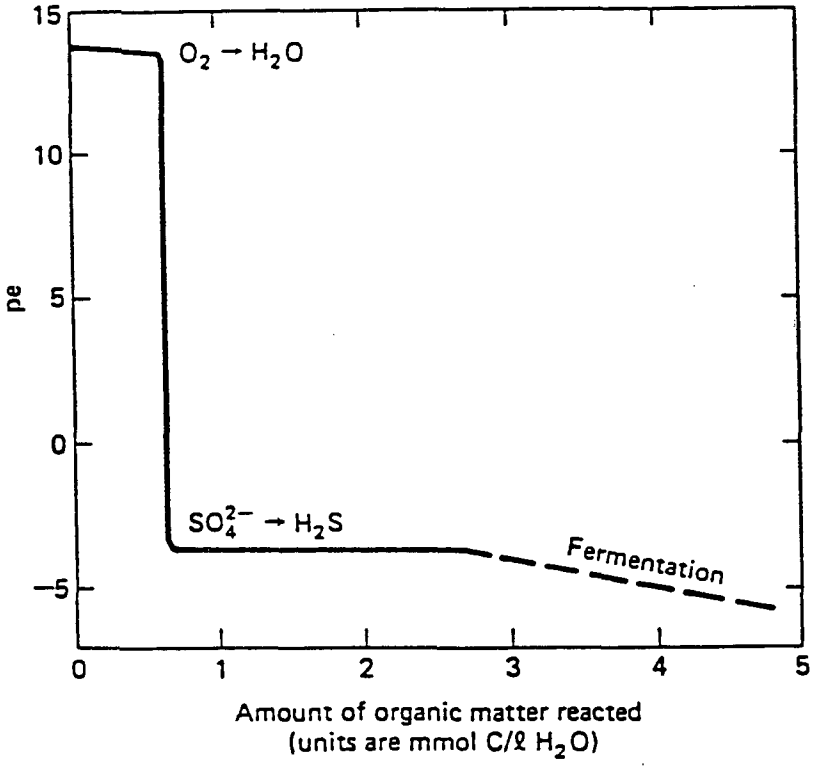
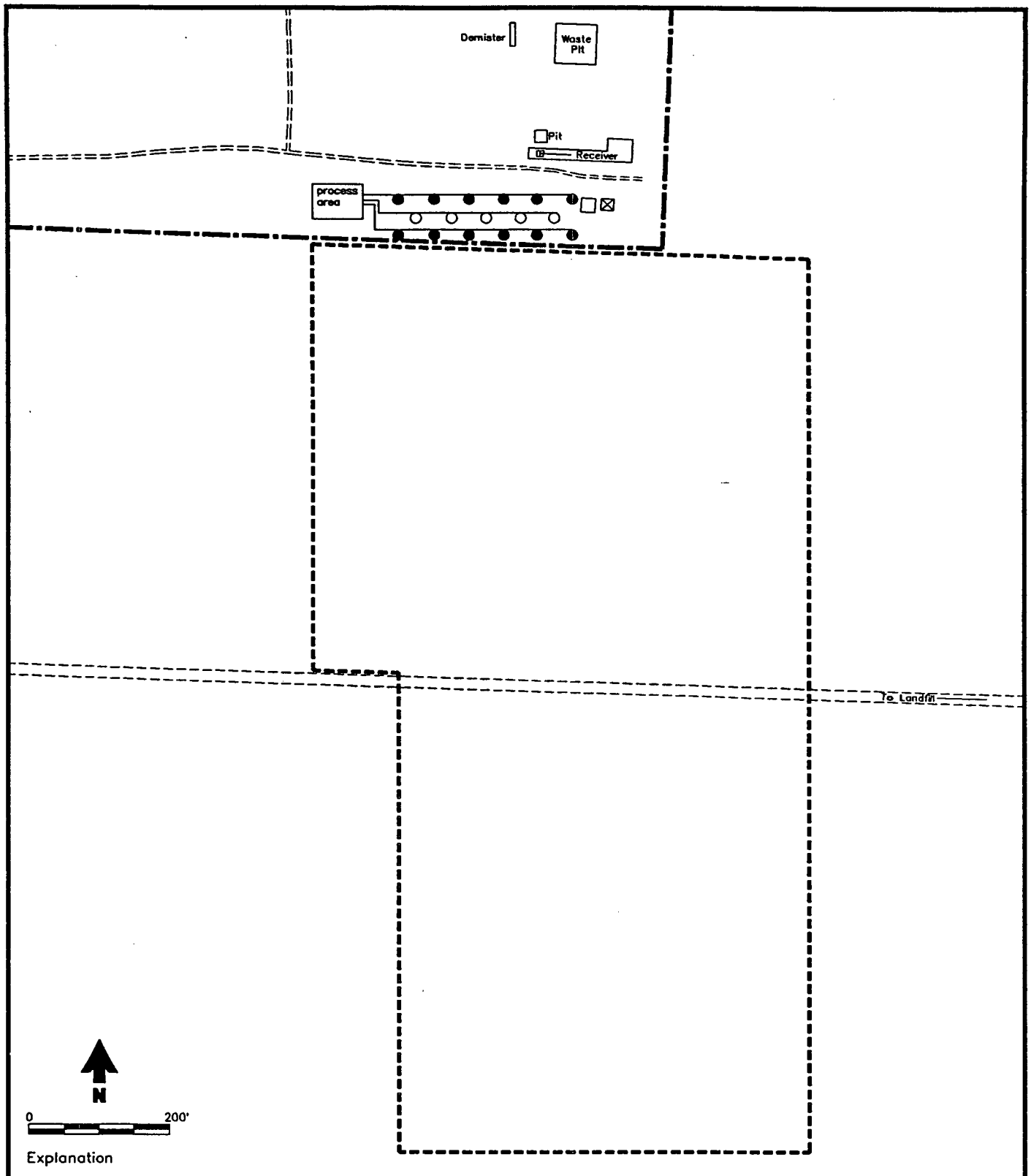


Figure 12-2 Change in pe of a fresh water (dissolved $O_2 = 10$ mg/l, dissolved $SO_4^{2-} = 96$ mg/l) as a function of the amount of organic matter decomposed. Reactions involving nitrogen compounds may provide a small amount of buffering between the O_2/H_2O and the SO_4^{2-}/H_2S levels. pH is assumed constant at 7.0.



Proposed Sparge/VES Locations for Source Area

DANIEL B. STEPHENS & ASSOCIATES, INC.
6-93
JN 2105

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 1000 hrs	Date 3/1/93
Originating Party		**Other Parties**
Joanne Hilton - OBS + A		Bill Olson - Envir. Bureau

Subject

ENRON Thoreau Compressor Station

Discussion

OBS + A will be drilling 2 additional MW's for final plume definition starting Tues 3/2/93

I requested wells be drilled + constructed as previous wells and asked for final report on investigation

Informed her that OCD will be requiring a proposal for remediation later this spring

Conclusions or Agreements

OBS + A will submit investigation results in approx 1 month She will pass on to George Robinson of ENRON OCD concerns about remedy for GW.

Distribution
file

Signed Bill Olson

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

January 22, 1993

Roger

Ms. Donna Mullins
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Dear Ms. Mullins:

This responds to your letter dated December 19, 1992, requesting the U.S. Fish and Wildlife Service (Service) comments on the U.S. Environmental Protection Agency's (EPA) intent to terminate the Consent Decree between the Transwestern Pipeline Company (TPC) and EPA for PCB contamination at four TPC compressor stations and ancillary sites in New Mexico. The Consent Decree will be terminated because the company has met the terms and conditions of the document. The company has cleaned up PCB soil contamination at their Mountainair, Corona, Thoreau, and Laguna stations. Groundwater monitoring has also been conducted at these four compressor stations in accordance with the Consent Decree.

PCB's and BTEX were found in the groundwater at the Thoreau and Laguna stations. New Mexico Oil Conservation Division (OCD) has agreed to oversee TPC's groundwater remedial efforts at these two stations to ensure that groundwaters are remediated to State standards. OCD is in the process of working with TPC to define the extent of petroleum contaminants at these sites and to determine options for remediation of contaminated groundwater.

The Service has no comment on the termination of the Consent Decree for PCB remedial activities at the TPC sites. In a conversation with Mr. William Olsen of OCD, groundwater remediation plans at the Thoreau and Laguna stations at this time are based on a closed loop plan. However, if at anytime these plans change and involve open ponding, which may create a potential risk to the Department of Interior Trust Resources, the Service recommends steps be taken to ensure migratory birds cannot gain access to the ponds.

Affidavit of Publication

THE GALLUP INDEPENDENT
300 North 9th, P.O. Box 1210
Gallup, New Mexico 87305
Phone (505) 863-6811

STATE OF NEW MEXICO
) SS
COUNTY OF McKINLEY

Hubbard, Freida being duly sworn upon oath, deposes and says:

As Legal Clerk of The Independent, a newspaper published in and having a general circulation in McKinley County, New Mexico and in the City of Gallup, New Mexico and having a general circulation in Cibola County, New Mexico and in the City of Grants, New Mexico and having a general circulation in Apache County, Arizona and in the City of St. Johns and in the City of Window Rock, Arizona therein: that this affiant makes this affidavit based upon personal knowledge of the facts herein sworn to. That the publication, a copy of which is hereto attached was published in said newspaper during the period and time of publication and said notice was published in the newspaper proper, and not in a supplement thereof,

for one time, the first publication being on the 10th day of April, 19 93 the second publication being on the _____ day of _____, 19_____ the third publication on the _____ day of _____, 19_____.

and the last publication being on the _____ day of _____, 19_____.

That such newspaper, in which such notice or advertisement was published, is now and has been at all times material hereto, duly qualified for such purpose, and to publish legal notices and advertisements within the meaning of Chapter 12, of the statutes of the State of New Mexico, 1941 compilation.

Freida Hubbard
Affiant.

Sworn and subscribed to before me this 10th day of May, A.D., 19 93

Linda Kay LeMay
Notary Public

My commission expires
August 29, 1993

2735 2M BUTLER'S Gallup

LEGAL NUMBER 9361

LINES 117 TIMES 1
START DATE 4-10-93

PAY THIS ==> $33.54

CLASS 65 1

NOT. OF PUBLICATION

KEEP THIS PORTION FOR YOUR RECORDS

LEGAL NOTICE
Santa Fe County
New Mexico

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

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-80) - Transwestern Pipeline Co., Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted an application for modification of its previously approved discharge plan for its Thoreau Compressor Station located in SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico. The modification consists of the addition of a soils landfarm for remediation of oil contaminated soils. The landfarm will be underlain by impermeable plastic and bermed to prevent runoff of contaminants. Groundwater most likely to be affected by any accidental spills is at a depth of approximately 50 feet with a total dissolved solids concentration of 750 mg/l. The modification addresses how spills, leaks, and other accidental discharges to the surface will be managed.

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If no hearing is held, the Director will approve or disapproved 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 Oil Conservation Commission at Santa Fe, New Mexico, on this 2nd day of April, 1993.

STATE OF NEW MEXICO
OIL CONSERVATION DIV.
/s/ William J. LeMay
Director

Legal #9361 Published in The Independent Saturday, April 10, 1993.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

May 14, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO.P-111-334-186

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

RE: Discharge Plan GW-80 Modifications
Thoreau Compressor Station No. 5
McKinley County, New Mexico

Dear Mr. Campbell:

The groundwater discharge plan modification for the Transwestern Pipeline Co. Thoreau Compressor Station No.5 located in the NE/4, SW/4, SE/4 Section 14, Township 13 North, Range 13 West, NMPM, McKinley County, New Mexico **is hereby approved** under the conditions contained in the enclosed attachment. The modification consists of the discharge plan as approved November 14, 1991 and the modification application dated March 23, 1993.

The modification application was submitted pursuant to Section 3-109.F of the Water Quality Control Commission Regulations. It is approved pursuant to Section 3-109.A. Please be advised that approval of this plan does not relieve you of liability should your operation result in actual pollution of surface or ground waters or the environment which may be actionable under other laws and/or regulations.

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

Your proposed modifications are to construct a centralized landfarm facility at the specified location.

Please note that Section 3-104 of the regulations requires that "When a plan has been approved, discharges must be consistent with the conditions of the plan". Pursuant to Section 3-107.C you are required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

The discharge plan modification application for the Transwestern Pipeline Company Thoreau Compressor Station is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan modification will be assessed a fee equal to the filing fee of fifty (50) dollars plus the flat rate fee of six-hundred ninety (690) dollars for compressor stations in excess of 3000 horsepower.

The OCD has received your $50 filing fee. The flat rate fee may be paid in a single payment due at the time of approval, or in equal installments over the duration of the plan, with the first payment due upon receipt of this letter.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

On behalf of the staff of the Oil Conservation Division, I wish to thank you and your staff for your cooperation.

Sincerely,

William J. LeMay
Director

WJL/cee

xc: OCD Aztec Office

TRANSWESTERN PIPELINE THOREAU COMPRESSOR STATION
DISCHARGE PLAN REQUIREMENTS
(May 14, 1993)

1. The six-hundred ninety ($690) dollar flat fee (either total payment or first installment) will be paid upon receipt of this letter.

2. One (1) background soil sample will be taken from the center portion of the landfarm two (2) feet below the native ground surface prior to operation. The sample will be analyzed for total petroleum hydrocarbons (TPH), general chemistry, volatile aromatic organics (BTEX), and heavy metals using approved EPA methods.

3. The landfarm will be underlain by 2 separate layers of 6 ml visqueen liners to provide deterrent to vertical migration.

4. A treatment zone not to exceed three (3) feet beneath the landfarm will be monitored. Monitoring will consist of a minimum of one random soil sample taken every six (6) months to be analyzed, using EPA Methods, for TPH and BTEX to ensure containment of the contaminants. The sample will be taken two to three feet below the landfarm surface.

5. An adequate berm will be constructed and maintained to prevent runoff and runon for that portion of the facility containing contaminated soils.

6. Only contaminated solids which are non-hazardous by RCRA Subtitle C exemption or by characteristic testing will be accepted at the facility. Solids from operations not currently exempt under RCRA Subtitle C or mixed exempt/non-exempt will be tested for appropriate hazardous constituents. Test results must be submitted to the OCD along with a request to receive the non-exempt solids, and a written OCD approval (case specific) must be obtained prior to disposal.

7. Only contaminated soils from Transwestern Pipeline operations will be accepted at the landfarm.

8. No free liquids or soils with free liquids will be accepted at the landfarm.

9. Soils will be spread on the surface in six (6) inch lifts or less.

10. Soils will be disked a minimum of one time every two weeks (minimum) to enhance the biodegradation of the contaminants.

11. Successive lifts of contaminated soils will not be spread until a laboratory measurement of TPH in the previous lift is less than 100 parts per million (ppm), the sum of all BTEX is less than 50 ppm, and the benzine is less than 10 ppm. Comprehensive records of the laboratory analysis will be maintained at the facility. Authorization from the OCD will be obtained prior to the application of successive lifts.

12. Any pooling of liquids that occur as a result of precipitation will be removed within seventy-two (72) hours.

13. Enhanced bio-remediation through the application of water, microbes, and/or fertilizers will be permitted only after prior approval from the OCD.

14. The OCD will be notified in accordance with rule 116 of any break, spill, blow out, or fire or any other circumstance that could constitute a hazard or contamination.

15. Removal of remediated soils from the landfarm will be on a case by case approval basis.

16. Analytical results from the treatment zone monitoring will be submitted to the OCD Santa Fe Office within thirty (30) days of receipt from the analytical lab.

17. After obtaining the quarterly sample from the treatment zone the liners (2) will be repaired to maintain the integrity of the liners.

18. Comprehensive records of all material disposed of at the facility will be maintained at the facility.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

New Mexico DRUG FREE It's a State of Mind!

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

April 5, 1993

GALLUP INDEPENDENT
P. O. Box 1210
Gallup, New Mexico 87301

RE: NOTICE OF PUBLICATION

ATTN: ADVERTISING MANAGER

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.)
2. 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 April 12, 1993.

Sincerely,

Sally Leichtle

Sally E. Leichtle
Administrative Secretary

Attachment

P 690 039 612

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	Gallup Independent
Street & No.	P.O. Box 1210
P.O., State & ZIP Code	Gallup, NM 87301
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, June 1990

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

New Mexico DRUG FREE It's a State of Mind!

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

April 5 1993

ALBUQUEQUE JOURNAL
717 Silver Southwest
Albuquerque, New Mexico 87102

RE: NOTICE OF PUBLICATION

ATTN: ADVERTISING MANAGER

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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.

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Sally Leichtle

Sally E. Leichtle
Administrative Secretary

Attachment

P 667 241 824

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	Alby. Journal
Street & No.	
P.O., 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, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, June 1990

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan applications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, PO Box 2088, Santa Fe, New Mexico 87504-2088, telephone (505) 827-5800:

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If no hearing is held, the Director,

STATE OF NEW MEXICO
County of Bernalillo

SS

OIL CONSERVATION DIVISION
RECEIVED
'93 APR 15 AM 9 20

Dianne Berglund being duly sworn declares and says that she is National Advertising Sales Supervisor of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made or assessed as court costs; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition,

for 1 times, the first publication being on the 14 day of April, 1993, and the subsequent consecutive publications on _____, 1993

Dianne Berglund

Sworn and subscribed to before me, a notary Public in and for the County of Bernalillo and State of New Mexico, this 14 day of April 1993.

PRICE $36.57

Statement to come at end of month.

OFFICIAL SEAL
Bernadette Ortiz
BERNADETTE ORTIZ
NOTARY PUBLIC-NEW MEXICO
NOTARY BOND FILED WITH SECRETARY OF STATE
My Commission Expires 12-18-93

CLA-22-A (R-1/93) ACCOUNT NUMBER C81184

NOTICE OF PUBLICATION

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

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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 Oil Conservation Commission at Santa Fe, New Mexico, on this 2nd day of April, 1993.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY,
Director

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☐ Telephone ☐ Personal	Time	Date
	4 00 pm	3-30-93

Originating Party	Other Parties
CHRIS EUSTICE & ROGER ANDERSON	LARRY CAMPBELL (Transwestern Pipeline)

Subject THOREAU COMPR. STATION - Proposed discharge plan modification. Request to have onsite landfarm

Discussion We told Larry that the specifics for his landfarm proposal was lacking a means of assuring no leaching of contaminants, either double liner w/ leak detection or treatment zone with sample monitoring requirements.
His initial proposal was to use @ 2 layers of 6 mil visqueen w/ 6" of soil on top. No leak detection.
He now says they'll use double liner (2 - 6 mil) and a 3' treatment zone with scheduled monitoring of this 3' treatment zone by sample and analysis (quarterly)

Conclusions or Agreements

Double liner w/ 3' treatment zone.
Initial background sample
Quarterly sampling of treatment zone.

Distribution

Signed Chris Eustice

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

Phone (505) 623-2761
FAX (505) 625-8060

Roswell, New Mexico
March 23, 1993

Mr. Roger Anderson
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Anderson

Transwestern Pipeline Company request a permit to construct and operate a landfarm located at it's Thoreau Compressor Station No. 5, a remote facility located in McKinley County. This facility occurs in the exemption area for oil and gas exploration and production and is located at the following coordinates:

NE 1/4, SW 1/4, SE 1/4, Township 14 North, Range 13 West, McKinley County, New Mexico

This request is addressed to specifically landfarm non-hazardous hydrocarbon contaminated soil generated at field operations owned by Transwestern Pipeline Company in the Belen District.

This landfarm is to be constructed within the facility property. A six foot chain link fence presently surrounds the property. The anticipated dimensions of the soil remediation cell is to be 200' by 100' with the amount of soil to be placed into this landfarm cell to be approximately 740 cubic yards. A review of the groundwater conditions at this site from a drilling log indicates the depth to the water table for the three water wells at the station site to be at 311 feet to 400 feet, with the nonpotable water table at 42 feet. As a barrier to vertical migration of liquids, the soil cell is underlayed by two layer of six mill thick visqueen plastic.

1 TDS

The following site requirements will be adhered in the construction and operation of the landfarm.

1) A berm of approximately 24 inches will be constructed around the entire soil cell area to prevent surface runoff and potential contamination to adjacent areas.

2) Soils to be remediated will be initially layed down and limited to 12 inches in depth. Subsequent lifts will only be applied after analyses have been performed of the surface in-place material and submitted to the O.C.D. for approval.

3) Disking will be preformed bi-monthly to expedite the remediation processes.

4) In the event remediation processes are hindered, fertilizer will be utilized to accelerate the remediation process.

5) This land farm will be operated effectively to reduce fugitive dust emissions to the greatest extent possible.

6) The soil remedation cell will be constructed so that any free water can accumulate and be collected, tested and properly disposed. Disposal of the oily waste water will be by :

   Mesa Oil Co.
   4701 Broadway SE
   Albuquerque, New Mexico 87105

   Rollins Environmental Services
   P.O. Box 609
   Deer Park, Texas 77356

Under this permit, we are additionally requesting that options be discussed to replace or dispose of the soil once contamination levels are below target values assigned by the O.C.D. This will allow for long term use of the landfill site and decrease the potential for environmental liability.

We would like to start the process of performing soil cleanup operations and remediation and would appreciate your attention in this matter.

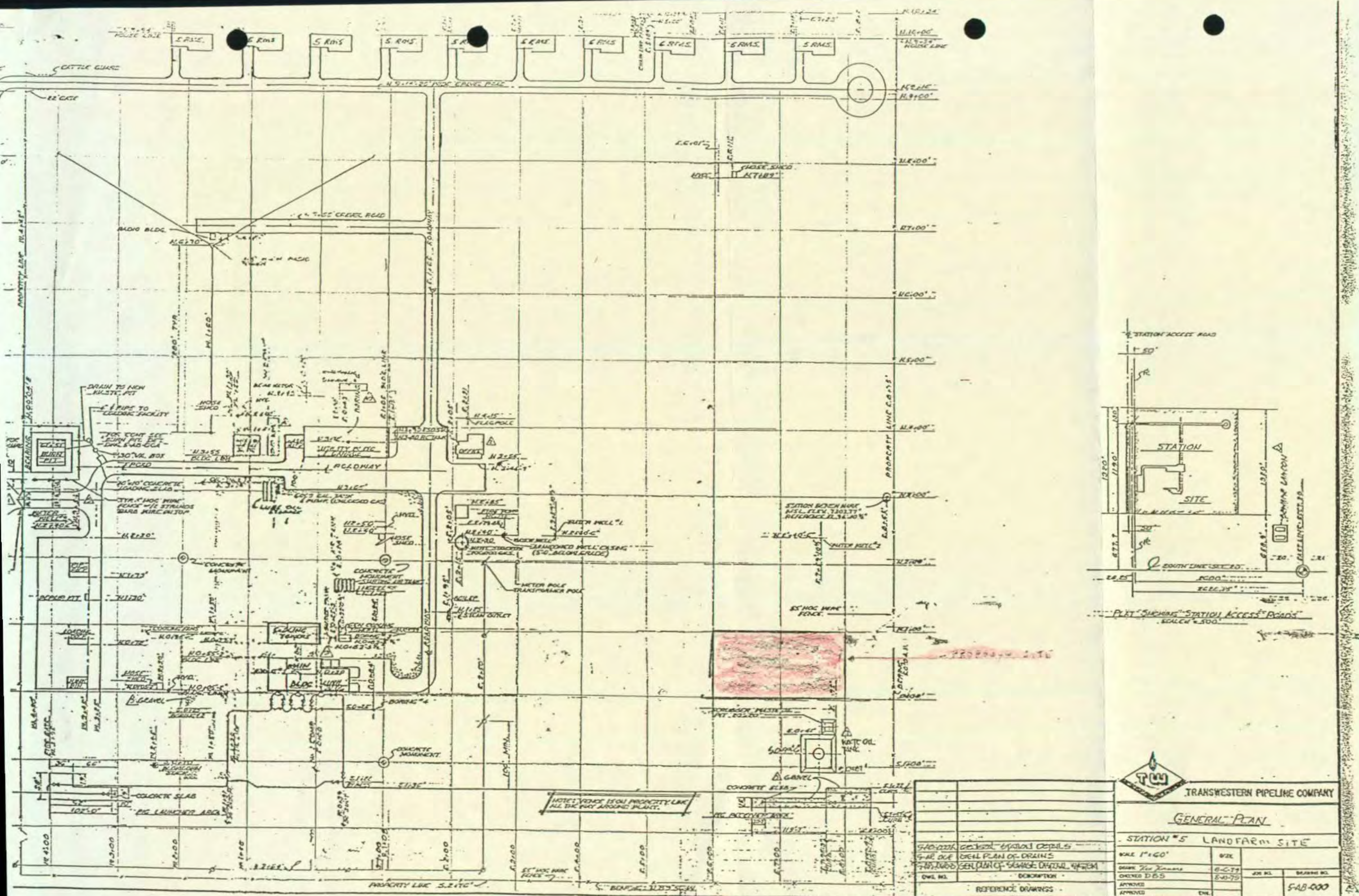
If you may require any additional information in this matter, please contact me at (505) 625-8022.

Sincerely,

Larry Campbell/EC

Larry Campbell
Compliance Envrionmentalist

cc: Doc Alpers
Roger Lalonde
Walter Dills
file



CATTLE GUARD
RADIO BLDG.
ROADWAY
STATION
SITE
PLAT SHOWING STATION ACCESS ROADS
SCALE: 1" = 500'
STATION ACCESS ROAD
PROPERTY LINE
CONCRETE MONUMENT
CONCRETE SLAB
PIG LAUNCHER AREA
NOTE: FENCE IS ON PROPERTY LINE ALL THE WAY AROUND PLANT.
PROPOSED SITE
WASTE OIL TANK
GRAVEL
BURN PIT
TRANSWESTERN PIPELINE COMPANY
GENERAL PLAN
STATION #5 LANDFARM SITE
SCALE 1" = 60'
DRAWN
CHECKED DBS
APPROVED
6-6-79
6-10-79
JOB NO.
DRAWING NO.
5AB-000
GENERAL STATION DETAILS
GEN. PLAN OF DRAINS
GEN. PLAN OF SEWAGE DISPOSAL SYSTEM
DWG. NO.
DESCRIPTION
REFERENCE DRAWINGS

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

July 27,1992

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO P-667-242-121

Mr. Larry T. Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

Re: Discharge Plan GW-80
Thoreau Compressor Station
McKinley County, New Mexico

Dear Mr. Campbell:

The Oil Conservation Division (OCD) has received the discharge plan modification request, dated April 20, 1992, for the above referenced facility. The modification consists of the addition of purge water from the monitor wells to the discharge stream.

Based on the information provided in your request and WQCC Regulations 3-109.A, the requested discharge plan modification is hereby approved.

Please be advised approval of this modification does not relieve you of liability should your operation result in actual pollution of surface or ground waters actionable under other laws and/or regulations.

If you have any questions, please call Roger Anderson at (505) 827-5812.

Sincerely:

William J. LeMay
Director

xc: OCD Aztec Office

Phone (505) 623-2761
FAX (505) 625-8060

OIL CONSERVATION DIVISION
RECEIVED
92 APR 20 AM 9 38

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

April 20, 1992

Mr. Roger Anderson
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504-2088

Dear Mr. Anderson:

Transwestern Pipeline Company is requesting modification to Discharge Plan GW-80 for the Thoreau Compressor Station to purge water filtering and discharge of monitor and sampling wells. The attached discussion presented by Daniel B. Stephens & Associates, Inc. provides a description and methodology for this requested discharge operation.

Transwestern anticipates that the monthly sampling and resultant purge volumes will decrease in the future, therefore, the purge volumes discussed in the attached procedures are intended to represent maximum amounts.

If you should require any additional information, contact this office at 625-8022.

Sincerely,

Larry Campbell

Larry Campbell
Compliance Environmentalist

xc: Roger LaLonde
Walter Dils

PURGE WATER FILTERING AND DISCHARGE PROCEDURES
THOREAU COMPRESSOR STATION
APRIL 1992

Daniel B. Stephens & Associates (DBS&A) is under contract with Enron Corporation to conduct hydrogeologic investigation at the Thoreau compressor station. This work includes sampling approximately 22 ground-water monitor wells.

The wells have historically been monitored for polychlorinated biphenyls (PCBs, EPA method 8080) and benzene, toluene, ethyl benzene and xylene (BTEX, EPA method 8020). Currently, only wells that either have historically shown detectable levels of PCBs or are in the vicinity of wells that have shown detectable levels of PCBs are monitored for both PCBs and BTEX. The remainder of the wells are monitored for BTEX.

Approximately 10 of the monitor wells are sampled on a monthly basis, and an additional 11 monitor wells are sampled quarterly. Approximately 3 casing volumes of water are purged from each well prior to sampling. Purge water from wells that have previously contained PCBs and/or BTEX is placed into a trailer-mounted tank. Purge water from wells that have not shown detectable levels of PCBs and/or BTEX is discharged to a 55-gallon drum placed next to the monitor well.

During the monthly sampling, approximately 15 gallons of water are purged from wells that have historically shown detectable levels of PCBs, approximately 50 gallons are purged from wells that contain BTEX, and approximately 20 gallons are purged from wells that have historically been free of PCBs and BTEX. During the quarterly sampling of the 11 additional monitor wells, approximately 50 gallons of water containing BTEX and approximately 50 gallons of water with nondetectable BTEX levels are purged. PCBs have not been detected in any of the wells that are sampled quarterly.

In addition to the current sampling, we estimate that up to 300 gallons per month in excess of the above figures may be generated due to installation of additional monitor wells and remedial

design testing (i.e., bioremediation pilot testing, pump testing, etc.). Water from the additional testing will be discharged into the trailer-mounted tank if possible, unless the water is anticipated to be free of BTEX and PCB. Water that is anticipated to be clean will be stored directly in stock tanks or 55-gallon drums.

Purge water that contains concentrations of BTEX and/or PCBs above NMWQCC standards is pumped from the trailer-mounted tank through an activated carbon filter system and then discharged to stock tanks. When the stock tanks are full, a sample is collected from each tank and is analyzed for BTEX and PCBs to demonstrate that levels of these contaminants are below standards.

Pending an amendment to the Thoreau discharge plan, we would like to periodically discharge filtered water and the 55 gallon drums at "clean" wells on site. Discharge would occur only after analytical results are received from the individual stock tank or drum to be discharged. We anticipate that the maximum monthly discharge (including sampling of all 22 wells plus additional testing) would be approximately 300 gallons of filtered water and 200 gallons of "natural" clean water.

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 11/22/91,

or cash received on 12/3/91 in the amount of $ 2860.00

from TRANSWESTERN PIPELINE COMPANY

for THOREAU & CORONA COMP STATIONS GW-80 & GW89
(Facility Name) (DP No.)

Submitted by: Roger C Anderson Date: 12/3/91

Submitted to ASD by: _____ Date: _____

Received in ASD by: Dorothy C. Montoya Date: 12/3/91

2 Filing Fee X 2 New Facility X Renewal ___

Modification ___ Other _____
(specify)

Organization Code 521.07 Applicable FY 80

To be deposited in the Water Quality Management Fund.

2 Full Payment X or Annual Increment ___

CHECK NO. [redacted]

ENRON CORP

TRANSWESTERN PIPELINE COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

DATE OF CHECK
11-22-91

This check is VOID unless printed on BLUE background

EXACTLY $*****2,860 DOLLARS 00 CENTS

AMOUNT OF CHECK
$*****2,860.00

PAY TO THE ORDER OF
STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
P O BOX 2088
NMED WATER QUALITY MANAGEMENT
SANTA FE, NM
87504

UNITED BANK OF GRAND JUNCTION

BY _____
AUTHORIZED REPRESENTATIVE

[redacted]

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

November 14, 1991

Mr. Roger Anderson
Acting Bureau Chief
Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Anderson:

This responds to the notice of publication dated September 30, 1991, regarding the Oil Conservation Division (OCD) discharge permits GW-80 and GW-15 on fish, shellfish, and wildlife resources in New Mexico.

With regard to GW-80, Thoreau Compressor Station, the U.S. Fish and Wildlife Service (Service) has the following comments on the issuance of a discharge permit which would allow washdown water to be stored on site.

> The compressor station is located in the SE 1/4, Section 20, T14N, R13W, McKinley County, New Mexico, and is to discharge and store 300 gallons per day of washdown water in an above ground steel storage tank prior to transport to an OCD approved off-site disposal facility. Natural gas pipeline condensates contain many organic constituents including benzene, C1 to C5 alkylated benzenes, and toluene (G. Eiceman. 1986. Hazardous Organic Wastes From Natural Gas Production, Processing and Distribution: Environmental Fates). Polychlorinated bi-phenyls may also be incorporated into the condensate through some compressor lubricants. The Service is concerned that washdown water at the compressor site may contain any, or all, of these organic constituents and that accidental spills could result in potential toxicity to Department of the Interior (DOI) Trust Resources over time. The Service suggests that a surface soil monitoring program be implemented which incorporates SW-846-8080 and -8100 methodologies. Such a monitoring program would ensure the compressor site would not represent a potential threat to endangered species or migratory birds that may be found in the area.

With regard to GW-15, Hobbs Gas Processing Plant, the Service has the following comments on the modification of a discharge permit to add a soils landfarm for remediation of oil contaminated soils.

The landfarm site is located in the NE 1/4 of Section 6, T19S, R39E, Lea County, New Mexico, and is to receive oil contaminated soils. The landfarm area is to be underlaid with impermeable plastic and bermed to prevent runoff of contaminants. The Service is concerned that vegetation which may be planted to physically stabilize the soil might take up, from the soil, potentially toxic levels of contaminants and could create a potential risk to DOI Trust Resources. Although we realize that planting is not planned at this time, the Service recommends that, if planting does occur, the soil be analyzed for hazardous or toxic substances to ensure that a potential risk to endangered species or migratory birds does not exist.

The Service is the Federal agency responsible for the protection of migratory birds and endangered species. Please note the following legal mandates.

1. Endangered Species Act of 1973, as amended. Section 9 prohibits any "take" (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of listed species without a special exemption. Harm is further defined to include specific habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

2. Migratory Bird Treaty Act. Section 703 prohibits anyone at anytime or in any manner to capture, transport, or kill any migratory birds unless permitted by regulations promulgated under it. If migratory birds become exposed to and/or accumulate harmful levels of contaminants, this constitutes "take" under the Act. The courts have stated the Act can be constitutionally applied to impose penalties to persons, associations, partnerships, or corporations which did not intend to "kill" migratory birds and that the Act includes poisoning by any means. The unlawful killing of even one migratory bird is an offense.

If you have any questions concerning our comments, please contact Laurie S. Shomo or Stephen H. Ward at (505) 883-7877.

Sincerely,

Jennifer Fowler-Propst
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Regional Administrator, Environmental Protection Agency, Dallas, Texas
Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Albuquerque, New Mexico.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

November 14, 1991

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-327-278-274

Mr. Larry T. Campbell
Transwestern Pipeline Company
P. O. Box 1717
Roswell, New Mexico 88202-1717

RE: Discharge Plan GW-80
Thoreau Compressor Station
McKinley County, New Mexico

Dear Mr. Campbell:

The groundwater discharge plan GW-80 for the Transwestern Pipeline Company Thoreau Compressor Station located in the SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico is hereby approved. The discharge plan consists of the application dated August 22, 1991, and materials dated September 17, 1991, and October 18, 1991 submitted as supplements to the application.

The discharge plan was submitted pursuant to Section 3-106 of the Water Quality Control Commission Regulations. It is approved pursuant to section 3-109.A. Please note Section 3-109.F., which provides for possible future amendments of the plan. Please be advised that approval of this plan does not relieve you of liability should your operation result in actual pollution of surface or ground waters or the environment which may be actionable under other laws and/or regulations.

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

Please note that section 3-104 of the regulations requires that "When a plan has been approved, discharges must be consistent with the terms and conditions of the plan". Pursuant to Section 3-107.C. you are required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3-109.G.4., this plan approval is for a period of five years. This approval will expire November 14, 1996, and you should submit an application for renewal in ample time before that date.

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

Sincerely,

William J. LeMay
Director

WJL/rca

xc: OCD Aztec Office

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

November 5, 1991

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-106-675-379

Mr. Larry T. Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

RE: Fee for Discharge Plan GW-80
Thoreau Compressor Station
McKinley County, New Mexico

Dear Mr. Campbell:

Pursuant to the New Mexico Water Quality Control Commission (WQCC) Regulation 3-114 "every billable facility submitting a discharge plan for approval, modification or renewal shall pay the fees specified in this section to the Water Quality Management Fund." Enclosed is a copy of WQCC Rule 3-114 effective as of August 18, 1991.

The Oil Conservation Division (OCD) received your discharge plan application for the Thoreau Compressor Station on August 26, 1991, which is after the effective date of the WQCC Regulation 3-114. The discharge plan application for the Thoreau Compressor Station is therefore subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a new discharge plan will be assessed a fee equal to the filing fee plus either a flat fee or discharge fee.

The filing fee is fifty (50) dollars for each new discharge plan application. The $50 filing fee is due immediately and is nonrefundable.

The remainder of the "total fee" for gas compressor stations falls under the "flat fee" category and is determined by the maximum number of horsepower available. The discharge plan application for your Thoreau Compressor Station does not include the maximum number of horsepower available. Please provide this number to the OCD to determine the correct flat fee. 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 discharge plan, with the first payment due at the time of approval.

Please make all checks out to the **NMED - Water Quality Management** and send to the OCD Santa Fe Office. If you have any questions, please do not hesitate to contact me at (505) 827-5884.

Sincerely,

Roger C. Anderson
Environmental Engineer

Enclosure

xc: OCD Aztec Office

FAX (505) 625-8060

Phone (505) 623-2761

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

October 18, 1991

Mr. Roger Anderson
Oil Conservation Division
P.O. Box 2088
State Land Office Bldg.
Santa Fe, New Mexico 87504

Dear Mr. Anderson:

In response to your letter concerning additional information required for approval of Discharge Plan GW-80, Thoreau Compressor Station, presented below are responses to those concerns:

1) The cooling system is open to atmosphere and operates in a manner very similar to an evaporative air conditioner. The water supply is cut off in the early fall allowing the ambient conditions to evaporate the cooling water. The water supply system is not turned on again until late spring.

2) Refer to the attached Plates for a wastewater piping diagram of the facility. All underground wastewater piping, which has been in service for 25 years or longer, will be pressure tested as per requirements set forth by the OCD prior to renewal of this plan. Piping at that time will either be pressure tested at 3 psi over normal operating pressure or replaced, depending upon pipe conditions.

If you may require any additional information, please contact me at 625-8022.

Sincerely,

Larry Campbell

Larry Campbell
Compliance Environmentalist

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

October 15, 1991

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO P-327-278-252

Mr. Larry T. Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico 88202-1717

Re: Discharge Plan GW-80
Thoreau Compressor Station
McKinley County, New Mexico

Dear Mr. Campbell:

The Oil Conservation Division (OCD) has received the discharge plan application, dated August 22, 1991, for the above referenced facility. The following comments and requests for additional information are based on review of the application.

1. Section II.A.2. states the engine and cooling water stream is allowed to evaporate in the fall. How and where is this accomplished? Where are the fluids stored until fall?

2. Section II.C.1. states wastewater schematics are not applicable. Underground wastewater piping schematics will be provided to the OCD. In addition, a plan and completion timetable will be submitted for all facilities over twenty-five (25) years old for the testing of all underground piping to insure their integrity.

Submission of the above information will allow review of your application to continue.

If you have any questions, please call me at (505) 827-5884.

Sincerely:

Roger C. Anderson
Environmental Engineer

Affidavit of Publication

OIL CONSERV .N DIVISION
RE: .ED

'91 OCT 24 AM 9 40

STATE OF NEW MEXICO
) SS
COUNTY OF McKINLEY

Erelda Romero being duly sworn upon oath, deposes and says:

As Legal Clerk of The Independent, a newspaper published in and having a general circulation in McKinley County, New Mexico and in the City of Gallup, New Mexico and having a general circulation in Cibola County, New Mexico and in the City of Grants, New Mexico and having a general circulation in Apache County, Arizona and in the City of St. Johns and in the City of Window Rock, Arizona therein: that this affiant makes this affidavit based upon personal knowledge of the facts herein sworn to. That the publication, a copy of which is hereto attached was published in said newspaper during the period and time of publication and said notice was published in the newspaper proper, and not in a supplement thereof,

for one time, the first publication being on the 10th day of October, 19 91 the second publication being on the _____ day of _____, 19_____ the third publication on the _____ day of _____, 19_____.

and the last publication being on the _____ day of _____, 19_____.

That such newspaper, in which such notice or advertisement was published, is now and has been at all times material hereto, duly qualified for such purpose, and to publish legal notices and advertisements within the meaning of Chapter 12, of the statutes of the State of New Mexico, 1941 compilation.

Erelda Romero
Affiant.

Sworn and subscribed to before me this 23rd day of October, A.D., 19 91.

Dunkin Delmo
Notary Public

My commission expires
8-29-93

2735 2M BUTLER'S Gallup

LEGAL NOTICE
SANTA FE, SANTA FE COUNTY
NEW MEXICO

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, the following discharge plan application and modification application have been submitted to the Director of the Oil Convservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-80) - Transwestern Pipeline Compnay, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico, 88202-1717, has submitted a discharge plan application for their Thoreau Compressor Station located in the SE/4, Section 20, Township 14 North, Range 13 West, NMPM, Mckinley County, New Mexico. Approximately 300 gallons per day of washdown water with a total dissolved solids concentration of approximately 5700 mg/l is stored in an above ground steel tank prior to transport to an OCD approved off-site disposal facility. Groundwater most likely to be affected by an accidental discharge is a shallow perched water table at a depth of approximately 50 feet with a total dissolved solids concentration ranging from 600 to 900 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-15) - Northern Natural gas Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted an application for modification of its previously approved discharge plan for its Hobbs Gas Processing Plant located in the NE/4, Section 6, Township 19 South, Range 39 East, NMPM, Lea County New Mexico. The modification consists of the addition of a soils landfarm for remediation of oil contaminated soils. The landfarm will be underlaid with impermeable plastic and bermed to prevent runoff of contaminants. Groundwater most likely to be affected by any accidental spills is at depth ranging from 120 to 140 feet with a total dissolved solids concentration ranging from 400 to 850 mg/l. The modification addresses 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 any may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 5:00 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 public hearing may be requested by any interested person. Requests for 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 proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of September, 1991.

Legal #7437 published in the Independent October 10, 1991.

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, the following discharge plan application and modification application have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-90) - Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted a discharge plan application for their Thoreau Compressor Station located in the SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinely County, New Mexico. Approximately 300 gallons per day of washdown water with a total dissolved solids concentration of approximately 5700 mg/l is stored in an above ground steel tank prior to transport to an OCD approved off-site disposal facility. Groundwater most likely to be effected by an accidental discharge is a shallow perched water table at a depth of approximately 50 feet with a total dissolved solids concentration ranging from 800 to 900 mg/L. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-15) - Northern Natural Gas Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted an application for modification of its previously approved discharge plan for its Hobbs Gas Processing Plant located in the NE/4, Section 8, Township 19 South, Range 38 East, NMPM, Lea County, New Mexico. The modification consists of the addition of a solids landfarm for remediation of oil contaminated solids. The landfarm will be underlaid with impermeable plastic and bermed to prevent runoff of contaminants. Groundwater most likely to be effected by any accidental spills is at a depth ranging from 120 to 140 feet with a total dissolved solids concentration ranging from 400 to 505 mg/L. The modification addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Discharge Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 5:00 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 public hearing may be requested by any interested person. Requests for 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 proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of September, 1991.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
s/William J. Lemay
Director

Journal: October 10, 1991

STATE OF NEW MEXICO
County of Bernalillo ss

Thomas J. Smithson being duly sworn declares and says that he is National Advertising manager of the **Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chaper 167, Session Laws of 1937, and that payment therefore has been made or assessed as court costs; that the notice, a copy of which is hereto attached, was published in said paper in the regular daily edition,

for 1 times, the first publication being on the 10 day of Oct, 1991, and the subsequent consecutive publications on ....., 1991.

Thomas J. Smithson

Sworn and subscribed to before me, a Notary Public in and for the County of Bernalillo and State of New Mexico, this 10 day of Oct, 1991.

CIAL SEAL
rnadette Ortiz
SETTE ORTIZ
BLIC-NEW MEXICO
SECRETARY OF STATE
12-18-93

PRICE $ 31.69

Statement to come at end of month.

CLA-22-A (R-12/91) ACCOUNT NUMBER C 81184

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, the following discharge plan application and modification application have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-80) - Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico, 88202-1717, has submitted a discharge plan application for their Thoreau Compressor Station located in the SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico. Approximately 300 gallons per day of washdown water with a total dissolved solids concentration of approximately 5700 mg/l is stored in an above ground steel tank prior to transport to an OCD approved off-site disposal facility. Groundwater most likely to be affected by an accidental discharge is a shallow perched water table at a depth of approximately 50 feet with a total dissolved solids concentration ranging from 600 to 900 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-15) - Northern Natural Gas Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted an application for modification of its previously approved discharge plan for its Hobbs Gas Processing Plant located in the NE/4, Section 6, Township 19 South, Range 39 East, NMPM, Lea County New Mexico. The modification consists of the addition of a soils landfarm for remediation of oil contaminated soils. The landfarm will be underlaid with impermeable plastic and bermed to prevent runoff of contaminants. Groundwater most likely to be affected by any accidental spills is at a depth ranging from 120 to 140 feet with a total dissolved solids concentration ranging from 400 to 850 mg/l. The modification addresses 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 application may be viewed at the above address between 8:00 aa.m. and 5:00 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 public hearing

may be requested by any interested person. Requests for 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 proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of September, 1991.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L

WILLIAM J. LEMAY, Director

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

Notice Of Publication

and numbered ..... in the ..... Court of Lea County, New Mexico, was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, once each week on the same day of the week, for one (1) consecutive weeks, beginning with the issue of October 8, 19 91 and ending with the issue of October 8, 19 91

And that the cost of publishing said notice is the sum of $ 37.21 which sum has been (Paid) (~~Assessed~~) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 16th day of October, 19 91

Mrs. Jeanie Reaves

Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 19 94

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, the following discharge plan application and modification application have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-80) - Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico, 88202-1717, has submitted a discharge plan application for their Thoreau Compressor Station located in the SE/4, Section 20, Township 14 North, Range 13 West, NMPM, McKinley County, New Mexico. Approximately 300 gallons per day of washdown water with a total dissolved solids concentration of approximately 5700 mg/l is stored in an above ground steel tank prior to transport to an OCD approved off-site disposal facility. Groundwater most likely to be affected by an accidental discharge is a shallow perched water table at a depth of approximately 50 feet with a total dissolved solids concentration ranging from 600 to 900 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-15) - Northern Natural Gas Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted an application for modification of its previously approved discharge plan for its Hobbs Gas Processing Plant located in the NE/4, Section 6, Township 19 South, Range 39 East, NMPM, Lea County new Mexico. The modification consists of the addition of a soils landfarm for remediation of oil contaminated soils. The landfarm will be underlaid with impermeable plastic and bermed to prevent runoff of contaminants. Groundwater most likely to be affected by any accidental spills is at a depth ranging from 120 to 140 feet with a total dissolved solids concentration ranging from 400 to 850 mg/l. The modification addresses 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 application may be viewed at the above address between 8:00 a.m. and 5:00 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 public hearing may be requested by any interested person. Requests for 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 proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of September, 1991.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY,
Director

SEAL

Published in the Lovington Daily Leader October 8, 1991.

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

Phone (505) 623-2761
FAX (505) 625-8060

September 17, 1991

Mr. Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Re: Discharge Plan GW-80 Application
Transwestern Pipeline Company
Thoreau Compressor Station No. 5
McKinley County, New Mexico

Dear Mr. Anderson:

Please find the attached analylses pertaining to the above mentioned discharge plan dated August 22, 1991, section A-3 on page number 7.

If you may require any additional information please call Larry Campbell at (505) 625-8022.

Thank you very much.

Freida Jones
Freida Jones
Compliance Environmentalist Clerk

xc: file

ANALYTICAL LABORATORIES, INC. • 7300 Jefferson, N.E. • Albuquerque, New Mexico 87109

INVOICE

ORD # 91-08-291
09/09/91 14:57:55 INVOICE # 911705

INVOICE TO ENRON/TRANSWESTERN PIPELINE
P.O. BOX 1019
THOREAU, N.M. 87323

ATTEN WALTER DILS

WORK ID THOREAU WATER 8095
P.O. #

REPORT TO ENRON/TRANSWESTERN PIPELINE
P.O. BOX 1019
THOREAU, N.M. 87323

ATTEN WALTER DILS

RECEIVED 08/27/91 CLIENT ENR07
REPORTED 09/09/91 PROJECT

REMIT TO Assaigai Analytical Labs
P.O. Box 90430
Albuquerque, NM 87199-0430

TERMS NET 30 DAYS

ATTEN ACCOUNTS RECEIVABLE
PHONE (505)345-8964

ASSAIGAI LABORATORIES WISHES TO THANK YOU FOR YOUR CONTINUED BUSINESS.

ID	CODE	DESCRIPTION	REMARK	PRICE	QTY	DISCOUNT	AMOUNT
TESTS	AL_T	ALUMINUM (TOTAL)		20.00	1		20.00
	BICARB	BICARBONATE		12.00	1		12.00
	BR	BROMIDE		20.00	1		20.00
	CARB	CARBONATE		12.00	1		12.00
	CATBAL	CATION/ANION BALANCE		20.00	1		20.00
	CA_T	CALCIUM (TOTAL)		20.00	1		20.00
	CL	CHLORIDE		15.00	1		15.00
	CR_T	CHROMIUM (TOTAL)		20.00	1		20.00
	CU_T	COPPER (TOTAL)		20.00	1		20.00
	FE_T	IRON (TOTAL)		15.00	1		15.00
	FL	FLUORIDE (TOTAL)		15.00	1		15.00
	K_T	POTASSIUM (TOTAL)		20.00	1		20.00
	LI_T	LITHIUM (TOTAL)		20.00	1		20.00
	MG_T	MAGNESIUM (TOTAL)		20.00	1		20.00

ANALYTICAL LABORATORIES, INC. • 7300 Jefferson, N.E. • Albuquerque, New Mexico 87109

INVOICE
09/09/91 14:57:55

ORD # 91-08-291
INVOICE # 911705

ID	CODE	DESCRIPTION	REMARK	PRICE	QTY	DISCOUNT	AMOUNT
	MN_T	MANGANESE (TOTAL)		20.00	1		20.00
	NA_T	SODIUM (TOTAL)		20.00	1		20.00
	NO3	NITRATE AS (N)		15.00	1		15.00
	PB_T	LEAD (TOTAL)		20.00	1		20.00
	PH_1	PH ON WATERS		10.00	1		10.00
	SI	SILICA		50.00	1		50.00
	SO4	SULFATE		15.00	1		15.00
	TDS	TOTAL DISSOLVED SOLID		15.00	1		15.00
	T_DIG	TOTAL DIGESTION		15.00	1		15.00
	T_PHOS	TOTAL PHOSPHORUS		35.00	1		35.00
	ZN_T	ZINC (TOTAL)		20.00	1		20.00

SUBTOTAL $484.00

ADJUSTMENTS	Overall discount	20%	-96.80
	TAX		22.26

TOTAL INVOICE AMOUNT $409.46

Assaigai Analytical Labs
7300 Jefferson NE
Albuquerque, NM 87109

Attn: SYED RIZVI
Phone: (505)345-8964

ENRON/TRANSWESTERN PIPELINE
P.O. BOX 1019
THOREAU, N.M. 87323

Attn: WALTER DILS
Invoice Number: 911705

Order #: 91-08-291
Date: 09/09/91 11:23
Work ID: THOREAU WATER 8095
Date Received: 08/27/91
Date Completed: 09/09/91

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	THOREAU		

QUESTIONS ABOUT THIS REPORT SHOULD BE ADDRESSED TO:
LABORATORY OPERATIONS MANAGER/ASSAIGAI ANALYTICAL
7300 JEFFERSON N.E.,ALBUQUERQUE,N.M. 87109

Syed Rizvi

Certified By
SYED N. RIZVI

REGULAR TEST RESULTS BY TEST

ALUMINUM (TOTAL) Minimum: 1.0 Maximum: 20
Method: EPA 202

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	<1.0	MG/L	08/29/91	09/03/91	JB

BICARBONATE Minimum: 2.0 Maximum: 100
Method: EPA 310.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	230	MG/L	09/03/91	09/03/91	RF

BROMIDE Minimum: 0.10 Maximum: 100
Method: SM 4500-BR B

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	0.4	MG/L	09/04/91	09/04/91	JC

CALCIUM (TOTAL) Minimum: 0.1 Maximum: 100
Method: EPA 215.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	17.0	MG/L	08/29/91	09/03/91	JB

CARBONATE Minimum: 2.0 Maximum: 100
Method: EPA 310.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	5.6	MG/L	09/03/91	09/03/91	RF

CHLORIDE Minimum: 1.0 Maximum: 100
Method: EPA 325.3

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	21	MG/L	08/29/91	08/29/91	RF

CHROMIUM (TOTAL) Minimum: 0.02 Maximum: 20
Method: EPA 218

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	<0.02	MG/L	08/29/91	09/03/91	JB

COPPER (TOTAL) Minimum: 0.02 Maximum: 20
Method: EPA 220

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	0.06	MG/L	08/29/91	09/03/91	JB

FLUORIDE (TOTAL) Minimum: 0.02 Maximum: 20
Method: EPA 340.2

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	0.28	MG/L	08/29/91	08/29/91	RF

IRON (TOTAL) Minimum: 0.05 Maximum: 20
Method: EPA 236

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	0.08	MG/L	08/29/91	09/03/91	JB

LEAD (TOTAL) Minimum: 0.10 Maximum: 20
Method: EPA 239

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	<0.10	MG/L	08/29/91	09/03/91	JB

LITHIUM (TOTAL) Minimum: 0.05 Maximum: 20
Method: EPA 200

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	<0.05	MG/L	08/29/91	09/03/91	JB

MAGNESIUM (TOTAL) Minimum: 0.005 Maximum: 20
Method: EPA 242.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	4.1	MG/L	08/29/91	09/03/91	JB

MANGANESE (TOTAL) Minimum: 0.02 Maximum: 20
Method: EPA 243

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	<0.02	MG/L	08/29/91	09/03/91	JB

NITRATE AS (N) Minimum: 0.10 Maximum: 20
Method: SM 4500-NO3D

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	0.4	MG/L	08/29/91	08/29/91	SK

PH ON WATERS Minimum: 1.0 Maximum: 14
Method: EPA 150.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	8.45	pH UNITS	08/28/91	08/28/91	RF

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POTASSIUM (TOTAL) Minimum: 0.05 Maximum: 20
Method: EPA 258.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	0.62	MG/L	08/29/91	09/03/91	JB

SILICA Minimum: 0.1 Maximum: 20
Method: EPA 370.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	11	MG/L	09/03/91	09/03/91	RF

SODIUM (TOTAL) Minimum: 0.02 Maximum: 20
Method: EPA 273.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	116	MG/L	08/29/91	09/03/91	JB

SULFATE Minimum: 1.0 Maximum: 100
Method: EPA 375.4

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	43	MG/L	08/30/91	08/30/91	SK

TOTAL DISSOLVED SOLID **Minimum: 1.0** **Maximum: 100**
Method: EPA 160.1

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	380	MG/L	08/29/91	08/29/91	SK

TOTAL PHOSPHORUS **Minimum: 0.01** **Maximum: 20**
Method: SM 4500-P BD

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01A	THOREAU	0.27	MG/L	09/03/91	09/03/91	SK

ZINC (TOTAL) **Minimum: 0.01** **Maximum: 20**
Method: EPA 289

Sample	Sample Description	Result	Units	Extracted	Analyzed	By
01B	THOREAU	<0.01	MG/L	08/29/91	09/03/91	JB

water DILS

CLIENT ENRON WO# 9108291 Sample I.D THOREAU water

CATION - ANION BALANCE DATE 9-9-

Accuracy checked → $|\Sigma \text{anions} - \Sigma \text{cations}| \leq (0.1065 + 0.0155 \Sigma \text{anions})$

$|311.95 - 137.86| \leq 0.1065 + 0.0155(311.95)$

$174.1 \leq 4.94$ (OK)

SIGNATURE Syed Rizi

CATION (ION)	Conc. mg/L	Factor	Conc. me/L	Remarks ↓	ANION (ION)	Conc. mg/L	Factor	Conc me/L
Al^{+3}	<1.0	0.1112			Br^-	0.40	0.01252	0.0
B^{+3}	—	0.2775			Cl^-	21	0.02821	0.5
Ba^{+2}	—	0.01456			CO_3^{-2}	5.6	0.03333	0.18
Ca^{+2}	17	0.04990	0.8483		CrO_4^{-2}	—	0.01724	
Cr^{+3}	<0.02	0.05770			F^-	0.28	0.05264	0.01
Cu^{+2}	0.06	0.03147	0.0019		HCO_3^-	230	0.01639	3.76
Fe^{+2}	—	0.03581			HPO_4^{-2}	—	0.02084	
Fe^{+3}	0.08	0.05372	0.0043		HS^-	—	0.03024	
H^+	—	0.9922			I^-	—	0.007880	
K^+	0.62	0.02558	0.0159		NO_2^-	—	0.02174	
Li^+	<0.05	0.1441			NO_3^-	0.40	0.01613	0.00
Mg^{+2}	4.1	0.08229	0.3374		OH^-	—	0.05880	
Mn^{+2}	<0.02	0.03640			PO_4^{-3}	0.27	0.03159	0.008
Na^+	116	0.04350	5.0460		S^{-2}	—	0.06238	
NH_4^+	—	0.05544			SiO_3^{-2}	11	0.02629	0.28
Pb^{+2}	<0.10	0.009653			SO_4^{-2}	43	0.02082	0.89
Sr^{+2}	—	0.02283						
Zn^{+2}	<0.01	0.03059						
TOTAL →			6.254		←			5.76

Final Conclusion & Remarks

TDS = 380 mg/L

Sum of cation and anion = 449.8 mg/L % difference = 15.

ASSAIGAI ANALYTICAL LABORATORIES

WORK ORDER 8095

☐ HAZARDOUS ☐ NON-HAZARDOUS	DATE RECEIVED 8/27/11	ESTIMATED COST
CUSTOMER P.O. NUMBER	TIME RECEIVED 3:45	DUE DATE 9/11/11

ACCOUNT INFORMATION

CUSTOMER'S NAME ENRON / HUNTSMAN	CONTACT LARRY CHAMBERS
ADDRESS	PHONE NUMBER
CITY / STATE / ZIP Moab	

PARTY RESPONSIBLE FOR PAYMENT IF OTHER THAN ABOVE		ACCOUNT STATUS
NAME	CONTACT	
ADDRESS	PHONE NUMBER	PAYMENT REC'D. ____ OPEN ACCOUNT OK CASH ____ CHECK NUMBER ____
CITY / STATE / ZIP		

SPECIAL BILLING INSTRUCTIONS

SAMPLE INFORMATION

TYPE OF SAMPLE	NO. OF SAMPLES	*TURN AROUND TIME	SAMPLE IDENTIFICATION AND / OR SAMPLE SITE
☒ WATER ☐ SOIL ☐ OIL ☐ SLUDGE ☐ OTHER	1 NO. OF CONTAINERS 1	☒ REGULAR (10 WKG DAYS) ☐ RUSH (3 DAYS) ☐ EMERGENCY (STAT) *(SUBJECT TO WORK LOG)	Moab

SAMPLE DELIVERED BY Dropped off SIGNATURE DATE 8/27/11

ANALYSIS REQUEST

WORK DESCRIPTION

CATIONS, ANIONS, PH, TDS.

SPECIAL INSTRUCTIONS

BILLING: ☐ PICKUP ☐ MAIL

LOGGED IN BY

7300 Jefferson NE • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259

TRANSWESTERN PIPELINE/ENRON
CLIENT LOG-IN PROBLEMS/INCONSISTENCIES

DATE RECEIVED: 8/29/91 WO #: 8095

DISTRICT: Thoreau CONTACT: Walter Dils/Larry Campbell

PROBLEMS/INCONSISTENCIES ON CHAIN OF CUSTODY(COC):

NO CHAIN OF CUSTODY INCLUDED WITH SAMPLES..... ☑

DISTRICT LEFT BLANK..... ☑

DATE SAMPLED LEFT BLANK..... ☑

NO ANALYTES REQUESTED..... ☑ wrong tubes

ILLEGIBLE HANDWRITING..... ☐

SAMPLE SITE LEFT BLANK..... ☑

TURN AROUND TIME NOT INDICATED..... ☑

SAMPLE ID ON CONTAINER & COC INCONSISTENT..... ☑

CHAIN OF CUSTODY NOT RELINQUISHED..... ☑

SAMPLES RECEIVED DAMAGED..... ☐

SAMPLES RECEIVED UNSEALED..... ☐

COMMENTS: _____

SAMPLES LOGGED IN BY: CC King

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

September 5, 1991

CERTIFIED MAIL
RETURN RECEIPT No. P-106-675-364

James C. Alexander
ENRON Gas Pipeline Group
P.O. Box 1188
Houston, TX 77251-1188

RE: PILOT BIOREMEDIATION PROGRAM
TRANSWESTERN PIPELINE COMPANY THOREAU STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Alexander:

The New Mexico Oil Conservation Division (OCD) has reviewed your August 28, 1991 request for permission to conduct a bioremediation pilot project for petroleum contaminated ground water at the above facility. ENRON requested that the project take place prior to completion of the investigation of the extent of contamination and approval of the facility discharge plan. The project proposes setting up a small scale hydraulically contained pumping cell and adding a nitrate source to the pumped contaminated ground water prior to reinjection.

Pursuant to New Mexico Water Quality Control Commission (WQCC) Regulation 3-106.B. you are hearby authorized to discharge, as requested in the bioremediation pilot project proposal, at the above facility without an approved discharge plan for a period not to exceed 120 days from the date of initiation of the discharge with the following conditions:

1. Potassium nitrate will be used as a nitrate source instead of sodium nitrate.

2. A report containing the results of the pilot project will be submitted to the OCD within 180 days from the date of initiation of the discharge.

The OCD understands that ENRON will be submitting a proposal to OCD to investigate the f ll extent of petroleum-related contamination associated with ENRON's activities as soon as ENRON resolves access problems with the adjacent landowners. The OCD looks forward to working with you to define the extent of contamination and the remediation of these contaminants.

Please be advised that OCD authorization does not relieve you of liability should your operation result in actual pollution of surface waters, ground waters or the environment which may be actionable under other laws and/or regulations. In addition, this authorization does not relieve you of responsibility for compliance with other city, county, state and federal laws and/or regulations.

If you have any questions please, contact William Olson of my staff at (505)827-5885.

Sincerely,

William J. LeMay
Director

WJL/WCO

xc : OCD Aztec District Office
Ted Ryther, Consulting Engineering Services
Daniel B. Stephens, Daniel B. Stephens & Associates, Inc.
Donna Mullins, USEPA Region VI

DANIEL B. STEPHENS & ASSOCIATES, INC.
ENVIRONMENTAL SCIENTISTS AND ENGINEERS

TRANSWESTERN PIPELINE COMPANY
THOREAU STATION
PILOT BIOREMEDIATION PROGRAM

Objectives

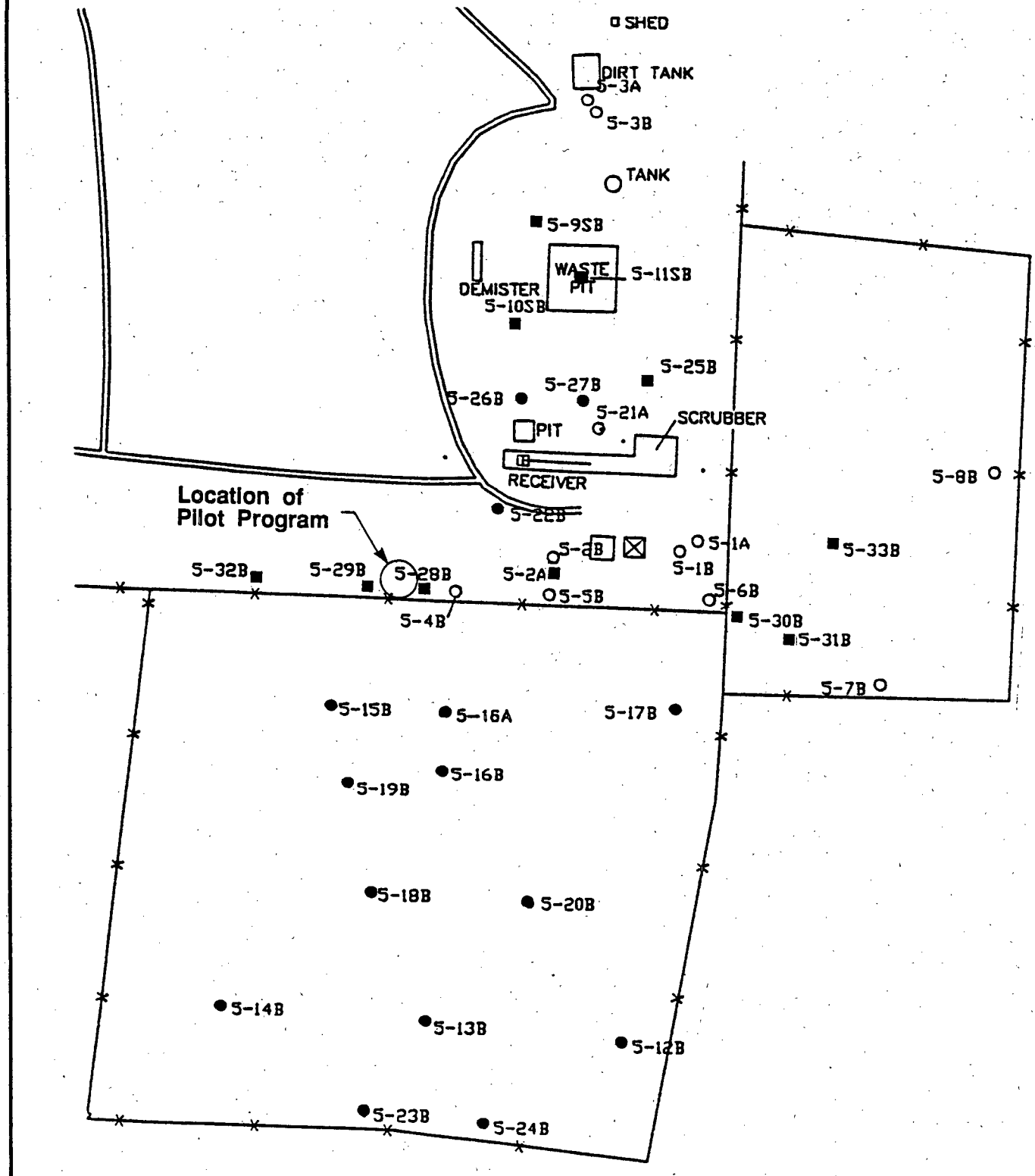
- To determine the feasibility of bioremediation for reducing BTEX concentrations at Thoreau
- To define the method of stimulating oxygen transport and biodegradation
- To gather data that will aid in estimating the time required for complete aquifer restoration
- To gather data that will aid in the design of a full remediation system (i.e., optimal well spacing, optimal extraction rates)

Test Design

- The test will be located within the paleochannel west of Monitor Well 5-4B, as shown in Figure 1.
- Three wells will be installed as shown on Figures 2 and 3. The upgradient and downgradient wells will be used to recirculate ground water. The middle well will be used solely for monitoring. Well schematics for the three wells are shown in Figures 4, 5, and 6.
- The extraction well will be pumped at 0.5 to 1.0 gpm for 3 to 6 months. The extracted water will be piped to an aeration tank, where nitrate (100 mg/l $NaNO_3$) and bromide will be added. The water will then be recirculated via the upgradient well.
- Nitrate, bromide, dissolved oxygen, and BTEX concentrations will be measured in the monitor well and in the downgradient extraction well. Data on nitrate consumption rates will be used to assess the biodegradation process, and bromide data will be used to evaluate ground-water travel times and aquifer diffusion characteristics.
- BTEX and nitrate will be hydraulically contained within the test area.

Performance criteria

- Well efficiency does not decrease substantially.
- Nitrate is consumed within the aquifer.
- BTEX concentrations decrease in ground water.



Explanation

- Fence
- Gravel Road
- Abandoned Borehole
- Boreholes Drilled Prior to February 1, 1990
- Boreholes Drilled After February 1, 1990

0 120'

Location Map

DANIEL B. STEPHENS & ASSOCIATES, INC.

8-91 JN 89-030T

Figure 1

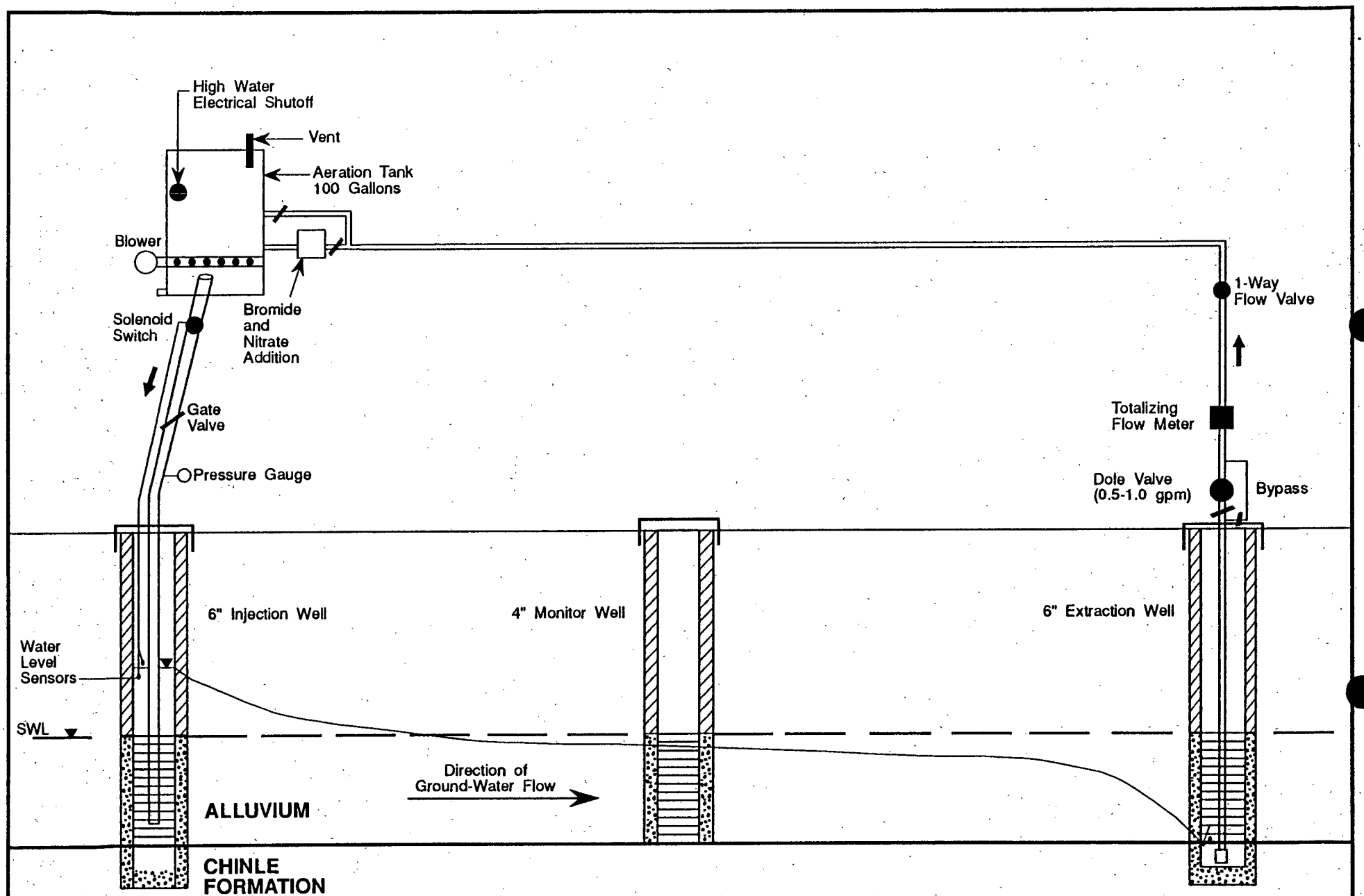
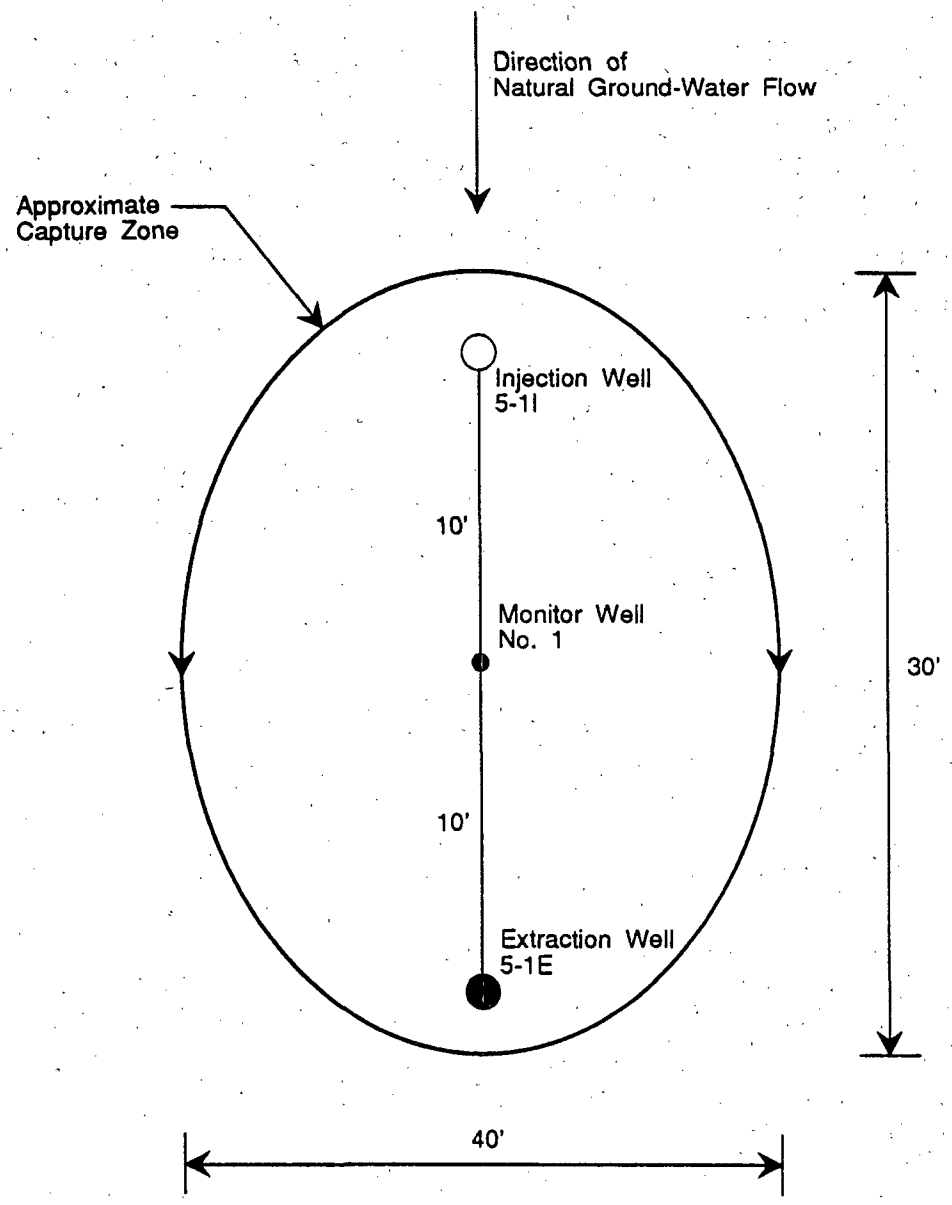


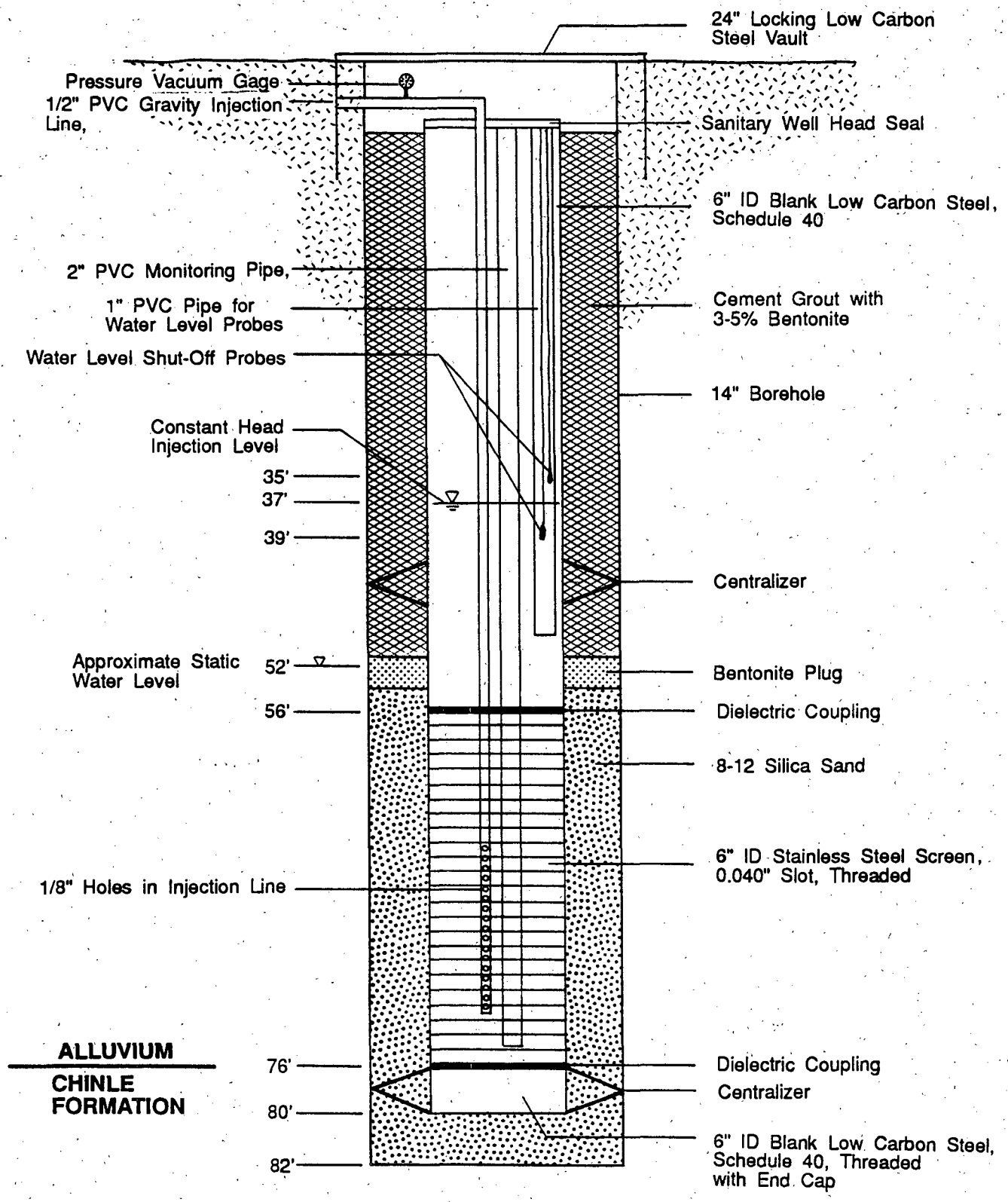
Figure 2

Gravity Injection of Bromide and Nitrate in a Recirculating System

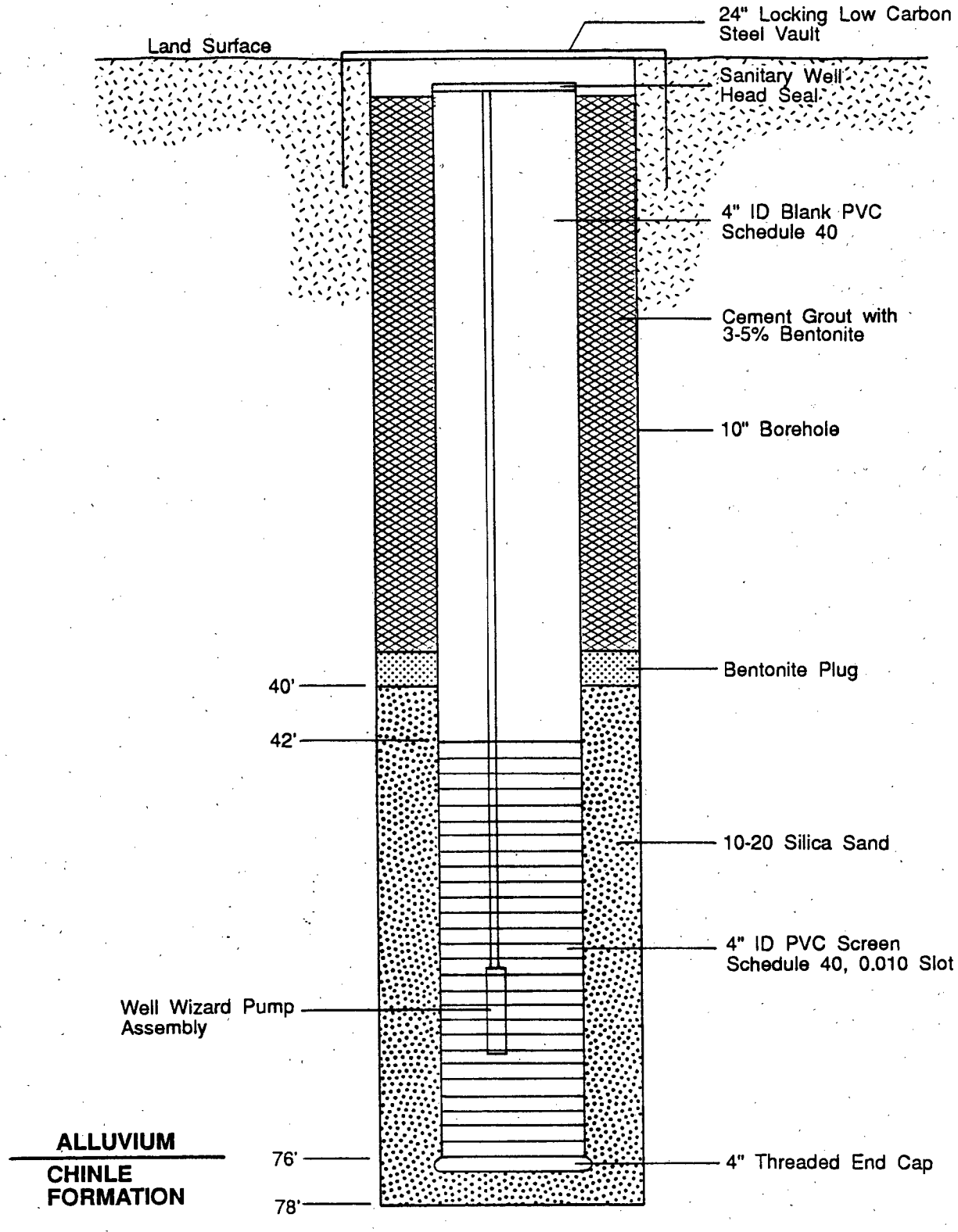
DANIEL B. STEPHENS & ASSOCIATES, INC.
8-91 JN 89-030T



Relative Locations for the Injection, Monitor, and Extraction Well



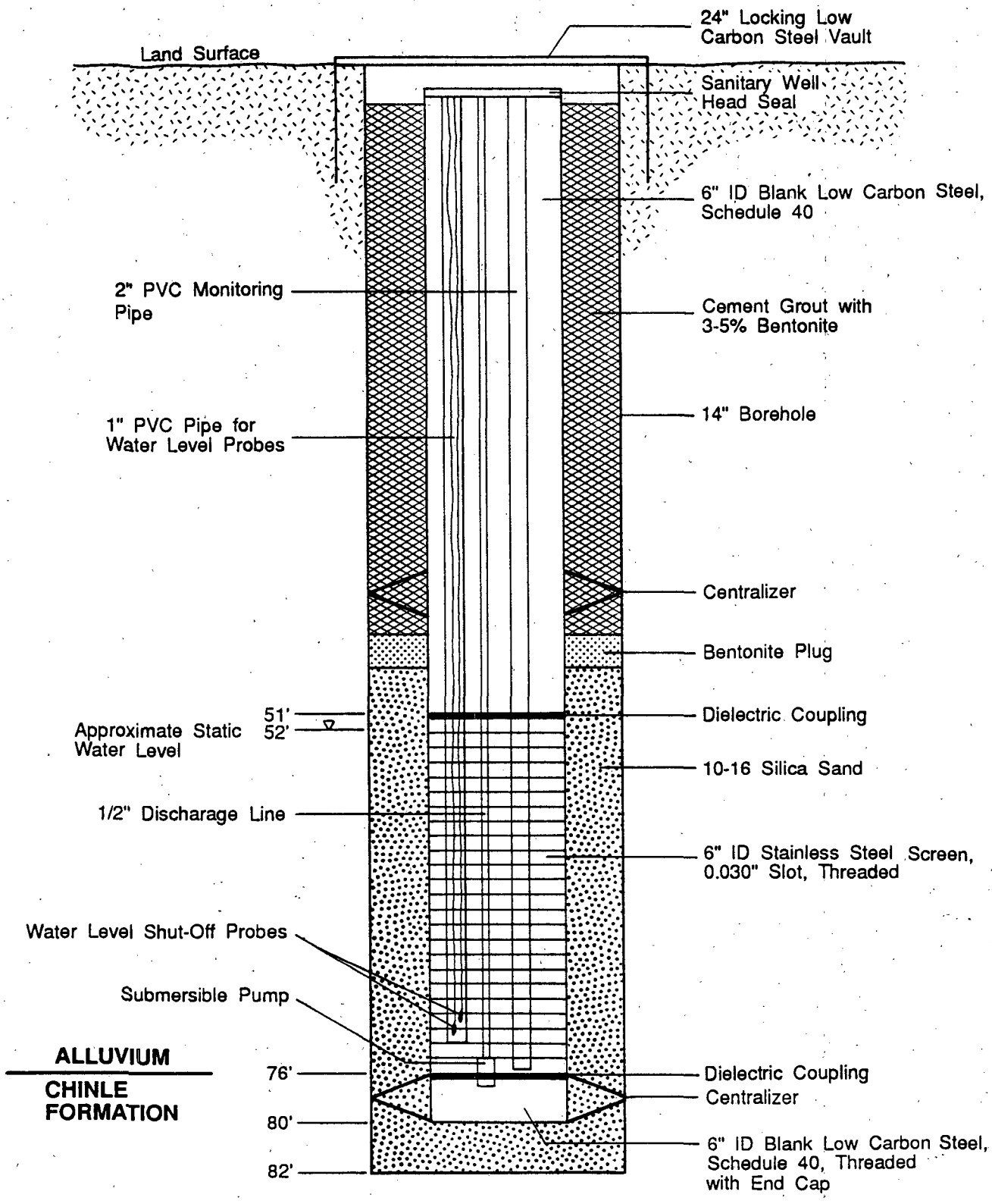
Construction Design for Upgradient Well



Construction Design for Monitor Well

DANIEL B. STEPHENS & ASSOCIATES, INC.
8-91
JN 89-030T

Figure 5



Construction Design for Extraction Well 5-1E

Transwestern Pipeline Company
TECHNICAL OPERATIONS
P. O. Box 1717 • Roswell, New Mexico 88202-1717

Phone (505) 623-2761
FAX (505) 625-8060

August 22, 1991

Mr. Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 1188
Santa Fe, New Mexico

Re: Discharge Plan GW-80 Application
Transwestern Pipeline Company
Thoreau Compressor Station No. 5
McKinley County, New Mexico

Dear Mr. Anderson:

The discharge plan application for the above referenced facility is being presented to your agency on behalf of Transwestern Pipeline Company. If you require any additional information or clarification, please contact me at (505) 625-8022.

I. General Information

A. Discharger/Leagally Responsible Party

Name: Transwestern Pipeline Company
Thoreau Compressor Station
Attn: Roger LaLonde

Address: Belen District Office
P.O. Box 1249
Belen, New Mexico 87002
(505) 864-7461

B. Local Representative or Contact Person

Mr. Walter Dils, Compression Supervisor

C. Location of Discharge

Legal Description: Township 14 North, Range 13 West, Southeast 1/4 Section 20, McKinley County, New Mexico.

A USGS 7.5 minute quadrangle map of the immediate site vacinity and a plot plan showing location of discharge, compressor station equipment and other site information required below are attached in APPENDIX A.

Note: All onsite routine operational discharges are to sumps or an above-ground tank with subsequent transfer offsite by an appropriate disposal company. No onsite discharges are intentionally allowed to enter surface waters or groundwater.

D. Type of Natural Gas Operation

This mainline compressor station provides compression for the transmission of natural gas in the Transwestern System. It receives natural gas through 30" transmission lines and compresses the gas West to Transwestern Pipeline Compressor Station 4, Klagetoh, Arizona.

E. Copies

Three copies of the discharge plan application are enclosed.

F. Affirmation

I hereby certify that I am familiar with the information contained in and submitted with the application and that such information is true, accurate and complete to the best of my knowledge and belief.

Sincerely,

Larry Campbell

Larry T. Campbell
Compliance Environmentalist

LTC/faj

II. PLANT FACILITIES

A. Sources and Quantities of Effluent and Plant Fluids
For each source, primary quality type (e.g., high TDS water, hydrocarbons, washwater, sewage), estimated quantities, and major additives, if any are provided.

1. Scrubbers: The incoming gas stream to this facility does contain few liquids in the form of natural gas pipeline liquids. These entrained liquids are then removed by the operation of the three (3) onsite inlet scrubbers and collected in a 500 bbl. pipeline liquids tank. Liquids which are received during pigging operations are temporarily collected in a 400 gallon sump and transferred to a mist extractor which then directs the pipeline liquids to the 500 bbl. pipeline liquids tank.

2. Engines and Cooling Waters: This stream is allowed to evaporate in the fall.

3. Domestic Sewage: Sewage is directed to an onsite septic tank. The effluent from the tank is then directed to two concrete lined evaporation ponds. This septic tank and pond system is completely separate from the operational practices at this facility.

4. Engine Wash Down Water and Floor Drains: Wastewater collected from cleaning and washdown operations are directed to a series of floor drains and collected into a 400 gallon sump. The effluent is then pumped to a 210 bbl. oily waste water tank. Only approved biodegradable solvents (i.e., EPA 2000) are used in this process. The liquids stored in the 210 bbl. tank are tested for H.W. characterization prior to being removed by a wastewater hauler for proper disposal. There are no other waste streams which presently enter this system. Truck washing operations are not performed at this facility.

5. Waste Engine Oils: Lubricative oil changeouts from the three Cooper Bessemer and two Ingersol Rand generators are collected into a dedicated sump and into a 210 bbl. used oil tank. Prior to removal from this facility samples are analyzed from the tank for proper recycling or recovered as boiler fuel makeup.

   Chemical materials stored onsite in excess of 55 gallons may include; gear and engine lube oil, ethylene glycol, methanol, gasoline, diesel, biodegradable soap and solvent, steam cleaner degreaser.

B: Quality Characteristics

Characteristics of the individual waste streams are as follows: All waste streams have been separated and are segregated into dedicated sumps and tanks.

1. Pipeline Liquids: The natural gas pipeline condensate annual sampling results are presented in APPENDIX B. This material is marketed for burner fuel or incinerated as a hazardous waste dependant upon results of the sampling performed.

2. Engine Cooling Water: Coolant consists of a pre-mixed solution of ambitrol and water.

3. Used Engine Oil: Prior to removal from the facility for recycling, this material is sampled as per 40 CFR 266.

4. Floor Drains: Floor drains which collect washdown cleaning water and engine or engine parts degreasing is directed to a steel sump outside the engine room. From there, the wastewater is directed to the 210 bbl. oily waste water tank where the tank liquids are sampled and appropriately disposed. (see APPENDIX C.)

C. Transfer and Storage of Fluids and Effluent

1. Water and Wastewater plan schematics are not applicable because no individual water treatment units exist. Liquid wastes are not discharged onsite. All liquid wastes are temporarily stored in sumps and tanks until they are transferred offsite.

2. Potential surface and groundwater contaminants, which may be discharged within the compressor station would be associated with sumps, above ground storage tanks and connecting ground pipes. Sumps and tanks are inspected weekly and monthly. All tanks have been engineered to be usually inspected for tank leakage and contained in concrete secondary containment which complies with the OCD requirement for 130% containment storage.

   a. Pipeline liquids tank - 500 bbl. capacity, steel walled; contains liquids received from scrubbers, mist extractor and pig receiver. Liquids are removed from the tank at each 90 day interval for offsite disposal dependant upon characteristic sampling of the liquids collected.

   b. Oily wastewater tank - 210 bbl. capacity, steel walled; contains liquids received from sumps associated with engine washdown, parts cleaning. Liquids are sampled prior to removal.

   c. Used Lubrication Oil Storage Tank - 210 bbl. capacity, steel walled; contains used crankcase and gear oil. Liquids are sampled prior to removal.

   d. Oil Storage tanks - Two (2) tanks 5250 gallons each contains Mobil Pegasus 490 Lube Oil. Horizontal tank with two separate compartments:
   Compartmemt 1 ambitrol tank 2705 gallons. Compartment 2 Mobil DTE 26 gear oil 2443 gallons.

e. Underground diesel storage tank - Capacity - 5000 gallons. Cathodically protected.

f. Underground diesel storage tank - Capacity - 1000 gallons. Cathodically protected.

3. Underground wastewater pipes, their age and specifications (i.e., wall thickness, fabrication material), are:

a. All underground pipes are designed and constructed according to Transwestern's specifications. They are made of coated steel and connected to the facility's rectifier system for corrosion control. The existing underground pipes were installed in 1959 when the plant was constructed. There have been some pipes which were recoated in 1972. These recoated pipe structures are as listed:
   1) 30" Suction line to facility
   2) 30" Discharge line leaving facility
   3) Block valve to pig launcher

D. <u>Spill/Leak Prevention and Housekeeping Procedures</u>

1. SPCC Plan: Procedures addressing spill containment and cleanup, including proposed schedule for OCD notification of spills will be described in the facility's contingency plan (SPCC). This document is in preparation and will be submitted to the OCD as it is finalized. Disposition of the liquid materials is as follows:

a. Pipeline liquids and rainwater:

Enron Oil Trading & Transportation (EOTT)
P.O. Box 2297
Midland, Texas 79702
(915) 687-0783

Rollins Environmental Services
P.O. Box 609
Deer Park, Texas 77536
(713) 930-2300

b. Oily wastewater:

Mesa Oil Co.
4701 Broadway SE
Albuquerque, New Mexico 87105
(505) 877-8855

c. Used lubrication and gear oil:

Mesa Oil Co.
4701 Broadway SE
Albuquerque, New Mexico 87105
(505) 877-8855

d. Cleaning rags, used filters and other solid waste:

McKinley Co. Landfill
Gallup, New Mexico

2. Housekeeping: Precipitation runnoff is directed from the station facility. Cleanup and remediation of minor oil releases is addressed in section IIb1. Information on curbs, berms, drains and secondary containment are discussed in Section IIC2, IVC2 and IID1, respectively.

3. Leak Detection: all aboveground tank systems are visually inspected weekly to detect leaks and ensure tank integrity. Visual sump inspections are performed on an annual basis. Tank tightness testing for 1991 was performed March 27, 1991 for the regulated underground storage tanks (UST) present. The results are presented in APPENDIX D.

4. Well Systems: The compressor station presently has three (3) wells which are used as potable water sources. Drinking water depth is currently at 375 feet. Sampling is conducted to determine water quality and characteristics. There presently exists 10 monitor wells onsite and 13 wells offsite for remediation and cleanup activities presently occurring at the site. Pending the completion of the remediation activities at this facility, the monitor wells will be formally closed.

III. EFFLUENT DISPOSAL

A. Existing Operations

1. Onsite Facilities: No onsite facilities currently exist for disposal of produced water, sludges, waste oils, solvents, etc.

2. All waste streams at this facility are sampled to determine the most environmentally safe and practical method of offsite disposal prior to being removed by a contractor or vendor.

3. Transwestern Pipeline Company is currently performing a sampling and remediation program to remove leachates in the soil and groundwater. The actual plan includes removal, treatment or proper disposal of contaminated soil and groundwater remediation.

IV. SITE CHARACTERISTICS

A. Site Features

The approximate forty acre site is presently fenced and lighted for security measures. There is approximately 40 feet of relief across the extent of the property, sloping towards the south. Major buildings present on the site include five (5) company residential

houses, office, maintenance and workshop, compressor building, product and storage tanks and containment.

Existing residential developments in the town of Thoreau, New Mexico are located on the East, South and West of the facility.

1. Geology: The site located physiographically on the Colorado Plateau Province within the Acoma-Zuni Region. The site is located geologically on a thin surficial layer of Quaternary Alluviam underlain by a regional outcrop of the Chinle Formation of the Triassic geologic period.

2. Soils: The soils present at the facility are classified as fine loamy aridic haplastalfs of which shale and sandstone are the primary parent materials. These soils are deep (greater than 60") and rated as having a moderately high water holding capacity and moderately slow infiltration rate.

3. Vegetation: The vegetation of the area is typical for the climate and site aspect present at the facility. The understory layer is dominated by warm season grasses and low growing shrubs. Common in this herbaceous layer are blue grama, galleta, and ring muhly. Shrubs which inhabit the area include rubber rabbitbush and broom snakeweed. The overstory canopy is primarily comprised of pinyon pine and one-seed juniper.

A. Hydrologic Features

1. Bodies of Water: There are no bodies of water located within the vacinity of the facility. Two concrete surface evaporation ponds are located approximately 500' east of the facility and are used for sewage lagoon purposes for the onsite residences.

   Several small and minor naturally occurring channels disect areas adjacent to the site which carry intermittant surface water events seasonally.

2. Depth to Groundwater: The principal aquifers and water depths of the region are the Sonsela Sandstone of the upper Chinle formation (650 ft.) and the San Andres-Glorieta Aquifer (1200 ft.). The deeper San Andres is the principal water bearing aquifer of the region supplying water for irrigation, industrial and domestic uses. A shallow purched water table is present at approximately 50 ft. which flows in a southwesterly direction.

   According to a 1989 well inventory survey, 86 water wells exist within an approximate ten mile radius of the facility. The majority of these wells are individually owned and are screned into the Sonsela Aquifer. This includes the three wells located on the Transwestern facility property.

3. Water Chemistry: Information to be submitted upon completion of analyses.

C. Flood Protection

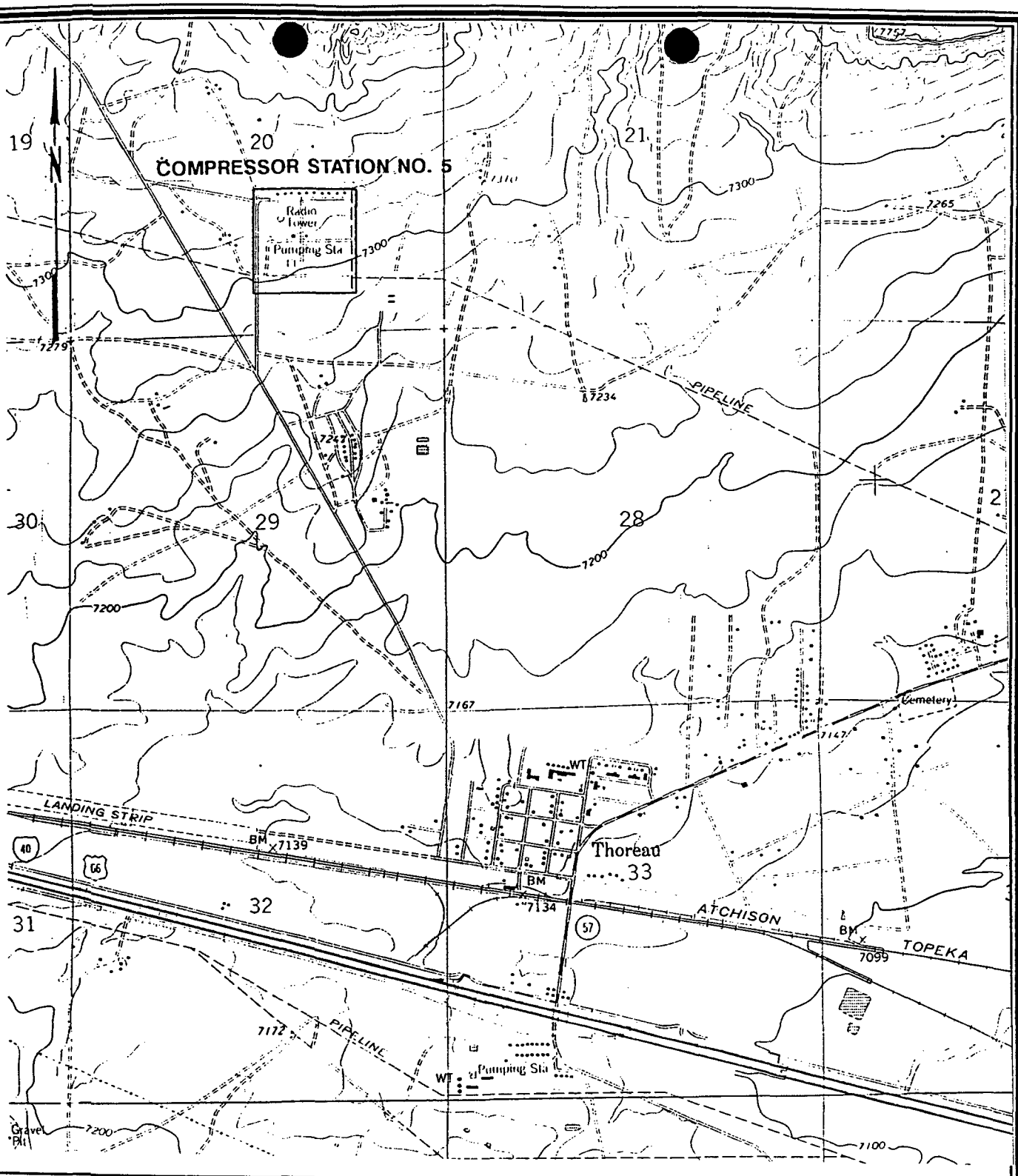
1. Flood Potential: There is no known record or indication of flooding onsite.

2. Flood Protection: Curbs, berms and culverts have been constructed.

V. ADDITIONAL INFORMATION

To be provided as requested.

APPENDIX A



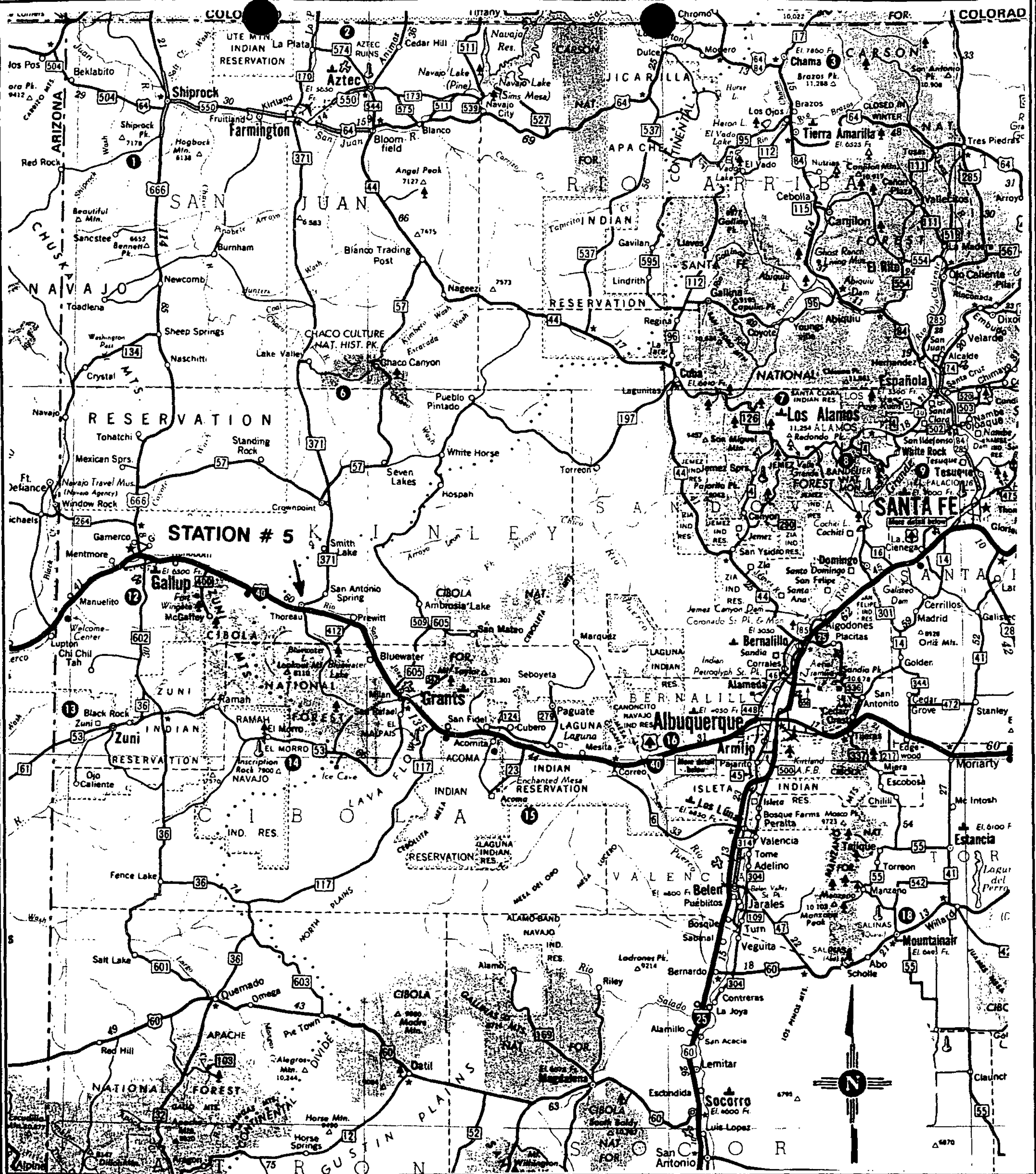
Scale: 1 : 24,000

PLATE 2

Harding Lawson Associates
Engineering and
Environmental Services

TRANSWESTERN PIPELINE COMPANY
COMPRESSOR STATION #5
Thoreau, New Mexico
VICINITY TOPOGRAPHIC MAP

Drawn By:	Job Number:	Approved By:	Date:	Revised:	Date:
AP	19181,020.12	JAT	04/25/90		



0 15 30 60

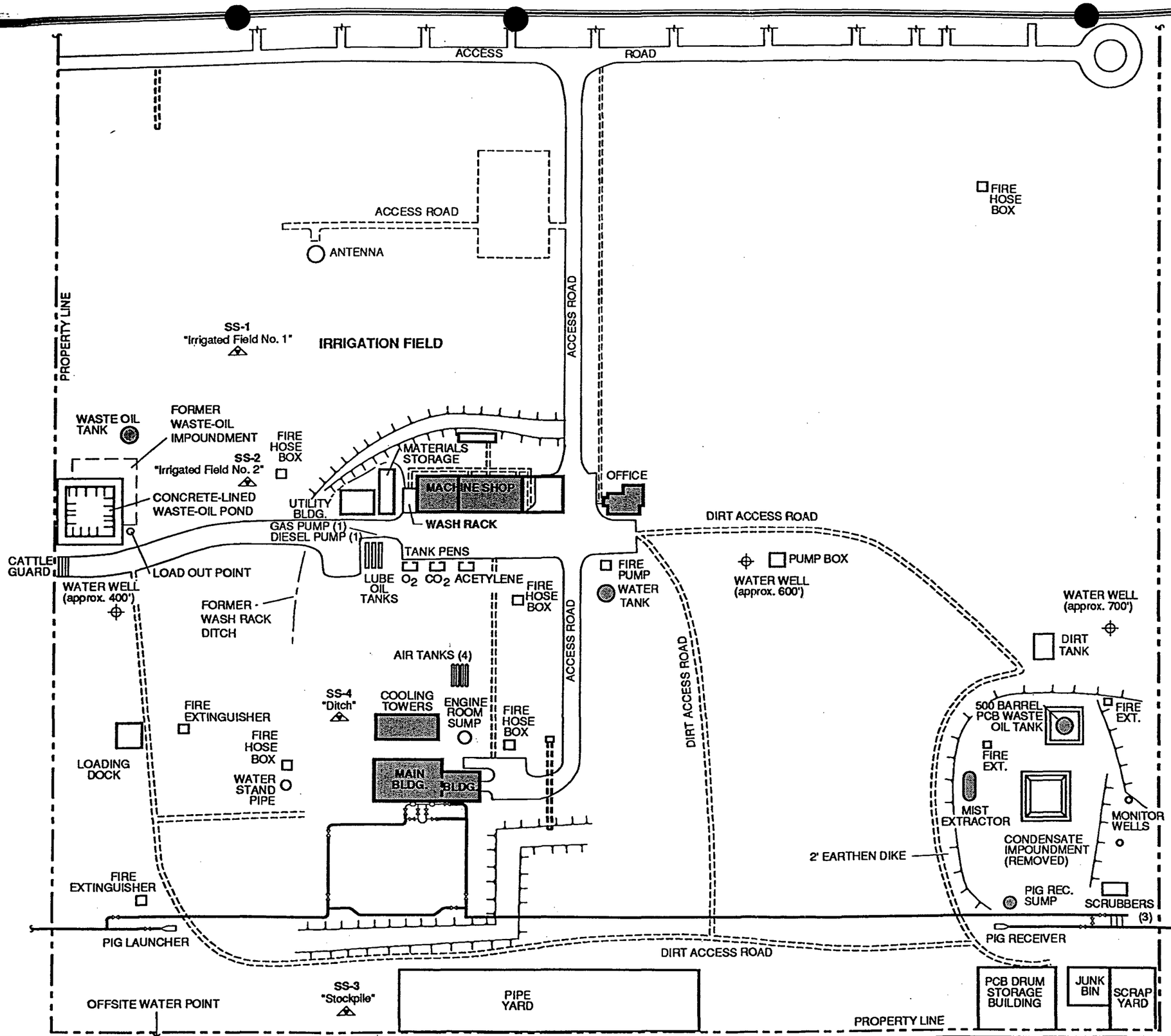
Scale in Miles

PLATE 1

Harding Lawson Associates
Engineering and
Environmental Services

TRANSWESTERN PIPELINE COMPANY
COMPRESSOR STATION #5
Thoreau, New Mexico
VICINITY MAP

Drawn By:	Job Number:	Approved By:	Date:	Revised:	Date:
AP	19181,020.12	AJT	04/25/90		



LEGEND

SS-1 Shallow Soil Sample Location

N

0 20 60 120 180

Scale in Feet

PLATE 3

Client Confidential

TRANSWESTERN PIPELINE COMPANY

FACILITY SURVEY PLAT

COMPRESSOR STATION NO. 5

Thoreau, New Mexico

Harding Lawson Associates
Engineering and Environmental Services

APPROVED: DATE: 11/05/90
REVISED: DATE:
DRAWN: AP JOB: 19181,020.12

CSS-FAC

APPENDIX B

ENRECO LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT

Work Order # 90-10-025

Received: 10/03/90

10/12/90 16:16:05

REPORT TO: ENRON GAS PIPELINE OPERATIONS
P. O. BOX 1019
THOREAU, NEW MEXICO 87323

ATTEN: WALTER DILS

CLIENT: ENRON GAS 10 SAMPLES: 2
COMPANY: ENRON GAS PIPELINE OPERATIONS
FACILITY:

PREPARED BY: ENRECO LABORATORIES GROUP
6661-A CANYON DRIVE
AMARILLO, TEXAS 79110

CERTIFIED BY

ATTEN: CUSTOMER SERVICES
PHONE: (806) 353-4425 CONTACT: PATRICK MOON

WE ARE PLEASED TO PROVIDE THIS CERTIFIED REPORT OF ANALYSIS FEEL FREE TO TELEPHONE CUSTOMER SERVICES IF FURTHER ASSISTANCE IS REQUIRED.

WORK ID: STATION 5, 220 BBL WASTE TANK
TAKEN: 09/27/90
TRANS:
TYPE: WASTE OIL / WATER
P.O. #:
INVOICE: under separate cover

NOTE: NOT REQUESTED.

2ND COPY TO: ENRON GAS PIPELINE OP
P. O. BOX 2018
ROSWELL, NM 88201
ATTN: LARRY CAMPBELL

SAMPLE IDENTIFICATION

01	S90-0654	WASTE OIL
02	S90-0655	WASTE WATER

TEST CODES and NAMES used on this workorder

IGNT	IGNITABILITY/FLASH POINT
PCB_2	PCB ON LIQUID
PH_C	CORROSIVITY PH
TCLP_M	TCLP METAL ANALYSIS
TCLP_O	TCLP ORGANICS
TOX	TOTAL ORGANIC HALOGENS

TOX 158 WASTE OIL

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT

Work Order # 90-10-025

Received: 10/03/90

Results by Sample

SAMPLE ID **S90-0654 WASTE OIL** SAMPLE # **01** FRACTIONS: **A,B**

Date & Time Collected **09/27/90** Category **210 BBL TANK**

IGNT	**>140**	**TOX**	**158**
	DEGREES F		MG/L

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive ▪ Amarillo, Texas 79110 ▪ Telephone (806) 353-4425 ▪ Facsimile (806) 352-6454

 ENRECO LAB REPORT **Work Order # 90-10-025**
Received: 10/03/90
Results by Sample

SAMPLE ID **S90-0654 WASTE OIL** FRACTION **01A** TEST CODE **PCB_2** NAME **PCB ON LIQUID**
Date & Time Collected **09/27/90** Category **210_BBL_TANK**

	RESULT	LIMIT	UNITS
PCB-1016	<5	5	MG/KG
PCB-1232	<5	5	MG/KG
PCB-1248	<5	5	MG/KG
PCB-1260	<5	5	MG/KG
PCB-1221	<5	5	MG/KG
PCB-1242	<5	5	MG/KG
PCB-1254	<5	5	MG/KG

Notes and Definitions for this Report:

DATE RUN 10/08/90
ANALYST WRW

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT

Work Order # 90-10-025

Received: 10/03/90

Results by Sample

SAMPLE ID **S90-0654 WASTE OIL** FRACTION **01A** TEST CODE **TCLP_M** NAME **TCLP METAL ANALYSIS**

Date & Time Collected **09/27/90** Category **210_BBL_TANK**

PARAMETER	RESULT	LIMIT	UNITS
ARSENIC	<0.02	0.02	MG/L
BARIUM	0.06	0.03	MG/L
CADMIUM	0.01	0.01	MG/L
CHROMIUM	<0.02	0.02	MG/L
LEAD	<0.04	0.04	MG/L
MERCURY	<0.003	0.003	MG/L
SELENIUM	<0.05	0.05	MG/L
SILVER	<0.02	0.02	MG/L

Notes and Definitions for this Report:

DATE RUN 10/05/90
ANALYST MC

ENRECO LABORATORIES GROUP
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ENRECO LAB REPORT **Work Order # 90-10-025**

Received: 10/03/90

Results by Sample

SAMPLE ID **S90-0654 WASTE OIL** FRACTION **01A** TEST CODE **TCLP_O** NAME **TCLP ORGANICS**

Date & Time Collected **09/27/90** Category **210_BBL_TANK**

PARAMETER	RESULT	LIMIT	UNITS
BENZENE	<5	5	UG/L
CARBON TETRACHLORIDE	<5	5	UG/L
CHLORDANE	**SEE	NOTE	ON 1st PAGE.
CHLOROBENZENE	<5	5	UG/L
CHLOROFORM	<5	5	UG/L
CREOSOL(O,M,P)	<10	10	UG/L
2,4-D	**SEE	NOTE	ON 1st PAGE.
1,4-DICHLOROBENZENE	<5	5	UG/L
1,2-DICHLOROETHANE	<5	5	UG/L
1,1-DICHLOROETHYLENE	<5	5	UG/L
2,4-DINITROTOLUENE	<10	10	UG/L
ENDRIN	**SEE	NOTE	ON 1st PAGE.
HEPTACHLOR	<10	10	UG/L
HEXACHLOROBENZENE	<10	10	UG/L
HEXACHLOROBUTADIENE	<10	10	UG/L
HEXACHLOROETHANE	<10	10	UG/L
LINDANE	**SEE	NOTE	ON 1st PAGE.
METHOXYCLOR	**SEE	NOTE	ON 1st PAGE.
METHYL ETHYL KETONE	<50	50	UG/L
NITROBENZENE	<10	10	UG/L
PENTACHLOROPHENOL	<50	50	UG/L
PYRIDINE	<50	50	UG/L
TETRACHLOROETHYLENE	<5	5	UG/L
TOXAPHENE	**SEE	NOTE	ON 1st PAGE.
TRICHLOROETHYLENE	<5	5	UG/L
2,4,5-TRICHLOROPHENOL	<10	10	UG/L
2,4,6-TRICHLOROPHENOL	<10	10	UG/L
2,4,5-TP(SILVEX)	**SEE	NOTE	ON 1ST PAGE.
VINYL CHLORIDE	<10	10	UG/L

Notes and Definitions for this Report:

EXTRACTED 10/11/90

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT

Work Order # 90-10-025

Received: 10/03/90

Results by Sample

Continued From Above

SAMPLE ID **S90-0654 WASTE OIL** FRACTION **01A** TEST CODE **TCLP_O** NAME **TCLP ORGANICS**

Date & Time Collected **09/27/90** Category **210_BBL_TANK**

DATE RUN 10/11/90

ANALYST WRW

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT Work Order # 90-10-025
Received: 10/03/90
Results by Sample

SAMPLE ID S90-0655 WASTE WATER SAMPLE # 02 FRACTIONS: A
Date & Time Collected 09/27/90 Category 210_BBL_TANK

PH_C	7.2	
	UNITS	

ENRECO LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

Received: 10/03/90

Results by Sample

SAMPLE ID **S90-0655 WASTE WATER** FRACTION **02A** TEST CODE **PCB_2** NAME **PCB ON LIQUID**
Date & Time Collected **09/27/90** Category **210_BBL_TANK**

	RESULT	LIMIT	UNITS
PCB-1016	<5	5	MG/KG
PCB-1232	<5	5	MG/KG
PCB-1248	<5	5	MG/KG
PCB-1260	<5	5	MG/KG
PCB-1221	<5	5	MG/KG
PCB-1242	<5	5	MG/KG
PCB-1254	<5	5	MG/KG

Notes and Definitions for this Report:

DATE RUN 10/11/90
ANALYST WRW

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

 ENRECO LAB REPORT **Work Order # 90-10-025**

Received: 10/03/90 **Results by Sample**

SAMPLE ID **S90-0655 WASTE WATER** FRACTION **02A** TEST CODE **TCLP_M** NAME **TCLP METAL ANALYSIS**
Date & Time Collected **09/27/90** Category **210_BBL_TANK**

PARAMETER	RESULT	LIMIT	UNITS
ARSENIC	0.86	0.02	MG/L
BARIUM	<0.03	0.03	MG/L
CADMIUM	0.02	0.01	MG/L
CHROMIUM	<0.02	0.02	MG/L
LEAD	0.06	0.04	MG/L
MERCURY	0.011	0.003	MG/L
SELENIUM	0.26	0.05	MG/L
SILVER	<0.02	0.02	MG/L

Notes and Definitions for this Report:

DATE RUN 10/04/90
ANALYST MC

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

Received: 11/02/90

Results by Sample

SAMPLE ID **S90-0542 STATION 5 WATER** FRACTION **03A** TEST CODE **TCLP_O** NAME **TCLP ORGANICS**
Date & Time Collected **09/17/90** Category

PARAMETER	RESULT	LIMIT	UNITS
BENZENE	<5	5	UG/L
CARBON TETRACHLORIDE	<5	5	UG/L
CHLORDANE	<30	30	UG/L
CHLOROBENZENE	<4	4	UG/L
CHLOROFORM	<5	5	UG/L
CREOSOL(O,M,P)	<10	10	UG/L
2,4-D	<100	100	UG/L
1,4-DICHLOROBENZENE	<5	5	UG/L
1,2-DICHLOROETHANE	<5	5	UG/L
1,1-DICHLOROETHYLENE	<5	5	UG/L
2,4-DINITROTOLUENE	<10	10	UG.L
ENDRIN	<10	10	UG/L
HEPTACHLOR	<8	8	UG/L
HEXACHLOROBENZENE	<10	10	UG/L
HEXACHLOROBUTADIENE	<10	10	UG/L
HEXACHLOROETHANE	<10	10	UG/L
LINDANE	<10	10	UG/L
METHOXYCLOR	<100	100	UG/L
METHYL ETHYL KETONE	<50	50	UG/L
NITROBENZENE	<10	10	UG/L
PENTACHLOROPHENOL	<50	50	UG/L
PYRIDINE	<50	50	UG/L
TETRACHLOROETHYLENE	<5	5	UG/L
TOXAPHENE	<100	100	UG/L
TRICHLOROETHYLENE	<5	5	UG/L
2,4,5-TRICHLOROPHENOL	<10	10	UG/L
2,4,6-TRICHLOROPHENOL	<10	10	UG/L
2,4,5-TP(SILVEX)	<100	100	UG/L
VINYL CHLORIDE	<10	10	UG/L

Notes and Definitions for this Report:

EXTRACTED 11/06/90
DATE RUN 11/23/90

ENRECO
LABORATORIES GROUP
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ANALYST WRW

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LABORATORIES GROUP
6661-A Canyon Drive ▪ Amarillo, Texas 79110 ▪ Telephone (806) 353-4425 ▪ Facsimile (806) 352-6454

SAMPLE ID **S90-0542 STATION 5 WATER** FRACTION **03A** TEST CODE **TCLP_O** NAME **TCLP ORGANICS**
Date & Time Collected **09/17/90** Category

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB **REPORT** **Work Order # 90-09-168**

Received: 09/26/90

Results by Sample

SAMPLE ID **S90-0542 STATION 5 WATER** SAMPLE # **03** FRACTIONS: **A,B**

Date & Time Collected **not specified** Category _____

IGNT	**>140**	**TOX**	**31**
	DEGREES F		MG/L

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT

Work Order # 90-09-168

Received: 09/26/90

Results by Sample

SAMPLE ID **S90-0542 STATION 5 WATER** FRACTION **03B** TEST CODE **PCB_2** NAME **PCB ON LIQUID**

Date & Time Collected **not specified** Category

	RESULT	LIMIT	UNITS
PCB-1016	<5	5	MG/L
PCB-1232	<5	5	MG/L
PCB-1248	<5	5	MG/L
PCB-1260	<5	5	MG/L
PCB-1221	<5	5	MG/L
PCB-1242	<5	5	MG/L
PCB-1254	<5	5	MG/L

Notes and Definitions for this Report:

DATE RUN 10/02/90
ANALYST WRW

ENRECO
LABORATORIES GROUP
6661-A Canyon Drive • Amarillo, Texas 79110 • Telephone (806) 353-4425 • Facsimile (806) 352-6454

ENRECO LAB REPORT

Work Order # 90-09-168

Received: 09/26/90

Results by Sample

SAMPLE ID **S90-0542 STATION 5 WATER** FRACTION **03B** TEST CODE **TCLP_3** NAME **TCLP LIQUID**

Date & Time Collected **not specified** Category

PARAMETER	RESULT	LIMIT	UNITS
ARSENIC	54.10	0.02	MG/L
BARIUM	35.31	0.03	MG/L
CADMIUM	0.39	0.01	MG/L
CHROMIUM	<0.02	0.02	MG/L
LEAD	<0.04	0.04	MG/L
MERCURY	<0.003	0.003	MG/L
SELENIUM	<0.05	0.05	MG/L
SILVER	<0.02	0.02	MG/L

Notes and Definitions for this Report:

DATE RUN 09/28/90
ANALYST MC

APPENDIX C

LABORATORIES GROUP 6661-A Canyon Drive ▪ Amarillo, Texas 79110 ▪ Telephone (806) 353-4425 ▪ Facsimile (806) 352-6454

ENRECO LAB REPORT **Work Order # 90-11-013**

:eceived: 11/02/90

Results by Sample

AMPLE ID **S90-0542 STATION 5 WATER** FRACTION **03A** TEST CODE **TCLP_O** NAME **TCLP ORGANICS**

Date & Time Collected **09/17/90** Category

PARAMETER	RESULT	LIMIT	UNITS
BENZENE	<5	5	UG/L
CARBON TETRACHLORIDE	<5	5	UG/L
CHLORDANE	<30	30	UG/L
CHLOROBENZENE	<4	4	UG/L
CHLOROFORM	<5	5	UG/L
CREOSOL(O,M,P)	<10	10	UG/L
2,4-D	<100	100	UG/L
1,4-DICHLOROBENZENE	<5	5	UG/L
1,2-DICHLOROETHANE	<5	5	UG/L
1,1-DICHLOROETHYLENE	<5	5	UG/L
2,4-DINITROTOLUENE	<10	10	UG.L
ENDRIN	<10	10	UG/L
HEPTACHLOR	<8	8	UG/L
HEXACHLOROBENZENE	<10	10	UG/L
HEXACHLOROBUTADIENE	<10	10	UG/L
HEXACHLOROETHANE	<10	10	UG/L
LINDANE	<10	10	UG/L
METHOXYCLOR	<100	100	UG/L
METHYL ETHYL KETONE	<50	50	UG/L
NITROBENZENE	<10	10	UG/L
PENTACHLOROPHENOL	<50	50	UG/L
PYRIDINE	<50	50	UG/L
TETRACHLOROETHYLENE	<5	5	UG/L
TOXAPHENE	<100	100	UG/L
TRICHLOROETHYLENE	<5	5	UG/L
2,4,5-TRICHLOROPHENOL	<10	10	UG/L
2,4,6-TRICHLOROPHENOL	<10	10	UG/L
2,4,5-TP(SILVEX)	<100	100	UG/L
VINYL CHLORIDE	<10	10	UG/L

Notes and Definitions for this Report:

EXTRACTED 11/06/90
DATE RUN 11/23/90

APPENDIX D

EARTH SCIENCE TECHNOLOGY

TEST CERTIFICATE

TANK OWNER	TRANSWESTERN PIPELINE COMPANY
CONTACT PERSON	ROGER LALONDE
ADDRESS	P.O. BOX 1249
CITY, STATE	BELEN, NEW MEXICO 87002
TELEPHONE	1-505-864-7461
TANK ADDRESS	
CITY, STATE	THOREAU, NEW MEXICO
TEST METHOD	HORNER EZY-CHEK
TEST DATE	03-11-91

TANK	CAPACITY	PRODUCT	HIGH TEST	LOW TEST
#1	1,000 GAL.	DIESEL	-.0002	N/A
#2	5,000 GAL.	NO LEAD	-.0043	N/A

REMARKS THE ABOVE TANKS PASSED THE FULL SYSTEMS TEST. THE PRODUCT LINES TESTED TIGHT. THE ABOVE TANKS MEET ALL OF STATE, LOCAL, AND FEDERAL REGULATIONS.

APPROVAL JOHN McCONEGHEY SIGNATURE John McConeghey

HORNER EZY-CHEK

120 MADIERA DR N.E. SUITE 115 ALBUQUERQUE, NM 87108 505-266-2323

JENT

NE OF SUPPLIER.

VNER OR DEALER TRANSWESTERN PIPELINE CO. DATE OF TEST 3-11-91

DRESS (NO. & STREET) PO BOX 1249 WEATHER WINDY TEMPERATURE 46°

TY AND STATE BELEN, N.M. 87002

NK INFORMATION

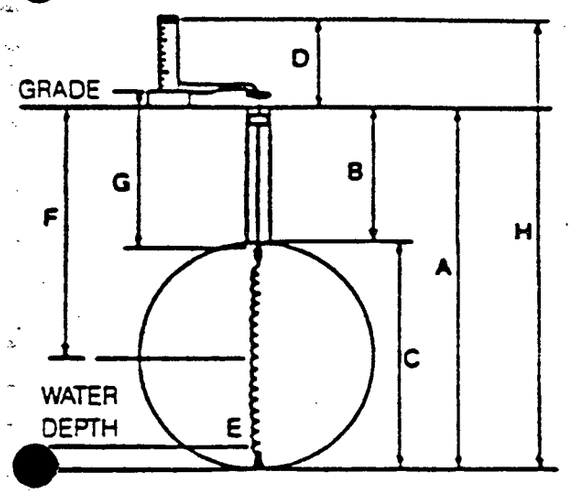
APACITY (NOMINAL) 5000 GALS. SIZE OF FILL OR TEST OPENING 4" IN. CONTENTS (PRODUCT) UNLEAD

APACITY (CHART) 5292 GALS. TOP OFF TIME 3-8-91 GALLONS 4800 TANK MATERIAL STEEL

MENSIONS: DIAMETER 8 NUMBER OF GALLONS ADDED TO START TEST 30 APPROX. AGE

LENGTH 14 TANK NO. 2 PUMP SYSTEM (TYPE) SUCTION

INCHES OF WATER – BEFORE TEST 0" AFTER TEST 12"



A. Tank Bot. to Grade	128	"
B. Tank Top to Grade	32	"
C. Tank Diameter	96	"
D. Test Level above grade	12	"
E. Depth of water in tank	0	"
F. Depth for taking sample	80	"
G. Temp. Probe depth (connector)	34	"
H. Test Level to tank bottom	128	"
Product Pressure per 1" height	.024	PSI

Test Pressure Formula

$$\underset{H}{128} \times \underset{J}{.024} - \left(\underset{I}{0} \times .036\right) = \underset{\text{NET TEST PRESSURE}}{3.33}$$

TANK LAYOUT

NOTES:

DATA CHART FOR TANK SYSTEM TIGHTNESS TEST

ADDRESS Thoresby N.M.

PRODUCT LINE TESTING

Time (Military)	Reading No.	Product Monitoring on LL Start	End	+Gain −Loss	X Factor A	Product +Gain −Loss
1210	4	318	318	0	.003	0
1220	5	318	318	0	.003	0
1230	6	318	318	0	.003	0

TEST----

PRODUCT LINE TESTING

Time (Military)	Reading No.	Product Monitoring on LL Start	End	+Gain −Loss	X Factor A	Product +Gain −Loss
1140	1	318	318	0	.003	0
1150	2	318	318	0	.003	0
1200	3	318	318	0	.003	0

MONITOR----

Time (Military)	Product Monitoring on LLF Start	End	+Gain −Loss	X Factor A	Product +Gain −Loss	Temperature Compensation A Start	End	+Gain −Loss	X Factor E	+Expansion −Contraction	Temperature Compensation B Start	End	+Gain −Loss	X Factor B	+Expansion −Contraction	Net Vol. Change	LLF
1000																	
1005	62	46	-16	.0011	.0176						.527	.524	-.003	3.57	.0107		-.0053
1010	100	95	-5		-.0055						.524	.523	-.001		-.0036		-.0019
1015	95	79	-16		-.0176						.523	.518	-.005		-.0179		+.0003
1020	79	62	-17		-.0187						.518	.512	-.006		-.0214		+.0027
1025	100	85	-15		-.0165						.512	.508	-.004		-.0143		-.0022
1030	85	70	-15		-.0165						.508	.503	-.005		-.0179		+.0014
1035	94	81	-13		-.0143						.503	.499	-.004		-.0143		0
1040	81	69	-12		-.0132						.499	.495	-.004		-.0143		+.0011
1045	93	80	-13		-.0143						.495	.491	-.004		-.0143		0
1050	80	66	-14		-.0154						.491	.487	-.004		-.0143		-.0011
1055	66	52	-14		-.0154						.487	.483	-.004		-.0143		[illegible]
1100	98	76	-12		-.0132						.483	.479	-.004		-.0143		+.0011

MONITOR RESULTS---

Leakage Indicated	Standard Deviation
-.0100	.002

Time (Military)	Product Monitoring on LLF Start	End	+Gain −Loss	X Factor A	Product +Gain −Loss	Temperature Compensation A Start	End	+Gain −Loss	X Factor E	+Expansion −Contraction	Temperature Compensation B Start	End	+Gain −Loss	X Factor E	+Expansion −Contraction	Net Vol. Change	LLF
1105	76	64	-12	.0011	-.0132						.479	.475	-.004	3.5	-.0143		+.0011
1110	64	52	-12		-.0132						.475	.472	-.003		-.0107		+.0025
1115	52	40	-12		-.0132						.472	.468	-.004		-.0143		+.0011
1120	93	85	-8		-.0088						.468	.466	-.002		-.0071		-.0017
1125	85	77	-8		-.0088						.466	.464	-.002		-.0071		-.0017
1130	77	70	-7		-.0077						.464	.462	-.002		-.0071		-.0006

TEST CALIBRATION

BEGIN	67	TO 90	-	23
	64	TO 85	-	21
	57	TO 79	-	22
END		TO	-	
		TO	-	
		TO	-	

0.4 PSI DROP 3 HRS

MEASURED API SPECIFIC GRAVITY 56.5

PRODUCT TEMPERATURE 43.5

API SPECIFIC GRAVITY @ 60° F 58.5

COEFFICIENT OF EXPANSION .000675

TEST RESULTS---

Leakage Indicated	Standard Deviation
-.0043	.001

Tank No 2

Tight YES

Leakage Indicated -.0043

Technician [illegible]

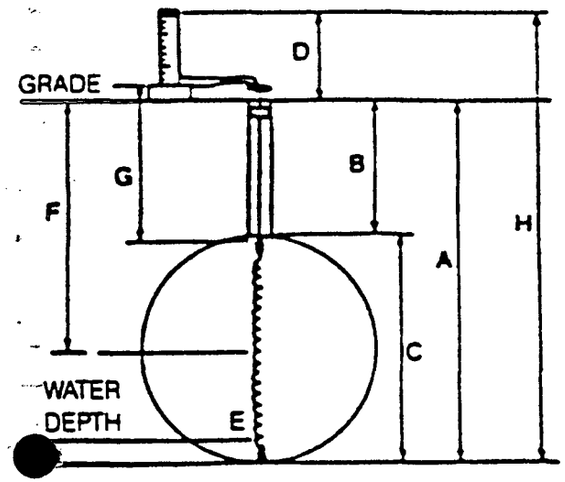
Date Tested 3-11-91

Calibration Rod .015 - 22 lines = .0011 FACTOR A

Size of Tank 5292 x Coefficient of Expansion .000675 = 3.57 FACTOR B

IENT
ME OF SUPPLIER.
NER OR DEALER TRANSWESTERN PIPELINE CO. DATE OF TEST 3-11-91
DRESS (NO. & STREET) P.O. Box 149 WEATHER GOOD TEMPERATURE 420
TY AND STATE BELEN N.M. 87002

NK INFORMATION
PACITY (NOMINAL) 1000 GALS. SIZE OF FILL OR TEST OPENING 4" IN. CONTENTS (PRODUCT) DIESEL
PACITY (CHART) GALS. TOP OFF TIME 3-8-91 GALLONS TANK MATERIAL STEEL
MENSIONS: DIAMETER 4' NUMBER OF GALLONS ADDED TO START TEST 20 APPROX. AGE
LENGTH 12' TANK NO. #1 PUMP SYSTEM (TYPE) SUCTION
INCHES OF WATER – BEFORE TEST 0" AFTER TEST 0"

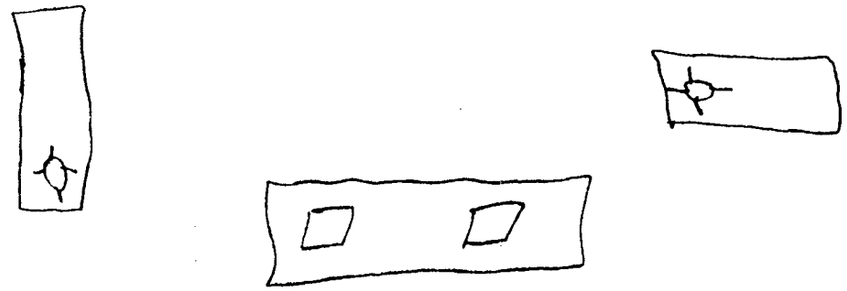


A.	Tank Bot. to Grade	70 "
B.	Tank Top to Grade	22 "
C.	Tank Diameter	48 "
D.	Test Level above grade	30 "
E.	Depth of water in tank	0 "
F.	Depth for taking sample	46 "
G.	Temp. Probe depth (connector)	24 "
H.	Test Level to tank bottom	100 "
	Product Pressure per 1" height	.031 PSI

Test Pressure Formula

$$\underset{H}{100} \times \underset{J}{.031} - \left(\underset{I}{0} \times .036\right) = \underset{\text{NET TEST PRESSURE}}{3.10}$$

TANK LAYOUT



NOTES:

DATA CHART FOR TANK SYSTEM TIGHTNESS TEST

Time (Military)	Product Monitoring on LLF Start	End	+ Gain - Loss	X Factor A	Product + Gain - Loss	Temperature Compensation A Start	End	+ Gain - Loss	X Factor E	+ Expansion - Contraction	Temperature Compensation E Start	End	+ Gain - Loss	X Factor E	+ Expansion - Contraction	Net Vol Change	LLF
755																	
800	71	71	0	.0013	0						.373	.373	0	.50	0		0
805	48	48	0		0						.373	.372	-.001		-.0005		+.0005
810	70	69	-1		-.0013						.372	.369	-.003		-.0015		+.0002
815	69	68	-1		-.0013						.369	.367	-.002		-.0010		-.0003
820	68	67	-1		-.0013						.367	.368	+.001		+.0005		-.0018
825	67	67	0		0						.368	.368	0		0		0
830	67	66	-1		-.0013						.368	.368	0		0		-.0013
835	66	66	0		0						.368	.368	0		0		0
840	66	65	-1		-.0013						.368	.368	0		0		-.0013
845	65	65	0		0						.368	.368	0		0		0
850	65	65	0		0						.368	.368	0		0		0
855	65	65	0		0						.368	.369	+.001		+.0005		-.0005

MONITOR RESULTS---

Leakage Indicated	Standard Deviation
-.0028	.0007

Time (Military)	Product Monitoring on LLF Start	End	+ Gain - Loss	X Factor A	Product + Gain - Loss	Temperature Compensation A Start	End	+ Gain - Loss	X Factor E	+ Expansion - Contraction	Temperature Compensation E Start	End	+ Gain - Loss	X Factor E	+ Expansion - Contraction	Net Vol Change	LLF
900	65	65	0	.0013	0						.369	.368	-.001	.50	-.0005		+.0005
905	65	65	0		0						.368	.367	-.001		-.0005		+.0005
910	65	65	0		0	MOVEMENT					.367	.366	-.001		-.0005		+.0005
915	65	66	+1		+.0013						.366	.367	+.001		+.0005		+.0008
920	66	67	+1		+.0013						.367	.369	+.002		+.0010		+.0003
925	67	68	+1		+.0013						.369	.371	+.002		+.0010		+.0003

TEST RESULTS---

Leakage Indicated	Standard Deviation
-.0002	.0006

TEST CALIBRATION

BEGIN 47 TO 87 - 40
47 TO 87 - 40
47 TO 86 - 39

END ____ TO ____ - ____
____ TO ____ - ____
____ TO ____ - ____

0.4 PSI DROP 4 HRS
MEASURED API SPECIFIC GRAVITY 30
PRODUCT TEMPERATURE 41
API SPECIFIC GRAVITY @ 60° F 31.8
COEFFICIENT OF EXPANSION .000448

Tank No 1
Tight Yes
Leakage Indicated -.0002
Technician [illegible] WEGMEY
Date Tested [illegible]

FACTOR A
Calibration Rod .050 - 34.67 lines =

FACTOR B
Size of Tank 1107 × Coefficient of Expansion .000448 = .50

ADDRESS TITO NEAU

PRODUCT LINE TESTING — TEST

Time (Military)	Reading No.	Product Monitoring on LL Start	End	+ Gain - Loss	X Factor A	Product + Gain - Loss
1000	4	214	214	[illegible]	.003	[illegible]
1010	5	214	214	[illegible]	.003	[illegible]
1020	6	[illegible]	214	[illegible]	.003	[illegible]
						0

PRODUCT LINE TESTING — MONITOR

Time (Military)	Reading No.	Product Monitoring on LL Start	End	+ Gain - Loss	X Factor A	Product + Gain - Loss
930	1	214	214	0	.003	0
940	2	[illegible]	214	0	.003	0
950	3	214	214	0	.003	[illegible]
						0

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

June 19, 1991

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-327-278-201

Mr. James R. Maloney
Vice President
Loco Hills Water Disposal Company
P. O. Box 68
Loco Hills, New Mexico 88255

Dear Mr. Maloney:

The Oil Conservation Division (OCD) has received your request dated May 29, 1991 to receive and dispose of wastewater generated at ENRON's mainline compressor stations. Analysis reports provided with the request show the wastewater to be non-hazardous. Based on the information provided with your request, authorization is granted for Loco Hills Water Disposal Company to receive and dispose of the requested wastewater.

If you have any questions, feel free to contact me at (505) 827-5884.

Sincerely,

Roger C. Anderson
Environmental Engineer

RCA/sl

cc: OCD Artesia Office
Larry Campbell - ENRON
Raymond Getman - R&R Recycling

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

May 24, 1991

CERTIFIED MAIL
RETURN RECEIPT NO. P-106-675-358

Mr. Larry Campbell
Compliance Environmentalist
Enron Gas Pipeline Operating Co.
P.O. Box 2018
Roswell, NM 88201

RE: DISCHARGE PLAN GW-80
THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Campbell:

The New Mexico Oil Conservation Division (OCD) is in receipt of the April 5, 1991 correspondence by your consultant, Daniel B. Stephens & Associates, requesting a temporary discharge permit for the disposal of treated ground water from monitor well purging, pump tests and a prototype water quality treatment system at the ENRON Thoreau Compressor Station located in Section 20, Township 14 North, Range 13 East, (NMPM), McKinley County, New Mexico.

The OCD has the following comments, questions and requests for information:

1. On May 10, 1991, the Director of the OCD required the existing facility to submit a discharge plan pursuant to Water Quality Control Commission (WQCC) Regulation 3-106.A. That regulation allows existing discharges at the facility to continue up to 240-days without an approved discharge plan. The correspondence requests a temporary discharge permit for work to be performed over "the next several months". Pursuant to WQCC Regulation 3-106.B for new discharges, whether at new or existing facilities, the OCD can only consider a request to discharge without an approved discharge plan for a period not to exceed 120 days. Therefore, any temporary approval could not exceed four months.

2. To expedite consideration of the April 5, 1991 request to discharge current treated stored water, the OCD believes that the prototype water quality treatment system for determining the optimum design of the treatment system used during future ground water remediation efforts should be addressed under the discharge plan required for the facility. Please include information on the prototype treatment system in your discharge plan application.

3. The request states that 2,500 gallons of contaminated water have been carbon filtered to meet New Mexico Water Quality Control Commission (WQCC) ground water standards, but no water quality analyses for this treated water were included. Submit the water quality analyses for these filtered waters.

4. The location of the disposal area proposed at the facility was not provided. Submit a map showing the location of the proposed disposal area in relation to other facility features.

5. How will the carbon filtering and disposal system be operated and monitored for future well purging and pump testing to ensure that WQCC ground water standards will be met?

6. Submit a schedule for reporting the results of routine monitoring of the disposal system to OCD.

The OCD looks forward to your response. If you have any questions, please feel free to contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist

xc: OCD Aztec Office
Dale Hammermeister, Dan Stephens & Assoc.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

May 10, 1991

CERTIFIED MAIL
RETURN RECEIPT NO. P-106-675-352

Mr. Larry Campbell
Compliance Environmentalist
Enron Gas Pipeline Operating Co.
P.O. Box 2018
Roswell, NM 88201

RE: DISCHARGE PLAN GW-80
THOREAU COMPRESSOR STATION
MCKINLEY COUNTY, NEW MEXICO

Dear Mr. Campbell:

Under the provisions of the New Mexico Water Quality Control Commission (WQCC) Regulations, you are hearby notified that the filing of a discharge plan is required for your existing Thoreau Compressor Station located in Section 20, Township 14 North, Range 13 East, (NMPM), McKinley County, New Mexico.

This notification of discharge plan requirement is pursuant to Part 3-104 and Part 3-106 of the WQCC Regulations. The discharge plan, defined in Part 1.101.P. of the WQCC Regulations, should cover all discharges of effluent or leachate at the plant site or adjacent to the plant site. Included in the application should be plans for controlling spills and accidental discharges at the facility (including detection of leaks in below grade sumps, buried underground process tanks and/or piping) and closure plans for any ponds whose use will be discontinued. The proposed ground water remediation plan for the facility will also become part of the discharge plan application.

A copy of the regulations is enclosed for your convenience. Also enclosed is a copy of OCD guidelines for the preparation of discharge plans for gas processing plants. The guidelines are presently being revised to include berming of tanks, curbing and paving of process areas susceptible to leaks and spills and the

your application. Three copies of your discharge plan should be submitted for review purposes.

Section 3-106.A. of the regulations requires a submittal of the discharge plan within 120 days of receipt of this notice unless an extension of this time period is sought and approved for good cause. Part 3-106.A. also allows the discharge to continue without an approved discharge plan until 240 days after written notification by the Director of the OCD that a discharge plan is required. An extension of this time may be sought and approved for good cause.

If there are any questions on this matter, please feel free to contact David Boyer at (505) 827-5812, or Roger Anderson at (505) 827-5884 as they have the assigned responsibility for review of all discharge plans.

Sincerely,

William J. LeMay
Director

WJL/RCA/wo

xc: OCD Aztec Office


UTILITY BUILDING 559-420-424
DISTRICT OFFICE
LUBE OIL STORAGE
WATER TANK
BOILER
INST. AIR TANK AREA 559-331
COOLING TOWERS
COOLING TOWER AREA-559-200
COOLING AREA FOR GENERATOR ENGINES 559-325
COMPRESSOR BUILDING 559-120
AUXILIARY BUILDING 559-320
SUCTION AND DISCHARGE STATION PIPING 559-041
SCRUBBER 559-051
BURN PIT
FLAME TRAP
CASING AS SHOWN
BASE LINE MONUMENT
BLOWDOWN
BY PIPELINE CONTRACTOR
DETAIL "A" THIS DWG. NO SCALE
SPRINKLER SYSTEM DETAIL "B" THIS DWG. NO SCALE
SECTION "A-A" (TYP.) NO SCALE
BOTTOM OF GRAVEL
REMOVE BOILER, HEATERS & ALL RELATED PIPING
NOTE: CONDUIT DITCH TO HOUSING AREA E. 2+85'-6"

REFERENCE DRAWING	
DWG. NO.	DESCRIPTION
59-00A	GENERAL STATION DETAILS
559-000	GENERAL PLAN
559-006	KEY PIPING PLAN
59-007	KEY PIPING
559-005	KEY PIPING PLAN BILL OF MATERIAL
5-AB-068	GENERAL PLAN OF DRAINS

GULF INTERSTATE COMPANY

TRANSWESTERN PIPELINE COMPANY

KEY PIPING PLAN

STATION NO.

SCALE 1" = 30'

DRAWN J.N. McDermott DATE 5-20-59

RECEIVED OCT 22 1991 OIL CONSERVATION DIV. SANTA FE

TYPICAL HOUSE DRAIN LAYOUT
NO SCALE

BILL OF MATERIAL

Manufacturer to mark ALL EQUIPMENT as listed below, using both numbers, as example 46-1, 46-2, etc.

No. Reqd.	Size	Description	Mark No.	[illegible]
83 PCS.	4" I.D. x 5'-0" LG.	EXTRA HEAVY CAST IRON SOIL PIPE, TARRED, B&S.		
17 PCS.	2" I.D. x 5'-0" LG.	EXTRA HEAVY CAST IRON SOIL PIPE, TARRED, B&S		
823 PCS.	4" I.D. x 4'-0" LG.	STD. STRENGTH VITRIFIED CLAY PIPE, B&S.		
190 PCS.	4" I.D. x 2'-0" LG.	VITRIFIED CLAY DRAIN TILE		
430 LBS.		LEAD		
19 LBS.		OAKUM		
95 PCS.	4" I.D. x 4'-0" LG.	STD. STRENGTH VITRIFIED CLAY PIPE, B&S.		
11 PCS.	4"	COMBINATION Y-BRANCH & 1/8 BEND, EXTRA HEAVY CAST IRON, TARRED, B&S.	1	
10 PCS.	4"x2"x4"	1/4 BEND WITH HEEL INLET, XH, C.I., TARRED, B&S.	7	
20 PCS.	2"	1/8 BEND, EXTRA HEAVY CAST IRON, TARRED, B&S.	8	
12 PCS.	4"	Y-BRANCH, STD. STRENGTH VITRIFIED CLAY, B&S.	[illegible]	
17 PCS.	4"	1/4 BEND, STD. STRENGTH VITRIFIED CLAY, B&S.	[illegible]	
6 PCS.	4"	PLUG, STD. STRENGTH VITRIFIED CLAY, B&S.	[illegible]	
[illegible] PCS.	24"Ø	JOHNCO GREASE TRAP WITH 4" INLET OPG. & 4"Ø OUTLET ELBOW.	6	
12 PCS.		PLASTISOL ADAPTER FOR 4"Ø C.I. SPIGOT	10	
19 PCS.	4"x2"	REDUCER, XH, CAST IRON, TARRED	11	

* NOTE:
ALL VITRIFIED CLAY PIPE ~~EXCEPT~~ DRAIN TILE TO HAVE PLASTISOL JOINTS W.S. DICKEY CLAY MFG. CO. TYPE OR EQUAL.

REPRODUCTION OF DOCUMENTS
IN THIS FILE CANNOT BE
IMPROVED DUE TO CONDITION
OF ORIGINALS

REFERENCE DWGS.
069 - SECTIONS & DETAILS OF DRAINS
000 - GENERAL PLAN
001 - GENERAL PLAN - GRADING

RECEIVED
OCT 22 1991
OIL CONSERVATION DIV.
SANTA FE

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GULF INTERSTATE COMPANY
TRANSWESTERN PIPELINE COMPANY
GENERAL PLAN OF DRAINS
STATION NO. 3

SCALE	1" = 50'	DATE
DRAWN	[illegible]	10-3-58
TRACED		
CHECKED	[illegible]	[illegible]
APPROVED		
APPROVED	[illegible]	
APPROVED		