GW - 49

GENERAL CORRESPONDENCE

YEAR(S):

1991 - 1991

EL PASO
FIELD SERVICES

January 29, 1997

Mr. Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Dear Mr. Olson:

As a condition of the Discharge Plan renewal for the El Paso Natural Gas Co. Blanco Plant (plan number GW-49), we were required to remove two abandoned concrete sumps. One of these was located adjacent to the skimmer basin near the south edge of the plant property. The other was located immediately west of the waste heat boiler near the "C" Plant compressor building.

During December 1997 El Paso Field Services (EPFS) received approval for the work order to remove the two sumps. After excavation, the sump near the waste heat boiler was found to be a French drain rather that a fully lined sump. Both locations had significant levels of total petroleum hydrocarbons (TPH). Using a hand auger the EPFS laboratory was able to collect a core sample from approximately 13 feet below each excavation. Samples were also taken along the excavation side walls. The attached table provides the TPH results obtained.

Following the initial sampling, EPFS contracted with Philip Environmental, Inc. to collect soil boring samples around the excavation areas to determine the extent of the contamination. If the borings encounter groundwater before reaching the bottom the plume, Philip also plan to install one groundwater monitoring well in each excavation. Philip tentatively plans to begin the sampling during the week of February 4th, weather permitting.

Samples collected by Philip will be tested for TPH and BTEX using standard EPA test methods. EPFS will furnish those results to the Oil Conservation Division as soon as they are available. Based on the data collected, EPFS can then determine the most practical remediation method and submit a follow up work plan for your review.

If you need any additional information prior to receiving the results from the soil boring, please call me at (505) 599-2256.

Sincerely yours,

David Bays

David Bays
Sr. Environmental Scientist

cc: Mr. Denny Foust - NMOCD - Aztec, NM
S. D. Miller/R. D. Cosby/R. Duarte/Blanco Sump Project File

El Paso Natural Gas Co. Blanco Plant - Sump Removal Samples
All results are expressed as milligrams per kilogram (ppm)

Sample Location	Skimmer Basin Sump	C Plant Sump
Side wall composite (3 sides)		20,000
South side wall		16
Floor at 7 feet deep		61,000
Floor at 13 feet deep	9,300	14,000
Side wall composite (4 sides)	20,000	
Floor at 7 feet deep (4 sample composite)	8,700	

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 1440 hrs	Date 3/10/95
Originating Party	**Other Parties**	
Bill Olson - Envir. Bureau	John Lambdin - EPNG 599-2144	

Subject

EPNG South Flare Pit - Blanco Plant

Discussion

Told him OCD does not have 1st, 2nd, 3rd quarter sampling reports on south flare pit.

Also told him EPNG committed in 11/10/93 ltr. to provide OCD with a report assessing need for additional monitoring or remediation after 1994 sampling

Conclusions or Agreements

He will get copies of 1st, 2nd, 3rd quarter sampling results and will check on assessment report

Distribution File
Denny Foust - OCD Aztec

Signed Bill Olson

El Paso Natural Gas Company

P. O. Box 4990
FARMINGTON, NEW MEXICO 87499

July 13, 1995

Mr. Denny Foust
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

Dear Mr. Foust:

During the week of June 12, 1995, the El Paso Natural Gas Co. Blanco Plant was shut down for annual major maintenance. During the shutdown, the cooling tower basin was drained, cleaned, and inspected for possible leaks. On June 16 the tower was refilled with fresh water and placed back in service. When water flow through the tower resumed, dead algae washed off the tower's internal distribution system, causing the water to become very darkly discolored. Due to the dark color of the water, the City of Bloomfield requested that we not discharge the cooling tower blowdown into their wastewater treatment plant.

As we discussed by telephone on June 16, it was therefore necessary to temporarily discharge the cooling tower blowdown into an on-site surface impoundment. The tower blowdown was diverted into the on-site pond at approximately 4:00 P.M. on June 16. A sample of the blowdown was collected at 4:45 P.M. The laboratory report of that sample is attached. The total dissolved solids were 302 parts per million, the total suspended solids were 68 ppm, and there was no detectable level of petroleum based volatile organics.

By Saturday, June 17, the water in the tower basin was again clear. Following a brief meeting with the City of Bloomfield on Monday, June 19 the blowdown was turned back into the Blanco Plant skimmer basin for discharge to the city.

If you need any additional information concerning the temporary on-site blowdown, please call me at (505) 599-2256.

Sincerely yours,

David Bays

David Bays, REM
Sr. Environmental Scientist

cc: Mr. Bill Olson - OCD Santa Fe

El Paso Natural Gas Company - Field Services Lab Report

LOCATION: Blanco Plant **PROJECT:** Annual Shutdown
DATE OF REPORT: 7/10/95 **SAVE FILE:** 950677-2
SAMPLED BY: Roger Bizzell at 1644 Hrs.

****All Results By Standard Methods (AWWA) Or EPA Method 300****

SAMPLE POINT	C Cooling Tw.				
LAB ID #	950677				
Date Of Sample	16-Jun-95				
pH (Units)	8.35				
ALKALINITY AS CO3	2				
ALKALINITY AS HCO3	178				
CALCIUM AS Ca	47				
MAGNESIUM AND Mg	10				
TOTAL HARDNESS AS CACO3	159				
CHLORIDE AS Cl	4				
SULFATE AS SO4	71				
FLUORIDE AS F	1.4				
POTASSIUM AS K	23				
SODIUM AS Na	29				
TOTAL DISSOLVED SOLIDS	302				
CONDUCTIVITY (umhos)	474				
NITRATE AS NO3	<0.1				
Total Suspended Solids	68				

****All Results Expressed as ppm or umhos****

REMARKS:

Approvals:

Analyst: Dennis Bird Date: _____

Lab Super.: [signature] Date: 7/10/95

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	950677
LOCATION:	Blanco Plant
SAMPLE DATE:	16-Jun-95
SAMPLE TIME (Hrs):	1644
SAMPLED BY:	Roger Bizzell
DATE OF BTEX ANALYSIS:	19-Jun-95
SAMPLE POINT:	"C" Cooling Twr. - NW Corner

REMARKS: _____

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT PPB	QUALIFIER	WQCC LIMIT PPB
BENZENE	<2.5	None	10
TOLUENE	<2.5	None	740
ETHYL BENZENE	<2.5	None	750
TOTAL XYLENES	<7.5	None	620
SURROGATE % RECOVERY	86	Allowed Range 80 to 120 %	

NOTES:

All QA/QC was found to be acceptable.

Approved By: _____ 6/19/95 Date

NOTIFICATION . FIRE, BREAKS, SPILLS, L. XS, AND BLOWOUTS

NAME OF OPERATOR	El Paso Natural Gas Co.				ADDRESS	P.O. Box 1492, El Paso, TX	
REPORT OF	FIRE	BREAK	SPILL X	LEAK	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTTY	PIPE LINE	GASO PLNT	OIL RFY	OTHER* compression plant
NAME OF FACILITY	Blanco Plant C2 turbine						
LOCATION OF FACILITY (QUARTER/QUARTER SECTION OR FOOTAGE DESCRIPTION)					SEC. 14	TWP. 29N	RGE. 11W	COUNTY San Juan
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	1 mile North of Bloomfield						
DATE AND HOUR OF OCCURENCE	5/12/93 @ 2:35 p.m.				DATE AND HOUR OF DISCOVERY	5/12/93 @ 2:35 p.m.	
WAS IMMEDIATE NOTICE GIVEN?	YES X	NO	NOT REQUIRED		IF YES, TO WHOM	NRC	
BY WHOM	Anu N. Pundari				DATE AND HOUR	5/12/93 @ 5:21 p.m.	
TYPE OF FLUID LOST	ethylene glycol				QUANTITY OF LOSS	20 gal.ambitrol 50% ethy. gly.	VOLUME RECOVERED	20 gal.
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

OIL CONSERVATION DIVISION
RECEIVED
93 MAY 24 AM 9 37

RECEIVED
MAY 20 1993
OIL CON. DIV.
DIST. 3

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**

Vibration broke a dresser coupling on discharge line of ambitrol pump. Turbine and pump were immediately shut down. Soil was picked up, stored in drums for proper disposal.

DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN**

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

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

Dry, 70°F

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

SIGNED W. David Hall TITLE Manager DATE 5/17/93

SPECIFY **ATTACH ADDITIONAL SHEETS IF NECESSARY

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499
PHONE: 505-325-2841

January 20, 1995

Mr. Bill Olsen
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, NM 87505

Dear Mr. Olsen:

SUBJECT: El Paso Natural Gas Company's Blanco Plant South Flare Pit Monitor Well Results

Attached are the fourth quarter 1994 BTEX, Nitrate and PAH analytical results for the four (4) monitor wells at the El Paso Natural Gas Company's Blanco Plant South Flare Pit.

If you need additional information, please call me at 599-2144.

Sincerely,

EL PASO NATURAL GAS COMPANY

John Lambdin
Laboratory Superintendent

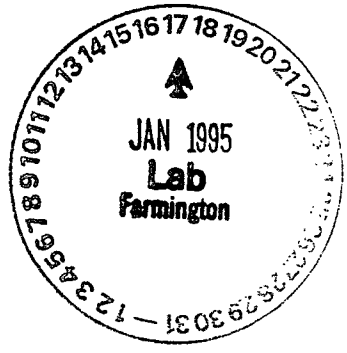
Attachments

cc: David Hall, E.P.N.G., W/O Attachments
Sandra Miller, E.P.N.G., W/O Attachments
Denny Foust, N.M.O.C.D.
File

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **412407**



January 16, 1995

El Paso Natural Gas Co.
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: BLANCO PLT. M.W.

Attention: John Lambdin

On **12/22/94**, Analytical Technologies, 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.

The ion balances for all client samples are outside ATI acceptance limits (TDS: EC portion only); however, re-analyses confirmed the original results.

Due to matrix interferences, cadmium and selenium spike analyses were performed using the Method of Standard Additions (MSA). The spike results given are the correlation coefficients (CC), which are ≥ 0.995.

Due to matrix interferences, lead analysis of all samples was performed at a dilution. The reporting limit has been raised accordingly.

EPA Method 8310 analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

All other analyses were performed by Analytical Technologies, Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

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

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

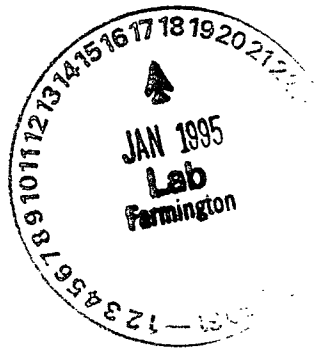
Noted 1-19-95

Analytical Technologies, Inc.

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLT. M.W.
ATI I.D. : 412407

DATE RECEIVED : 12/22/94
REPORT DATE : 01/16/95

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	941630 - Monitor Well W-6	AQUEOUS	12/20/94
02	941631 - Monitor Well W-6 Field Dup	AQUEOUS	12/20/94
03	941632 - Monitor Well MW-28	AQUEOUS	12/20/94
04	941633 - Monitor Well MW-29	AQUEOUS	12/20/94
05	941634 - Monitor Well MW-30	AQUEOUS	12/20/94



----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	5

ATI 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.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 412407

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLT. M.W.

DATE RECEIVED : 12/22/94
REPORT DATE : 01/16/95

PARAMETER	UNITS	01	02	03	04	05	WQCC Limit
CARBONATE (CACO3)	MG/L	<1	<1	<1	<1	<1	NA
BICARBONATE (CACO3)	MG/L	645	636	546	741	667	NA
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1	<1	NA
TOTAL ALKALINITY (AS CACO3)	MG/L	645	636	546	741	667	NA
CHLORIDE (EPA 325.2)	MG/L	92	93	23	150	86	250
CONDUCTIVITY, (UMHOS/CM)		6280	6220	4190	6460	6160	NA
FLUORIDE (EPA 340.2)	MG/L	0.41	0.40	0.32	0.35	0.40	1.6
NITRATE AS N (EPA 353.2)	MG/L	94	102	0.33	41	77	10.0
SULFATE (EPA 375.2)	MG/L	2800	2900	2200	2900	3100	600
T. DISSOLVED SOLIDS (160.1)	MG/L	5700	5700	3900	5800	6000	500
		W-6	W-6 Field Dup	MW-28	MW-29	MW-30	

WQCC Exceeded for Nitrate on W-6, MW-29 and MW-30
WQCC Exceeded for Sulfate on All
TDS Exceeded for All

J.P. 1-19-95

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 412407

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLT. M.W.

DATE RECEIVED : 12/22/94
REPORT DATE : 01/16/95

PARAMETER	UNITS	01	02	03	04	05	WQCC Limit
SILVER (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
ARSENIC (EPA 206.2/7060)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.10
BARIUM (EPA 200.7/6010)	MG/L	0.018	0.020	0.020	0.034	0.017	1.00
CALCIUM (EPA 200.7/6010)	MG/L	576	619	619	556	603	NA
CADMIUM (EPA 213.2/7131)	MG/L	<0.0010	<0.0010	<0.0010	<0.0025	<0.0010	0.01
CHROMIUM (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
MERCURY (EPA 245.1/7470)	MG/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.002
POTASSIUM (EPA 200.7/6010)	MG/L	2.6	5.6	6.8	7.7	6.0	NA
MAGNESIUM (EPA 200.7/6010)	MG/L	49.8	53.4	52.2	57.3	57.0	NA
SODIUM (EPA 200.7/6010)	MG/L	1200	1140	641	1210	1230	NA
LEAD (EPA 239.2/7421)	MG/L	0.004	<0.010	<0.010	<0.010	<0.010	0.05
SELENIUM (EPA 270.2/7740)	MG/L	<0.005	<0.005	<0.005	0.008	<0.005	0.05
		W-6	W-6 Field Dup	MW-28	MW-29	MW-30	

No WQCC Limit was exceeded!

JP
1-19-95

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLT. M.W. ATI I.D. : 412407

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	41240701	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		645	653	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		645	653	1	NA	NA	NA
CHLORIDE	MG/L	41238904	2.4	2.5	4	12.2	10.0	98
CONDUCTIVITY(UMHOS/CM)		41277205	3740	3720	0.5	NA	NA	NA
FLUORIDE	MG/L	41277206	0.28	0.27	4	0.84	0.50	112
NITRATE AS NITROGEN	MG/L	41275301	3.4	3.4	0	13.2	10.0	98
SULFATE	MG/L	41279601	280	270	4	440	200	80
TOTAL DISSOLVED SOLIDS	MG/L	41279701	900	890	1	NA	NA	NA

Acceptable.
1-19-95

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

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

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLT. M.W. ATI I.D. : 412407

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	41281702	<0.010	<0.010	NA	1.02	1.00	102
ARSENIC	MG/L	41280201	<0.005	<0.005	NA	0.041	0.050	82
BARIUM	MG/L	41281702	0.073	0.074	1	1.11	1.00	104
CALCIUM	MG/L	41279801	14.8	14.7	0.7	63.4	50.0	97
CADMIUM	MG/L	41280201	<0.0010	<0.0010	NA	MSA	CC=	.9999
CHROMIUM	MG/L	41281702	<0.010	<0.010	NA	0.985	1.00	98
MERCURY	MG/L	41275603	<0.0002	<0.0002	NA	0.0047	0.0050	94
POTASSIUM	MG/L	41279801	2.9	3.7	24	48.7	50.0	92
MAGNESIUM	MG/L	41279801	1.9	1.9	0	26.0	25.0	96
SODIUM	MG/L	41279801	164	167	2	213	50.0	98
LEAD	MG/L	41280201	<0.002	<0.002	NA	0.044	0.050	88
SELENIUM	MG/L	41277101	<0.005	<0.005	NA	MSA	CC=	.9995
SELENIUM	MG/L	41273302	<0.005	<0.005	NA	0.042	0.050	84

Acceptable.
RL
1-19-95

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

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

Analytical **Technologies,** Inc.

DATE: 01-09-95

ION BALANCE

ATI ACCESSION NUMBER: 41240701
SAMPLE IDENTIFICATION: 941630 W-6
CLIENT: EL PASO NATUAL GAS CO.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL	
ALKALINITY (AS CACO3)	645.000	0.02000	12.90000	
CHLORIDE	92.000	0.02821	2.59532	
FLUORIDE	0.410	0.05264	0.02158	
NITRATE AS N	94.000	0.01613	6.71685	
SULFATE	2800.000	0.02082	58.29600	
		TOTAL ANIONS		80.52976

CATIONS	RESULT	FACTOR	TOTAL	
CALCIUM	576.000	0.04990	28.7424	
POTASSIUM	2.600	0.02558	0.06651	
MAGNESIUM	49.800	0.08229	4.09804	
SODIUM	1200.000	0.04350	52.20000	
COPPER	NA	0.03147	0.00000	
IRON	NA	0.05372	0.00000	
MANGANESE	NA	0.03640	0.00000	
ZINC	NA	0.03059	0.00000	
		TOTAL CATIONS		85.10695
		%RPD (<10%)		-5.53
TOTAL ANIONS/CATIONS		5202		
TOTAL DISSOLVED SOLIDS		5700	%RPD (<15%)	-9.14
ELECTRICAL COND.		6280	TDS/EC RATIO (0.65+/-0.1)	0.90764

Analytical **Technologies,** Inc.

DATE: 01-09-95

ION BALANCE

ATI ACCESSION NUMBER: 41240702
SAMPLE IDENTIFICATION: 941631 W-6 Field Dup
CLIENT: EL PASO NATUAL GAS CO.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL	
ALKALINITY (AS CACO3)	636.000	0.02000	12.72000	
CHLORIDE	93.000	0.02821	2.62353	
FLUORIDE	0.400	0.05264	0.02106	
NITRATE AS N	102.000	0.01613	7.28850	
SULFATE	2900.000	0.02082	60.37800	
		TOTAL ANIONS		83.03109

CATIONS	RESULT	FACTOR	TOTAL	
CALCIUM	619.000	0.04990	30.8881	
POTASSIUM	5.600	0.02558	0.14325	
MAGNESIUM	53.400	0.08229	4.39429	
SODIUM	1140.000	0.04350	49.59000	
COPPER	NA	0.03147	0.00000	
IRON	NA	0.05372	0.00000	
MANGANESE	NA	0.03640	0.00000	
ZINC	NA	0.03059	0.00000	
		TOTAL CATIONS		85.01563
		%RPD (<10%)		-2.36
TOTAL ANIONS/CATIONS		5295		
TOTAL DISSOLVED SOLIDS		5700	%RPD (<15%)	-7.37
ELECTRICAL COND.		6220	TDS/EC RATIO (0.65+/-0.1)	0.91640

Analytical **Technologies,** Inc.

DATE: **01-09-95**

ION BALANCE

ATI ACCESSION NUMBER: 41240703
SAMPLE IDENTIFICATION: 941632 MW-28
CLIENT: EL PASO NATUAL GAS CO.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL	
ALKALINITY (AS CACO3)	546.000	0.02000	10.92000	
CHLORIDE	23.000	0.02821	0.64883	
FLUORIDE	0.320	0.05264	0.01684	
NITRATE AS N	0.330	0.01613	0.02358	
SULFATE	2200.000	0.02082	45.80400	
		TOTAL ANIONS		57.41326

CATIONS	RESULT	FACTOR	TOTAL	
CALCIUM	619.000	0.04990	30.8881	
POTASSIUM	6.800	0.02558	0.17394	
MAGNESIUM	52.200	0.08229	4.29554	
SODIUM	641.000	0.04350	27.88350	
COPPER	NA	0.03147	0.00000	
IRON	NA	0.05372	0.00000	
MANGANESE	NA	0.03640	0.00000	
ZINC	NA	0.03059	0.00000	
		TOTAL CATIONS		63.24108

	%RPD (<10%)		-9.66
TOTAL ANIONS/CATIONS	3870		
TOTAL DISSOLVED SOLIDS	3900	%RPD (<15%)	-0.77
ELECTRICAL COND.	4190	TDS/EC RATIO (0.65+/-0.1)	0.93079

Analytical **Technologies,** Inc.

DATE: 01-09-95

ION BALANCE

ATI ACCESSION NUMBER: 41240704
SAMPLE IDENTIFICATION: 941633 MW-29
CLIENT: EL PASO NATUAL GAS CO.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL	
ALKALINITY (AS CACO3)	741.000	0.02000	14.82000	
CHLORIDE	150.000	0.02821	4.23150	
FLUORIDE	0.350	0.05264	0.01842	
NITRATE AS N	41.000	0.01613	2.92969	
SULFATE	2900.000	0.02082	60.37800	
		TOTAL ANIONS		82.37762

CATIONS	RESULT	FACTOR	TOTAL	
CALCIUM	556.000	0.04990	27.7444	
POTASSIUM	7.700	0.02558	0.19697	
MAGNESIUM	57.300	0.08229	4.71522	
SODIUM	1210.000	0.04350	52.63500	
COPPER	NA	0.03147	0.00000	
IRON	NA	0.05372	0.00000	
MANGANESE	NA	0.03640	0.00000	
ZINC	NA	0.03059	0.00000	
		TOTAL CATIONS		85.29158
		%RPD (<10%)		-3.48
TOTAL ANIONS/CATIONS		5367		
TOTAL DISSOLVED SOLIDS		5800	%RPD (<15%)	-7.76
ELECTRICAL COND.		6460	TDS/EC RATIO (0.65+/-0.1)	0.89783

Analytical **Technologies,** Inc.

DATE: 01-09-95

ION BALANCE

ATI ACCESSION NUMBER: 41240705
SAMPLE IDENTIFICATION: 941634 MW - 30
CLIENT: EL PASO NATUAL GAS CO.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL	
ALKALINITY (AS CACO3)	667.000	0.02000	13.34000	
CHLORIDE	86.000	0.02821	2.42606	
FLUORIDE	0.400	0.05264	0.02106	
NITRATE AS N	77.000	0.01613	5.50210	
SULFATE	3100.000	0.02082	64.54200	
		TOTAL ANIONS		85.83122

CATIONS	RESULT	FACTOR	TOTAL	
CALCIUM	603.000	0.04990	30.0897	
POTASSIUM	6.000	0.02558	0.15348	
MAGNESIUM	57.000	0.08229	4.69053	
SODIUM	1230.000	0.04350	53.50500	
COPPER	NA	0.03147	0.00000	
IRON	NA	0.05372	0.00000	
MANGANESE	NA	0.03640	0.00000	
ZINC	NA	0.03059	0.00000	
		TOTAL CATIONS		88.43871
		%RPD (<10%)		-2.99
TOTAL ANIONS/CATIONS		5560		
TOTAL DISSOLVED SOLIDS		6000	%RPD (<15%)	-7.62
ELECTRICAL COND.		6160	TDS/EC RATIO (0.65+/-0.1)	0.97403

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies Inc.
Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407
Lab Sample ID: 94-12-257-01

Sample Matrix: Water
Cleanup: N/A

Sample ID: 941630 — Monitor Well W-6

Date Collected: 12/20/94
Date Extracted: 12/27/94
Date Analyzed: 01/04/95

Sample Volume: 1000 mL
Final Volume: 10 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)	Qualifiers
Naphthalene	ND	3.0	
Acenaphthylene	ND	3.0	
Acenaphthene	ND	5.0	
Fluorene	6.0	0.40	X4A
Phenanthrene	4.4	0.30	
Anthracene	ND	0.10	
Fluoranthene	ND	0.30	
Pyrene	ND	0.40	
Benzo(a)anthracene	1.1	0.10	X4A
Chrysene	0.92	0.20	X4A
Benzo(b)fluoranthene	ND	0.10	
Benzo(k)fluoranthene	0.44	0.10	X4A
Benzo(a)pyrene	ND	0.10	
Dibenzo(a,h)anthracene	ND	0.30	
Benzo(g,h,i)perylene	ND	0.40	
Indeno(1,2,3,c,d)pyrene	ND	0.30	
1-Methylnaphthalene	ND	3.0	
2-Methylnaphthalene	ND	3.0	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	85	34 - 120

ND - Not Detected

No WQCC Limit exceeded.

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies Inc.
Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407
Lab Sample ID: 94-12-257-02

Sample Matrix: Water
Cleanup: N/A

Sample ID: 941631

Monitor Well W-6 Field Dup

Date Collected: 12/20/94
Date Extracted: 12/27/94
Date Analyzed: 01/05/95

Sample Volume: 1000 mL
Final Volume: 10 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)	
Naphthalene	ND	3.0	
Acenaphthylene	ND	3.0	
Acenaphthene	ND	5.0	
Fluorene	7.5	0.40	RPD = 22%
Phenanthrene	ND	0.30	RPD = 100%
Anthracene	ND	0.10	
Fluoranthene	ND	0.30	
Pyrene	ND	0.40	
Benzo(a)anthracene	1.5	0.10	RPD = 31%
Chrysene	1.5	0.20	RPD = 48%
Benzo(b)fluoranthene	ND	0.10	
Benzo(k)fluoranthene	0.57	0.10	RPD = 26%
Benzo(a)pyrene	ND	0.10	
Dibenzo(a,h)anthracene	ND	0.30	
Benzo(g,h,i)perylene	ND	0.40	
Indeno(1,2,3,c,d)pyrene	ND	0.30	
1-Methylnaphthalene	ND	3.0	
2-Methylnaphthalene	ND	3.0	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	87	34 - 120

ND - Not Detected

Relative % Differences slightly high in some cases. +/- 35% = Acceptable Limit. Sample Data is qualified as Y+a Analyte concentrations at method PQL.

1-19-95

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies Inc.
Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407
Lab Sample ID: 94-12-257-03

Sample Matrix: Water
Cleanup: N/A

Sample ID: 941632

Monitor Well MW-28

Date Collected: 12/20/94
Date Extracted: 12/27/94
Date Analyzed: 01/05/95

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)	Qualifiers
Naphthalene	ND	0.30	
Acenaphthylene	ND	0.30	
Acenaphthene	ND	0.50	
Fluorene	ND	0.040	
Phenanthrene	0.045	0.030	X4A
Anthracene	ND	0.010	
Fluoranthene	ND	0.030	
Pyrene	ND	0.040	
Benzo(a)anthracene	ND	0.010	
Chrysene	ND	0.020	
Benzo(b)fluoranthene	ND	0.010	
Benzo(k)fluoranthene	ND	0.010	
Benzo(a)pyrene	ND	0.010	
Dibenzo(a,h)anthracene	ND	0.030	
Benzo(g,h,i)perylene	ND	0.040	
Indeno(1,2,3,c,d)pyrene	ND	0.030	
1-Methylnaphthalene	ND	0.30	
2-Methylnaphthalene	ND	0.30	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	56	34 - 120

ND - Not Detected

No WQCC limit exceeded.

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies Inc.
Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407
Lab Sample ID: 94-12-257-04

Sample Matrix: Water
Cleanup: N/A

Sample ID: 941633

Monitor Well MW-29

Date Collected: 12/20/94
Date Extracted: 12/27/94
Date Analyzed: 01/05/95

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	ND	0.030
Anthracene	ND	0.010
Fluoranthene	ND	0.030
Pyrene	ND	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	ND	0.30

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	53	34 - 120

ND - Not Detected

No WQCC Limits exceeded.

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies Inc.
Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407
Lab Sample ID: 94-12-257-05

Sample Matrix: Water
Cleanup: N/A

Sample ID: 941634

Monitor Well MW-30

Date Collected: 12/20/94
Date Extracted: 12/27/94
Date Analyzed: 01/05/95

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	ND	0.030
Anthracene	ND	0.010
Fluoranthene	ND	0.030
Pyrene	ND	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	ND	0.30

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	57	34 - 120

ND - Not Detected

No wQcc Limits exceeded.

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Lab Name: Analytical Technologies Inc.
Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407
Lab Sample ID: WRB1 12/27/94

Sample Matrix: Water
Cleanup: N/A

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 12/27/94
Date Analyzed: 01/05/95

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.30
Acenaphthylene	ND	0.30
Acenaphthene	ND	0.50
Fluorene	ND	0.040
Phenanthrene	ND	0.030
Anthracene	ND	0.010
Fluoranthene	ND	0.030
Pyrene	ND	0.040
Benzo(a)anthracene	ND	0.010
Chrysene	ND	0.020
Benzo(b)fluoranthene	ND	0.010
Benzo(k)fluoranthene	ND	0.010
Benzo(a)pyrene	ND	0.010
Dibenzo(a,h)anthracene	ND	0.030
Benzo(g,h,i)perylene	ND	0.040
Indeno(1,2,3,c,d)pyrene	ND	0.030
1-Methylnaphthalene	ND	0.30
2-Methylnaphthalene	ND	0.30

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	59	34 - 120

ND - Not Detected

Acceptable
1-19-95

Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBON BLANK SPIKE

Method 8310

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM
Client Project ID: Blanco PCT MW -- 412407

Sample Matrix: Water

Lab Sample ID: WBS1,2 12/27/94
Date Extracted: 12/27/94
Date Analyzed: 01/05/95

Instrument ID: HPLC

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	6.60	66	36-113
Phenanthrene	0.500	0.465	93	30-114
Pyrene	0.500	0.221	44	43-108
Dibenzo(a,h)anthracene	1.00	0.788	79	42-111
Benzo(k)fluoranthene	0.500	0.340	68	35-104

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10.0	6.80	68	3	20
Phenanthrene	0.500	0.472	94	1	20
Pyrene	0.500	0.229	46	3	20
Dibenzo(a,h)anthracene	1.00	0.762	76	3	20
Benzo(k)fluoranthene	0.500	0.334	67	2	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery (BS)	% Recovery (BSD)	% Rec Limits
2-Chloroanthracene	79	78	34 - 120

Acceptable.
1-19-95

AnalyticalTechnologies,Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 12-20-94 PAGE 1 OF 1

ATI LAB I.D. 412407

PROJECT MANAGER: JOHN LAMBDIN

COMPANY: EL PASO NATURAL GAS CO.
ADDRESS: P.O. BOX 4990
FARMINGTON N.M. 87499
PHONE: 505-599-2144
FAX: 505-599-2261

BILL TO: SAME AS ABOVE
COMPANY:
ADDRESS:

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1); (MOD 8015) Gas/Diesel; Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020); BTXE/MTBE (8020); Chlorinated Hydrocarbons (601/8010); Aromatic Hydrocarbons (602/8020); SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.; 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); MAJOR CATIONS Ca, Mg, Na, K; MAJOR ANIONS ALK, COND, TDS, F, Cl, NO3, SO4; SDWA Primary Standards - Arizona; SDWA Secondary Standards - Arizona; SDWA Primary Standards - Federal; SDWA Secondary Standards - Federal; The 13 Priority Pollutant Metals; RCRA Metals by Total Digestion; RCRA Metals by TCLP (1311); NUMBER OF CONTAINERS

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Polynuclear Aromatics (610/8310)	MAJOR CATIONS	MAJOR ANIONS	RCRA Metals by Total Digestion	NUMBER OF CONTAINERS
941630	12-20-94	1130	WATER	-01	X	X	X	X	5
941631	12-20-94	1130	WATER	-02	X	X	X	X	5
941632	12-20-94	1410	WATER	-03	X	X	X	X	5
941633	12-20-94	1430	WATER	-04	X	X	X	X	5
941634	12-20-94	1445	WATER	-05	X	X	X	X	5

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: BLANCO PLT. MW.
P.O. NO.:
SHIPPED VIA: FED-EX

SAMPLE RECEIPT

NO. CONTAINERS	25
CUSTODY SEALS	Y / N / (NA)
RECEIVED INTACT	Y
RECEIVED COLD	✓ 4°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments: CHARGE TO 95801107-0007-0113
HM
2 COOLERS BOTH @ 2-4°C

SAMPLED & RELINQUISHED BY: 1.

Signature: Dennis Bird Time: 1815
Printed Name: DENNIS BIRD Date: 12-20-94
Company: EL PASO NATURAL GAS Phone: [illegible]

RELINQUISHED BY: 2.

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 3.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 1.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 2.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 3.

Signature: [signature] Time: 0935a
Printed Name: H.M. [illegible] Date: 12/22/94
Analytical Technologies, Inc.

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

Analytical**Technologies,**Inc. Albuquerque, NM

Chain of Custody

DATE 12/22 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI

COMPANY: **Analytical Technologies, Inc.**

ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:
~~Letitia Krak~~

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	610/8310	NUMBER OF CONTAINERS
412407-01	12/20	11:30	AQ	01	X	2
412407-02		11:30		02	X	2
412407-03		14:10		03	X	2
412407-04		14:30		04	X	2
412407-05		14:45		05	X	2

TOX, TOC, ORGANIC LEAD, SULFIDE, SURFACTANTS (MBAS), 632/632 MOD, 619/619 MOD, 8240 (TCLP 1311) ZHE, Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020), Volatile Organics GC/MS (624/8240), NACE, ASBESTOS, BOD, TOTAL COLIFORM, FECAL COLIFORM, GROSS ALPHA/BETA, RADIUM 226/228, AIR - O2, CO2, METHANE, AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)

PROJECT INFORMATION

PROJECT NUMBER: N/A
PROJECT NAME: Blanco PCT MW
QC LEVEL: (STD.) IV
QC REQUIRED: (MS) (MSD) (BLANK)
TAT: (STANDARD) RUSH!

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	10
CHAIN OF CUSTODY SEALS	NA
INTACT?	NA
RECEIVED GOOD COND/(COLD)	Y
LAB NUMBER	

DUE DATE: 1/11
RUSH SURCHARGE: 0
CLIENT DISCOUNT: 15 %

SAMPLES SENT TO:
SAN DIEGO
FT. COLLINS X
RENTON
PENSACOLA
PORTLAND
PHOENIX
FIBERQUANT

RELINQUISHED BY: 1.
Signature: [signature] Time: 15:15
Printed Name: HM Rubenstein Date 12/22
Analytical Technologies, Inc.
Albuquerque

RECEIVED BY: (LAB) 1.
Signature: Time:
Printed Name: Date:
Company: FED-X

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date
Company: FED-X

RECEIVED BY: (LAB) 2.
Signature: Time: 11:30
Printed Name: Date:
L Kelly 12-23-94
Company: ATI

2 COOLERS

Analytical**Technologies,**Inc. Albuquerque, NM

Chain of Custody

DATE 12/22 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI

COMPANY: **Analytical Technologies, Inc.**

ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:
JOHN LAMBDIN

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
412407 - 01	12/20	11:30	AQ	1
412407 - 02		11:30		2
412407 - 03		14:10		3
412407 - 04		14:30		4
412407 - 05		14:45		5

ANALYSIS REQUEST

TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	602/8020 MOD	619/8015 MOD	610/8310	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	Cations	NACE	ASBESTOS	Anions	BOD	TOTAL COLIFORM	FECAL COLIFORM	8 RCRA metals	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
											X			X				X					3
											X			X				X					
											X			X				X					
											X			X				X					3
											X			X				X					

PROJECT INFORMATION

PROJECT NUMBER: N/A
PROJECT NAME: BLANCO
QC LEVEL: (STD.) IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSH!

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	15
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	
LAB NUMBER	412407

DUE DATE: 1/11
RUSH SURCHARGE: N/A
CLIENT DISCOUNT: 15 %

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	X
FIBERQUANT	

RELINQUISHED BY: 1.
Signature: [signature] Time: 15:30
Printed Name: HM Rubenstein Date 12/22
Analytical Technologies, Inc. Albuquerque

RECEIVED BY: (LAB) 1.
Signature: Time:
Printed Name: Date:
Company:

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

RECEIVED BY: (LAB) 2.
Signature: Rosella Vidal 1158 Time:
Printed Name: Rosella Vidal Date 12/23/94
Company: ATI

EL PASO NATURAL GAS COMPANY
FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: 941630

SAMPLE DATE: 20-Dec-94
SAMPLE TIME (Hrs.): 1130
SAMPLED BY: Dennis Bird
LOCATION: Blanco Plant
SAMPLE SITE: Monitor Well W-6
SAMPLE POINT: Casing
DATE OF ANALYSIS: 12-Dec-94

REMARKS: Some late eluting hydrocarbons were observed in the chromatograph scan.

RESULTS

PARAMETER	BTEX Units PPB (ug/L)	QUALIFIER	COMMENTS
BENZENE	<2.5		
TOLUENE	<2.5		
ETHYL BENZENE	<2.5		
TOTAL XYLENES	<7.5		
Surrogate % Recovery	126	See Note	80 % to 120 % is Considered Acceptable.

NOTE:
Interference of late eluting hydrocarbon with the BFB produced the high % Recovery.

EL PASO NATURAL GAS COMPANY
FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: 941631

SAMPLE DATE: 20-Dec-94
SAMPLE TIME (Hrs.): 1130
SAMPLED BY: Dennis Bird
LOCATION: Blanco Plant
SAMPLE SITE: Monitor Well W-6 - Field duplicate
SAMPLE POINT: Casing
DATE OF ANALYSIS: 12-Dec-94

REMARKS: Some late eluting hydrocarbons were observed in the chromatograph scan. Field Duplicate for QA/QC.

RESULTS

PARAMETER	BTEX Units PPB (ug/L)	QUALIFIER	COMMENTS
BENZENE	<2.5		
TOLUENE	<2.5		
ETHYL BENZENE	<2.5		
TOTAL XYLENES	<7.5		
Surrogate % Recovery	96		

EL PASO NATURAL GAS COMPANY
FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: 941632

SAMPLE DATE: 20-Dec-94
SAMPLE TIME (Hrs.): 1410
SAMPLED BY: Dennis Bird
LOCATION: Blanco Plant
SAMPLE SITE: Monitor Well MW-28
SAMPLE POINT: Casing
DATE OF ANALYSIS: 12-Dec-94

REMARKS:

RESULTS

PARAMETER	BTEX Units PPB (ug/L)	QUALIFIER	COMMENTS
BENZENE	<2.5		
TOLUENE	<2.5		
ETHYL BENZENE	<2.5		
TOTAL XYLENES	<7.5		
Surrogate % Recovery	96	Acceptable	

EL PASO NATURAL GAS COMPANY
FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: 941633

SAMPLE DATE: 20-Dec-94
SAMPLE TIME (Hrs.): 1430
SAMPLED BY: Dennis Bird
LOCATION: Blanco Plant
SAMPLE SITE: Monitor Well MW-29
SAMPLE POINT: Casing
DATE OF ANALYSIS: 12-Dec-94

REMARKS:

RESULTS

PARAMETER	BTEX Units PPB (ug/L)	QUALIFIER	COMMENTS
BENZENE	<2.5		
TOLUENE	<2.5		
ETHYL BENZENE	<2.5		
TOTAL XYLENES	<7.5		
Surrogate % Recovery	95	Acceptable	

EL PASO NATURAL GAS COMPANY
FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: 941634

SAMPLE DATE: 20-Dec-94
SAMPLE TIME (Hrs.): 1445
SAMPLED BY: Dennis Bird
LOCATION: Blanco Plant
SAMPLE SITE: Monitor Well MW-30
SAMPLE POINT: Casing
DATE OF ANALYSIS: 12-Dec-94

REMARKS:

RESULTS

PARAMETER	BTEX Units PPB (ug/L)	QUALIFIER	COMMENTS
BENZENE	<2.5		
TOLUENE	<2.5		
ETHYL BENZENE	<2.5		
TOTAL XYLENES	<7.5		
Surrogate % Recovery	93	Acceptable	

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Total No. of Containers	Chain of Custody Seals	Intact?	Requested Analysis					Contract Laboratory
	BLANCO PLANT									EL PASO NATURAL GAS CO.
Samplers: (Signature)	Date / Receiving Temp. (°F)									770 WEST NAVAJO
Dennis Bird	12-20-94									FARMINGTON N.M. 87401

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Composite or Grab	See Attached	BTXE			Remarks
	12-20-94	1130	WATER	941630	2			G		X			MONITOR WELL W-6
	12-20-94	1130	WATER	941631	2			G		X			MONITOR WELL W-6 FIELD DUP
	12-20-94	1410	WATER	941632	2			G		X			MONITOR WELL MW-28
	12-20-94	1430	WATER	941633	2			G		X			MONITOR WELL MW-29
	12-20-94	1445	WATER	941634	2			G		X			MONITOR WELL MW-30

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis P. Bird	12/20/94 1730				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
		Richard Dawson	12/21/94 1736		
Results & Invoices to::		Charge Code		Date Results Reported / by: (Signature)	

WHITE-Testing Laboratory YELLOW-EPNG Lab PINK-Field Sampler

san juan repro Form 71-65

EL PASO NATURAL GAS - FIELD SERVICES LAB

QUALITY CONTROL REPORT

EPA METHOD 8020 - BTEX

Samples: 941619, 941620, 941622, and 941630 through 941634

QA/QC for 12/21/94 Sample Set

LABORATORY CALIBRATION CHECKS, LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER ICV LA-41626 25 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	RANGE	ACCEPTABLE YES	ACCEPTABLE NO
Benzene	Standard	25.0	23.5	94.0	75 - 125 %	X	
Toluene	Standard	25.0	24.1	96.4	75 - 125 %	X	
Ethyl benzene	Standard	25.0	24.7	98.8	75 - 125 %	X	
Total Xylenes	Standard	75.0	77.8	103.7	75 - 125 %	X	
SAMPLE NUMBER LCS DB-00050 25 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**RANGE**	**ACCEPTABLE YES**	**ACCEPTABLE NO**
Benzene	Standard	25.0	23.9	95.6	39 - 150	X	
Toluene	Standard	25.0	24.0	96.0	46 - 148	X	
Ethyl benzene	Standard	25.0	25.4	101.6	32 - 160	X	
Total Xylenes	Standard	75.0	97.7	130.3	Not Given	X	
SAMPLE NUMBER CCV LA-41626 25 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**RANGE**	**ACCEPTABLE YES**	**ACCEPTABLE NO**
Benzene	Standard	25.0	24.3	97.2	75 - 125 %	X	
Toluene	Standard	25.0	24.4	97.6	75 - 125 %	X	
Ethyl benzene	Standard	25.0	24.8	99.2	75 - 125 %	X	
Total Xylenes	Standard	75.0	75.3	100.4	75 - 125 %	X	

Narrative: Acceptable. Excessive o-xylene concentration in LCS due to co-elution with unknown compound.

LABORATORY DUPLICATES:

SAMPLE NUMBER 941630	TYPE (Analysis, Portion, or Sample)	SAMPLE RESULT PPB (mg/L)	DUPLICATE RESULT PPB (mg/L)	RPD	RANGE	ACCEPTABLE YES	ACCEPTABLE NO
Benzene	2nd Portion	<5.00	<5.00	0	+/- 35 %	X	
Toluene	2nd Portion	<5.00	<5.00	0	+/- 35 %	X	
Ethyl benzene	2nd Portion	<5.00	<5.00	0	+/- 35 %	X	
Total Xylenes	2nd Portion	<15.00	<15.00	0	+/- 35 %	X	

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE NUMBER 941630 @ 25 ppb	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	RANGE	ACCEPTABLE YES	ACCEPTABLE NO
Benzene	25.0	0.0	24.3	97	75 - 125 %	X	
Toluene	25.0	0.0	24.0	96	75 - 125 %	X	
Ethyl benzene	25.0	0.0	24.1	96	75 - 125 %	X	
Total Xylenes	75.0	0.0	74.4	99	75 - 125 %	X	

Narrative: Acceptable.

ADDITIONAL ANALYTICAL BLANKS:

SAMPLE ID AUTO BLANK	SOURCE	PPB	STATUS
Benzene	Boiled Water	<2.5	ACCEPTABLE
Toluene	Boiled Water	<2.5	ACCEPTABLE
Ethyl benzene	Boiled Water	<2.5	ACCEPTABLE
Total Xylenes	Boiled Water	<7.5	ACCEPTABLE

Narrative: Acceptable

SAMPLE ID SOIL VIAL BLANK	SOURCE	PPB	STATUS
Benzene	Vial + Boiled Water	<2.5	ACCEPTABLE
Toluene	Vial + Boiled Water	<2.5	ACCEPTABLE
Ethyl benzene	Vial + Boiled Water	<2.5	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<7.5	ACCEPTABLE

Narrative: Acceptable.

SAMPLE ID EXTRACTION BLANK	SOURCE	PPB (In 200 uL shot)	STATUS
Benzene	Methanol	N/A	ACCEPTABLE
Toluene	Methanol	N/A	ACCEPTABLE
Ethyl benzene	Methanol	N/A	ACCEPTABLE
Total Xylenes	Methanol	N/A	ACCEPTABLE

Narrative: Acceptable. Toluene does not appear in following samples.

SAMPLE ID Carryover contamination checks	SOURCE	NARRATIVE	STATUS
1/7	Vial + Boiled Water	All analytical compounds <2.5 ppb	ACCEPTABLE
3/7	Vial + Boiled Water	All analytical compounds <2.5 ppb	ACCEPTABLE
5/7	Vial + Boiled Water	All analytical compounds <2.5 ppb	ACCEPTABLE
6/7	Vial + Boiled Water	All analytical compounds <2.5 ppb	ACCEPTABLE

REAGENT BLANKS:

SAMPLE ID BOILED WATER CHECK	SOURCE 12/13/94	PPB	STATUS
Benzene	Boiled Water	<2.5	ACCEPTABLE
Toluene	Boiled Water	<2.5	ACCEPTABLE
Ethyl benzene	Boiled Water	<2.5	ACCEPTABLE
Total Xylenes	Boiled Water	<7.5	ACCEPTABLE

Narrative: Acceptable

SAMPLE ID METHANOL CHECK	SOURCE 12/13/94	PPB	STATUS
Benzene	MeOH/Boiled Water	<2.5	ACCEPTABLE
Toluene	MeOH/Boiled Water	<2.5	ACCEPTABLE
Ethyl benzene	MeOH/Boiled Water	<2.5	ACCEPTABLE
Total Xylenes	MeOH/Boiled Water	<7.5	ACCEPTABLE

Narrative: Acceptable

Approved By: John Fowler 12/27/94 Date: 26-Dec-94

El Paso Natural Gas Company

MEMORANDUM

To: John Lambdin

Date: December 21, 1994

From: Dennis Bird

Place: Field Services
Engineering-Lab

Subject: Blanco Plant Monitor Wells

On Tuesday, December 20, 1994, Richard Benson and I went to Blanco Plant to sample the monitor wells near the old south flare pit. The following analytical parameters are to be performed on these groundwater samples: BTXE, General Chemistry, RCRA Metals by Total Digestion, Nitrate as NO3-N, and Polynuclear Aromatics. The samples were assigned the laboratory numbers 941630 to 941634. The Field Services Laboratory will be analyzing for BTXE. The samples for General Chemistry, RCRA Metals by Total Digestion, Nitrate as NO3-N and Polynuclear Aromatics was sent to Analytical Technologies in Albuquerque N.M. for analysis. A field duplicate was collected on Monitor Well W-06.

The following information was collected on each well.

Monitor Well #	Pipe ID	Static Level	Total Depth	Gallons Bailed
W-06	4"	26.55'	31.8'	15.0
MW-28	4"	24.70'	33.6'	25.0
MW-29	4"	27.60'	37.5'	10.5
MW-30	4"	27.15'	36.8'	20.0

Monitor Well W-06 had a light hydrocarbon smell.

All samples were stored on ice immediately after collection. The static level and total depth was measured from the top of the pipe. All bailing and sampling was done with disposable, one time use equipment and bottles.

Should you have any question or comments, please let me know.

Dennis P. Bird

cc: Nancy Prince
David Bays

EL PASO NATURAL GAS COMPANY

BLANCO PLANT DISCHARGE PLAN

SEPTEMBER 1994

Prepared for:

NEW MEXICO OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87501

El Paso Natural Gas Company
100 N. Stanton
El Paso, Texas 79901
(915) 541-2600

AFFIRMATION:

"I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true, accurate and complete to the best of my knowledge and belief."

David Bays — Feb. 7, 1995

David Bays,
Sr. Environmental Scientist

Date

TABLE OF CONTENTS

Title		Page
	EXECUTIVE SUMMARY	1
I	TYPE OF OPERATION	2
II	OPERATOR / LEGALLY RESPONSIBLE PARTY	2
III	LOCATION OF DISCHARGE	3
IV	LANDOWNER	3
V	FACILITY DESCRIPTION	4
VI	SOURCES AND QUANTITIES OF EFFLUENT AND WASTE SOLIDS	4
	COMPRESSORS AND TURBINES	4
	A. Inlet Air Filters	4
	B. Floor Drains	4
	C. "A" Plant distance Piece Drains, Scavenging Air System Drains, and Crankcase Drains	5
	D. Lubricating Oil Waste Oil, and Used Oil Filters	5
	E. Compressor and Boiler Fuel Gas Scrubbers	6
	F. Engine Cooling Water	6
	G. Scrubbers	6
	H. North Separator	8
	I. Product Line Relief Valves	8
	J. Header Piping	8
	K. "C" Plant gas Coolers	8
	INDUSTRIAL WATER SYSTEM	9
	A. Closed System Cooling Water	9
	B. Open System Cooling Water	9
	C. Boiler Feed Water and Boilers	10
	DOMESTIC SEWAGE	10
	SKIMMER BASIN / COMMINGLED WASTE STREAMS	11
	STORM WATER MANAGEMENT	11

LIST OF TABS

Tab A	Correspondence between EPNG and NMOCD Related to the 1992 Modification of Discharge Plan GW-49
Tab B	Blanco Plant Block Gas Flow Diagram
Tab C	Blanco Plant Location Map
Tab D	Blanco Plant Plot Plan
Tab E	Wastewater Flow Diagram
Tab F	Flare System Flow Diagram
Tab G	Material Safety Data Sheets
Tab H	Wastewater Analyses
Tab I	Agreement with City of Bloomfield POTW

EXECUTIVE SUMMARY

El Paso Natural Gas Company (EPNG), P.O. Box 4990, Farmington, New Mexico, 87499 discharges approximately 44,000,000 gallons of wastewater per year. The wastewater is generated at the EPNG Blanco Plant ("Blanco Plant") which is located in Section 14, T29N, R11W, San Juan county, near Bloomfield, New Mexico. More than 90% of the wastewater is blowdown from the plant's cooling towers, boilers and water treatment facility (non-contact wastewater). Non-contact wastewater has a TDS of less than 2,000 mg/l and contains no toxic hydrocarbon contaminants. Wastewater which comes into contact with hydrocarbons during natural gas processing (contact wastewater) passes through an oil-water separator and then is commingled with non-contact wastewater and discharged to the City of Bloomfield publicly owned treatment works ("Bloomfield POTW"). Separated oil and hydrocarbons are sold. EPNG intends to continue to discharge its Blanco Plant wastewater to the Bloomfield POTW.

On August 21, 1989, the New Mexico Oil Conservation Commission approved ground water discharge plan number GW-49 for the Blanco Plant. Several modifications to the plant have been carried out since then. During 1991, the entire underground wastewater drain system was replaced with new pipe and pressure tested to a pressure of 60 psi for 4 hours. On December 11, 1992 EPNG submitted an application modify the discharge plan. The proposed changes were approval on March 4, 1993. Copies of that correspondence are attached at Tab A.

The most recent modification to the wastewater management system was completed December 22, 1994. As approved by NMOCD on November 10, 1994, a new concrete sump with secondary containment was constructed to collect the boiler blowdown water. The earthen pond previously used for boiler blowdown is no longer in service, and will be sampled and closed as soon as the soil is dry enough to safely allow sample collection.

Groundwater which may be affected by operations at Blanco Plant is at a depth of 14 to 39 feet and is assumed to be a potable water supply. Groundwater sampling was requested by the New Mexico Environment Department (NMED) in 1988. Bechtel Environmental, Inc. ("Bechtel") was contracted to conduct a groundwater investigation. After analysis of samples from waste disposal ponds, soils from borings into the saturated zone, and water from 6 monitoring wells, Bechtel concluded that operations at the Blanco Plant had not caused any significant contamination of soil or groundwater. The results of that investigation were transmitted to NMED in December 1988.

EPNG is wholly committed to carrying out sound disposal practices and to this end submits this plan outlining the proposed procedures. Likewise, EPNG is committed to cooperating fully with NMOCD in honoring requests for additional information of providing clarification of existing information related to the Discharge Plan.

This Discharge Plan has been prepared in accordance with Oil Conservation Division "Guidelines for the Preparation of Groundwater Discharge Plans at Natural Gas Processing Plants".

I. TYPE OF OPERATION

The EPNG Blanco Plant is engaged in the compression of natural gas. The Blanco Plant receives approximately 25 MMCF/day dry gas for compression from Ignacio Dry Gas Field which is combined with approximately 525 MMCF/day from Meridian Oil. The gas is compressed and discharged into natural gas transmission lines.

Approximately 530 MMCF/day to 550 MMCF/day field gas is scrubbed and compressed for Conoco. This natural gas is obtained from three formation fields: Dakota, Mesa Verde and Picture Cliff. Following compression by EPNG and processing by Conoco, the gas then enters EPNG's pipelines for transmission to market.

Gas inlet streams are processed to some extent to:

* Remove free liquids with inlet scrubbers
* Compress the gas for introduction into transmission pipelines

The total average gas inlet flow is 1,100 MMCF/day, 550 MMCF/day from Ingacio and Meridian, and 550 MMCF/day from gathering system of which approximately 12 MMCF/day is consumed on-site as fuel. Tab B provides a block diagram of the natural gas flow through the process.

II. OPERATOR/LEGALLY RESPONSIBLE PARTY

Legally Responsible Party: Mr. Hugh A. Shaffer
Vice President, Operations and Engineering
El Paso Field Services
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978
(915) 541-5050

Local Representative:

Ms. Sandra D. Miller
Superintendent, Environmental Compliance
El Paso Field Services
El Paso Natural Gas Company
P. O. Box 4990
Farmington, NM 87499
(505) 599-2141

EPNG requests that copies of correspondence also be sent to:

Dr. Henry Van
Manager, EAD Environmental Engineering
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978
(915) 541-2832

III. LOCATION OF DISCHARGE

As identified in the 1988 Discharge Plan, the Blanco Plant is located in Section 14, T29N, R11W, San Juan County, New Mexico, approximately 13 miles east of Farmington, New Mexico and 1-1/2 miles east of Bloomfield, New Mexico. An access road from Highway 44 provides access to the plant. An area map showing the plant location is included at Tab C.

IV. LANDOWNER

El Paso Natural Gas Company owns the Blanco Plant property. The BLM owns land north of Blanco Plant.

North Area Landowner:

Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401
Attn: Mr. Mike Pool

V. FACILITY DESCRIPTION

A plot plan of the facility indicating the facility boundary, and the location of fences, pits, berms, and tanks on the facility is attached in Tab D. The diagram depicts the locations of storage facilities, disposal facilities, processing facilities, and other relevant areas.

VI. SOURCES AND QUANTITIES OF EFFLUENT & WASTE SOLIDS

COMPRESSORS AND TURBINES

There are (14) Cooper-Bessemer GMV-10TF Compressor in "A" Plant, (2) General Electric Frame 5 Turbines in "C" Plant, and (1) General Electric Frame 5 Turbine in "D" Plant. The following waste streams are associated with the compressor operation.

A. Inlet Air Filters

The inlet combustion air is filtered with paper type filter elements. Approximately 145 filter elements are generated each year. The filter elements are placed in a solid waste dumpster owned by Waste Management of Four Corners, Inc. ("WMI"). WMI transports the solid waste to the Crouch Mesa Municipal Landfill ("Crouch Mesa").

B. Floor Drains

The floor drains from "A", "C", and "D" Plants discharge into a contact wastewater line which discharges into the skimmer basin. A flow diagram of the contact and non-contact wastewater systems is attached at Tab E. The contact wastewater lines contain a mixture of hydrocarbons and water. The skimmer basin is described on Page 10. A non-toxic, biodegradable cleaner is used to clean the compressor and turbine units.

The "A" Plant compressors are washed down on a regular basis. In addition to washdown water, the basement sump collects oil or water leaks from the compressors. Approximately 10 gallons per day ("gpd") of wastewater is discharged into the contact wastewater line.

The "C" Turbine auxiliary drain collects washdown water mixed with oil and water leaks. Approximately 1/4 gallon per day of wastewater is discharged into the contact wastewater line.

The "D" Turbine floor drain collects washdown water mixed with oil and water leaks. Approximately 1/4 gallon per day of wastewater is discharged into the contact wastewater line.

C. "A" Plant Distance Piece Drains, Scavenging Air System Drains and Crankcase Drains

Distance piece drains and scavenging air system drains are tied into a common header and discharged into a concrete waste oil sump. The drains discharge into a 1,350 gallon steel tank as indicated on the wastewater flow diagram at Tab E. The tank is set inside a below grade concrete sump which serves as secondary containment and leak detection. Approximately 8 gpd of a mixture of hydrocarbons and water discharge into the steel tank. Liquids from the tank are then collected for recycling.

Oil for the power cylinder and compressor cylinders is self-contained in the compressor unit. Fresh oil is added to the crankcase as the oil level requires. There are no drains from the crankcase.

D. Lubricating Oil, Waste Lubricating Oil and Used Engine Oil Filters

Lubricating Oil is stored in three 8,000 gallon aboveground steel storage tanks located southeast of the "A" compressor building (see Tab D).

Approximately 350 gallons waste lubricating oil is generated per year. During normal maintenance activities, if oil is removed from the engines, it is stored in drums and pumped back into the crankcase. Any waste oil which is generated is transferred into drums and transported offsite for recycling.

Approximately 750 compressor engine oil filters and 120 turbine and generator oil filters are replaced each year. The engine oil filters are completely drained prior to disposal. The oil drained from the filters is collected in drums and transported offsite for recycling. The filter elements are placed in the WMI solid waste dumpster. WMI transports the solid waste to Crouch Mesa.

E. Compressor and Boiler Fuel Gas Scrubbers

Normally there is no discharge from the fuel gas scrubbers because the gas does not contain free liquids. In the event liquids are collected in the scrubber, the liquids discharge into the flare line flash tank located near the southeast corner of the property. Tab F provides a flow diagram for the flare line and associated flare line liquids recovery system. The liquids from the flash tank are piped to a 5,250 gallon aboveground tank for storage. The liquids are then transported offsite for recycling.

F. Engine Cooling Water

A cooling water surge tank is located south of the "A" Compressor Plant (see Tab D). If it is necessary to drain the cooling water system for maintenance or repairs, the cooling water (water treated with boron / nitrite treatment) will be drained into the cooling water suction header or placed into drums. After maintenance and/or repairs, the cooling water will be returned to the cooling system. Pump seal leaks from the jacket and oil water system discharge into the contact wastewater system. Approximately 6 gpd of water discharges into the contact wastewater line.

G. Scrubbers

All inlet gas is passed through one or more scrubber units to remove hydrocarbons and water (see Tab B). The compressor station discharge gas to Conoco is also passed through a high pressure scrubber. The volume of liquids from the scrubbers and demisters vary depending on the quality of inlet and outlet gas.

The estimated volume of liquids from the Valverde/Meridian scrubber is 105 gpd. These liquids are piped back to Meridian. The estimated volume of liquids from the Ignacio scrubber and Conoco high pressure scrubber is 10 gpd. The estimate volume of liquids from the King Scrubbers is 120 gpd. The various scrubbers are detailed below:

- Ignacio - The liquids discharge into the flare line flash tank located near the southeast corner of the property. The liquids from the flash tank are stored in a 5,250 gallon aboveground storage tank. Liquids from the tank are transported offsite for recycling. The gas is burned in the Callidus Technologies Model BTZ-AA-6 smokeless flare (see Tab F).

The scrubber has approximately 30 filter elements that are changed annually. The filter elements are placed in the WMI solid waste dumpster. WMI transports the solid waste to Crouch Mesa.

- Valverde/Merdian - The liquids are discharged into a two inch pipeline which transports the liquids back to Meridian's Valverde Plant.

- Demisters - The liquids discharge back into the Angel Peak Recovery System. The Angel Peak Recovery System is a field gathering drip located outside of Blanco Plant. Liquids from the Angel Peak Recovery System are piped to Meridian Oil for processing. If there is an overflow to the Angel Peak System, then liquids discharge to the North Separator (see Paragraph H, below). Liquids from the North Separator are routed to a pigging liquids collection system and recycled.

- King Scrubbers - The liquids discharge into the flare line flash tank (see Tab F). The liquids from the flash tank are stored in a 5,250 gallon aboveground storage tank and then transported offsite for recycling. The gas is burned in the smokeless flare.

- Conoco High Pressure Scrubber - The liquids into the flare line flash tank (see Tab F). The liquids from the flash tank are stored in a 5,250 gallon aboveground storage tank and then transported offsite for recycling. The gas is burned in the smokeless flare.

- "D" Turbine Recycle Scrubber - The liquids discharge into the flare line flash tank (see Tab F). The liquids from the flash tank are stored in a 5,250 gallon aboveground storage tank and then transported offsite for recycling. The gas is burned in the smokeless flare.

- "A" and "B" Inlet Scrubbers - The liquids discharge into the Angel Peak Recovery System (see the Demister section, above). If there is an overflow to the Angel Peak System, then liquids discharge to the North Separator (see Paragraph H, below).

H. North Separator

The North Separator is primarily used by field operations to collect pigging liquids from pigging facilities on the gathering system. This high pressure separator is 72 inch O.D. by 22 feet 6 inches long. The liquids from the separator are piped to field condensate storage tanks, and then to Meridian Oil for processing.

I. Product Line Relief Valves

The Conoco Plant to Chaco Plant natural gas liquids line, owned by Meridian Oil, runs through the Blanco Plant. The relief valves on that product line are piped into the flare line flash tank (see Tab F). These relief valves only operate during an upset condition. Any liquids recovered from the relief valves are stored in a 5,250 gallon aboveground storage tank and then transported offsite for recycling. The gas is burned in the smokeless flare.

J. Header Piping

During an emergency shutdown (ESD) of the plant, the compressor and turbine inlet and outlet header piping discharge to the ESD vent stacks. If there is an obstruction in the ESD vent lines, the header piping can discharge through the flare line flash tank (see Tab F). In addition, during maintenance and isolation of header piping and purging, the gas is routed to the flare line flash tank. The liquids from the flash tank are stored in a 5,250 gallon aboveground storage tank for recycling. The gas is burned in the smokeless flare. Normally, there is only a very small amount of hydrocarbons and water in the inlet and outlet header piping since the majority of liquids are collected in the inlet scrubbers.

K. "C" Plant Gas Coolers

The "C" Plant coolers are backwashed daily. During the backwash, approximately 1,000 gallons of cooling tower and backwash water discharges into the non-contact wastewater line (see Tab E).

INDUSTRIAL WATER SYSTEM

Industrial water for the Blanco Plant is drawn from the San Juan River by way of the Citizens Irrigation Ditch to EPNG's Blanco Reservoir Number 2 ("reservoir"). The reservoir has an estimated holding capacity of 164 acre-feet of water. Water from the reservoir is pumped either to the raw water storage tanks (2 tanks of 400,000 gallon capacity each - see Tab D), or directly to the water treatment building.

All industrial water is treated by sand filtration through 4 verticle pressure filters. Approximately 6,000 gallons of wastewater per day is generated by backwashing the sand filter beds. This wastewater is piped into the non-contact wastewater system (see Tab E), stored in the skimmer basin, and then discharged to the Bloomfield POTW.

The filtered water is either used directly in the process, or stored in a 400,000 gallon treated water storage tank (see Tab D). Processes using industrial water are the Closed System Cooling Water, Open System Cooling Water, and the Boiler Feed Water and Boiler System.

A. Closed System Cooling Water

Closed system recirculating cooling water is used at the "A" Plant for engine jacket water and lubricating oil cooling. The cooling water is treated with sodium zeolite to remove hardness. A boron / nitrite scale conditioning treatment is then added. Losses from the cooling system through pump seal leaks are estimated to be 35 gpd. Regeneration of the water softener generates an estimated 50 gpd of wastewater. The losses from the cooling water system and the water softener wastewater are piped to the contact wastewater system (see Tab E).

B. Open System Cooling Water

There are three open recirculating cooling systems, the "C" Plant cooling tower, the "C" Plant air washer, and the boiler cooling tower.

The "C" Plant cooling tower is an open recirculating cooling tower. In order to control the build up of minerals due to evaporation, the tower has a continuous blowdown line which discharges into the non-contact wastewater system (see Tab E). The estimated volume of wastewater from the cooling tower is 89,000 gpd.

The "C" Plant air washer cleans and cools the fuel combustion air for the "C" turbines. The cooler is a "once through" evaporative cooling system. The cooling water discharges into the "C" Plant cooling tower for make up water.

The boiler cooling tower is a fin tube type cooler equipped with a once through evaporative cooling system to help cool the air which passes through the fin tubes. Since the cooling water is used only to cool the ambient air, the cooler operates only during the warm weather months. The cooling water, estimated at 10.800 gpd, is discharged into the non-contact wastewater system (see Tab E).

C. Boiler Feed Water and Boilers

The boiler feed water is treated by a steam heated evaporator to remove minerals. The evaporator is periodically blown down to remove the minerals removed from the feed water. This blowdown, estimated to be 1,000 gpd, is directed into the non-contact wastewater system (see Tab E). It is piped first to the concrete cooling sump, then to the skimmer basin. From the skimmer basin it is discharged to the Bloomfield POTW.

There are 2 direct fired, natural gas fueled boilers and 2 waste heat boilers at the Blanco Plant. The waste heat boilers are heated by the exhaust heat from the General Electric 2 turbines in "C" Plant compressor building.

The direct fired boilers generate approximately 3,000 gpd of wastewater from the boiler blowdown. This blowdown is directed into the concrete cooling sump, and then piped to the skimmer basin for discharge to the Bloomfield POTW.

The blowdown from the waste heat boilers, estimated to be 6,000 gpd, drains into the non-contact wastewater system. It is piped to the skimmer basin and discharged to the Bloomfield POTW.

DOMESTIC SEWAGE

Domestic sewage is generated by a plant work force of 25 people. Sewage is piped directly to the Bloomfield POTW. Based on the work force, the estimated sewage discharge is 500 gpd.

SKIMMER BASIN / COMMINGLED WASTE STREAMS

The skimmer basin is made up of 2 adjacent concrete sumps. All contact wastewater drains into the oily water sump where any hydrocarbon fraction is skimmed off. The oil and/or hydrocarbon fraction is collected for recycling. The water fraction then drains into the clean water sump. The non-contact wastewater drains directly into the clean water sump, and from there all the water is discharged to the Bloomfield POTW. The total estimated wastewater volume discharged to the POTW is 119,000 gpd.

Due to algae growth in the clean water sump, it is sometimes necessary to treat the water with calcium hypochlorite. This treatment is not done routinely, but rather only when needed. Any chlorine residual is allowed to dissipate before the water is then discharged to the POTW.

STORM WATER MANAGEMENT

Located in an alluvial region, the Blanco Plant has good natural drainage. Storm water from the process area is collected in concrete-lined ditches which drain to natural, unlined channels. These channels then drain to the SPCC pond which is located along the southern plant boundary (see Tab D). This pond is used to capture and monitor the quality of stormwater leaving the processing area. In addition, it would also serve to capture any major releases from the process area. The pond is earthen diked (approximately 3 to 1 slope) with berms on two sides which are about 120 feet by about 210 feet. It is capable of capturing 2 feet of water at the deep end. The pond has two discharge sluice valves which are kept closed, so there is no discharge from the SPCC pond except in cases of very heavy precipitation.

VII. TRANSFER & STORAGE OF PROCESS FLUIDS & EFFLUENTS

A. Summary Information

Source	Onsite Collection
Inlet Air Filters	WMI Dumpster
Basement Sump	Contact Wastewater Line
Distance Piece Drains and Scavenging Air System Drains	1,350 gallon steel tank
New Lubricating Oil	(3) 8.000 gallon steel tanks
Used Lubricating Oil	Collected in drums and transported to the EPNG recycling facility.
Used Engine Oil Filters	Hot drained and placed in WMI special waste dumpster
Fuel Gas Scrubber Liquids	5,250 gallon aboveground storage tank associated with flare system
Engine Cooling Water	Contact Wastewater Line
Ignacio Scrubber	5,250 gallon aboveground storage tank associated south flare system
Valverde/Meridian Scrubbers	Meridian wastewater line
Demisters	Angel Peak Recovery System (field drip)
Conoco High Pressure Scrubber	5,250 gallon aboveground storage tank associated with south flare system

B. Waste System Piping

All piping associated with the scrubbers and demisters is below ground. When in service, the gas piping, which discharges into the flare system flash tank, is pressurized to a maximum of 500 psig. All other wastewater piping associated with the compressor and turbines operates at atmospheric pressure. The wastewater piping is all below ground and gravity drains to the skimmer basin.

All of the underground contact and non-contact wastewater lines were replaced in 1991. At the time they were installed, all the lines were hydrostatically tested at a minimum of sixty pounds for a minimum of four hours. The drain system will be re-tested every 5 years.

C. Storage Tanks

All aboveground storage tanks of fluids other than fresh water are bermed to contain a volume one-third more than the largest tank. If tanks are interconnected, the berm was designed to contain a volume one-third more than the total volume of the interconnected tanks.

D. Chemical and Drum Storage Areas

All chemical and drum storage areas have concrete pads with curbs. All chemicals used in the boiler system are stored inside the Boiler House in bulk tanks. The bulk tanks are installed above the concrete floor and bermed. The "C" cooling tower chemical bulk tank is bermed.

The type and known quantities of chemicals and additives used in both contact and non-contact processes at the Blanco Plant are summarized in Tab G. Tab G also contains Material Safety Data Sheets for lubricating oil and chemicals products used.

E. Sumps and Belowgrade Tanks

The 1,350 gallon belowgrade steel tank used to contain waste engine oil, distance piece drains, and scavenging air drains is placed in a concrete sump. The concrete sump serves as secondary containment and leak detection for the steel tank.

The concrete cooling sump has a synthetic secondary containment liner, and is equipped with a leak detection system.

The concrete skimmer basin and 900 gallon oily water sump associated with the skimmer basin will be cleaned out and visually inspected on an annual basis.

F. Pumphouse Building

The pump buildings house the water pumps. The water pumps are used to circulate the cooling water and boiler water. Any small leaks from the pumps are discharged into a contact wastewater line (see Tab E). Approximately 5 gpd of water discharges into the contact wastewater line which is routed to the skimmer basin.

The zeolite water softener, discussed in the Industrial Water Section, is also in the pumphouse building.

G. Air Receiver Tanks

The air receiver tanks are located near the pumphouse building. The air is used for engine starting air and instrument air. Any water and small amount of hydrocarbons are collected in the air receiver tanks and discharged into the contact wastewater line (see Tab E). Approximately 1/4 gpd of a mixture of hydrocarbons and water discharges into the contact wastewater line which is routed to the skimmer basin.

H. *Air Dryers*

There are two air dryer tanks located near the boiler plant. Approximately 20 paper elements are replaced each year. A very small quantity of condensed water is blown down into the concrete curb around the two air dryer tanks when needed to purge the air dryer system.

Approximately 12 paper elements are replaced each year from the dryer near "A" Plant. The air dryers near "A" Compressor Plant are not blown down.

The filter elements from all the air dryers are placed in the WMI solid waste dumpster. WMI transports the solid waste to the Crouch Mesa landfill.

VIII. Effluent Disposal

A. Onsite Disposal

Since the boiler water cooling pond has been replaced with the concrete cooling sump, no industrial wastewater is disposed of onsite. Stormwater will still be handled onsite as described in the Stormwater Management Section, above. As detailed in the various wastewater sections, above, all contact and non-contact water is discharged to the Bloomfield POTW after any oil fraction is skimmed off the contact wastewater.

All hydrocarbon liquids are either sold to neighboring fractionating plants, or recycled as fuel through Hay Hot Oil. This includes all liquids from the gas scrubbers, the oil fraction skimmed from the contact wastewater streams, used lubricating oil, and any hydrocarbons collected in the flare system flash tank.

B. Offsite Disposal

All liquids from this site will be handled in accordance with OCD and NMED regulations.

All liquids will be removed from the site by either Three Rivers Trucking or Chief Transport.

All effluents will be recycled if possible. Effluents which cannot be recycled, such as contaminated soil, will be disposed in accordance with OCD and NMED regulations.

EPNG has the following hauling/disposal contracts in place to handle wastes from the Blanco Plant.

Water Hauling Agent:

Three Rivers Trucking
603 E. Murray Drive
Farmington, N.M. 87402

or

Chief Transport
604 W. Pinon
Farmington, NM 87402

Oil Disposal:

Hay Hot Oil
P.O. Box 2
Cortez, CO 81301

Wastewater Disposal:

City of Bloomfield
Wastewater Treatment Plant
P.O. Box 1839
Bloomfield, N.M. 87413
Attn: Mr. Jim Moore

Oil Hauling Agent:

Meridian Oil Transportation Inc.
4551 Herrera Road
Bloomfield, N.M. 87413

Oil Final Disposal:

Gary Refinery
89 Road 4900
Bloomfield, N.M. 87413

Produced Water Hauling Agent:

Three Rivers Trucking 603 E. Murray Drive Farmington, N.M. 87402	or	Dawn Trucking 318 E. Highway 64 Farmington, N.M. 87402

Produced Water Disposal:

Meridian Oil 3535 East 30th Farmington, NM 87401	or	McGrath #4 Salt Water Disposal Facility Injection Well (Letter B, Section 34, T34N, R12W)

IX. Inspection, Maintenance and Reporting

The leak detection system associated with the concrete cooling pond will be inspected on a monthly basis. The "C" Plant cooling tower basin and the skimmer basin will be inspected annually. El Paso Natural Gas will keep maintain the records at the Farmington office. In the event of evidence of leaks, OCD will be notified.

X. Spill/Leak Prevention and Reporting (Contingency Plans)

The Blanco Plant is operated in a manner to prevent and mitigate any unplanned releases to the environment. Plant process and storage units are regularly observed by a number of personnel during normal operations, and any evidence or sign of spills/leaks are routinely reported to supervisory personnel so that repairs or cleanup can be promptly initiated. Regularly scheduled maintenance procedures conducted at the Blanco Plant also help to assure that equipment remains functional and that the possibility of spills or leaks is minimized.

The majority of process and storage units at the Blanco Plant are bermed or curbed and have underdrains or natural diversions which will direct any unplanned spills or releases to existing waste management areas.

Non-process chemicals are used in relatively small quantities at the plant and are managed in a manner to prevent discharges to the environment. Any chemical spills which might occur would be immediately contained and disposed of according to proper guidelines.

Chemicals such as cleaning solvents are collected and recycled. EPNG currently uses a non-halogenated solvent, Varsol, for degreasing operations. The spent solvent which contains various aromatic compounds is combined with other hydrocarbon fractions and is recycled.

Leaks, spills, and drips will be handled in accordance with OCD Rule 116 as follows :

- Small spills will be absorbed with soil and shoveled into drums for off-site disposal. If the soil is an "exempt" waste, the soil will be disposed at Envirotech, Tierra or another OCD approved landfarm facility. If the soil is an "nonexempt" waste the soil will be characterized and disposed according to the analytical profile.

- Large spills will be contained with temporary berms. Free liquids will pumped out by a vacuum truck. Any hydrocarbon liquids will be recycled. Any contaminated soil will be disposed as discussed in the paragraph above.

- Verbal and written notification of leaks or spills will be made to OCD in accordance with Rule 116.

- All areas identified during operation as susceptible to leaks or spills will be bermed or otherwise contained to prevent the discharge of effluents.

XI. SITE CHARACTERISTICS

A complete discussion of the hydrogeological characteristics at and near the site was provided in the discharge plan approved in September, 1988. Since that information is unchanged, it is incorporated into this plan by reference.

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

December 11, 1992

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

Subject : Blanco Plant Discharge Plan Modifications

Dear Mr. Anderson:

El Paso Natural Gas Company(EPNG) plans to modify the quantity and quality of the wastewater discharge to the City of Bloomfield. On September 28, 1992, I discussed some of the wastewater modifications with Mr. William Olson. The section numbers from the 1988 Blanco Plant Discharge Plan are referenced below.

Section 3.1.2 - Scrubbers/Separators

The wastewater from the scrubbers no longer discharge into the oil classifier. The scrubbers discharge into the Blanco Recovery System which discharges into the Angel Peak suction line. The oil classifier, a concrete sump, was filled in with soil and is no longer is use.

Section 3.1.3 - Fractionator

The demolition of the Fractionator was recently completed. Drainlines from the fractionator were either removed or capped in place.

Section 3.1.5 - Boilers

The boiler house basement drains discharge into the contact wastewater piping. The contact wastewater discharges to the Surge Basin . The wastewater contains small amount of hydrocarbons from oil lubricated boiler house pump seal leaks. The Surge Basin functions as a skimmer basin which separates oil and water. The oil fraction is stored in a tank and is recycled. The water fraction discharges to the City of Bloomfield.

Section 3.1.6 - Cooling Towers

Currently, the noncontact wastewater flows into the Surge Basin. From the Surge Basin , the wastewater discharges to the City of Bloomfield wastewater treatment plant. Due to the Colorado River salinity restrictions, the City of Bloomfield requested EPNG to discharge wastewater with a Total Dissolved Solids (TDS) of 500 mg/l or less beginning January 1, 1993. EPNG will meet the TDS limit by increasing the blowdown rate from the cooling towers. The cooling towers will operate at lower cycles.

In June 1993, during the annual plant shutdown, EPNG plans to tie in the fin fans which will replace the "A" cooling tower. From January 1993 until June 1993, EPNG will triple our existing discharge flowrate and discharge approximately 120 gallons per minute to the City of Bloomfield. EPNG met with the City of Bloomfield and discussed the modifications. The City agreed to accept the higher flowrate from January 1993 until June 1993.

EPNG will tie in the evaporative coolers for bearing cooling and generator cooling (bearing cooling for boiler I.D. fans, oil coolers on generators, instrument air coolers, feed water pumps) in June 1993. During periods when the ambient air temperature is above 85 degrees Fahrenheit, wastewater from the evaporative coolers will discharge to the Surge Basin and then to the City of Bloomfield. The discharge flowrate is estimated to be approximately 15 gallons per minute.

After June 1993, the "C" cooling tower will continue to be operated at lower cycles to meet the TDS. Therefore, after June 1993, EPNG will discharge a maximum of approximately 85 gallons per minute to the City of Bloomfield.

Section 3.1.9 - Cooling Pond

Presently, an unlined "Cooling Pond" is used for cooling of boiler and evaporator blowdown and reactor-clarifier blowdown prior to discharge to the Surge Basin. EPNG plans to close the pond next year. The new facility will be designed to contain the wastewater and prevent discharges onto native soil.

Section 3.1.10 - North and South Flare Pits

The north flare pit was closed in February 1992. EPNG is currently closing the south flare pit. A new smokeless flare system was installed to replace the south flare pit. A 180 barrel liquid storage tank contained within a concrete berm contains liquids from the flare lines. The gas from the flare line is burned in the new smokeless flare.

Section 3.3.11 - Condensate Pond

The condensate pond which previously received small amounts of water drawn from the pipeline Drip Tanks is closed.

Section 3.1.12 - Crude Oil Tank

The Crude Oil Tank was recently sold to Meridian Oil. In the past, the water drain from the tank and drains from the concrete spill containment sumps discharged to the Skimmer Basin.The lines were disconnected and capped in place.

Demolition of the "A" and "B" Gasoline Plants

The demolition of the "A" and "B" Gasoline Plants was recently completed. Drainlines from the gasoline plant area were either removed or capped in place.

If there are any new modifications which will change the wastewater quantity or quality, EPNG will notify NMOCD.

If you have any questions, please call 599-2176 or Mr. David Hall at (915) 541-3531.

Sincerely,

Anu Pundari

Anu Pundari
Sr. Compliance Engineer

cc: Mr. David Hall
Mr. Denny Foust

Closure Pla

A

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

March 4, 1993

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

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-154

Ms. Anu Pundari
El Paso Natural Gas Co.
P. O. Box 4990
Farmington, New Mexico 87499

RE: Discharge Plan GW-49
Blanco Compressor Station
San Juan County, New Mexico

Dear Ms. Pundari:

The modification of groundwater discharge plan GW-49 for the El Paso Natural Gas Company Blanco Compressor Station located in the N/2, Section 14, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico **is hereby approved.** The discharge plan modification consists of the application dated December 11, 1992.

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.

The discharge plan modification is considered to be a minor modification and the flat rate fee has been waived. However every billable facility submitting a discharge plan modification will be assessed a fee equal to a filing fee of fifty (50) dollars. The OCD has not received your $50 filing fee.

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 during this discharge plan review.

Sincerely,

William J. LeMay
Director

WJL/rca

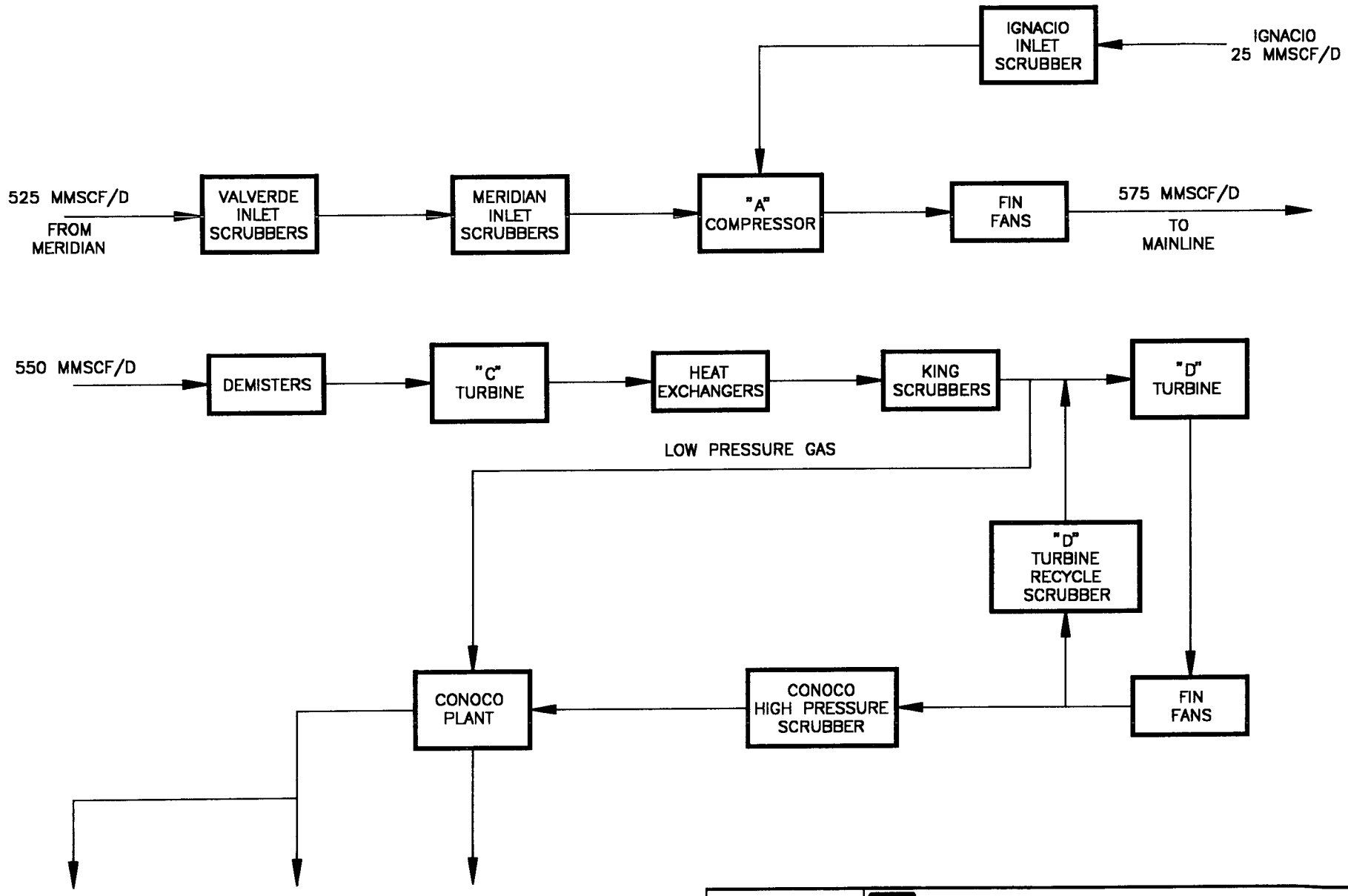
xc: Denny Foust - OCD Aztec

D

PLEASE NOTE:

Engineering Plot Plans for the Blanco Plant are currently being redrawn.

The finished drawing will be furnished as soon as available.



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DRAWN	GV	2/24/94
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DESIGN		
CAD NO.	SP3187	

El Paso NATURAL GAS COMPANY

BLANCO PLANT

BLOCK GAS FLOW DIAGRAM

SCALE NONE	DWG. NO.	REV. 1
W.O.		

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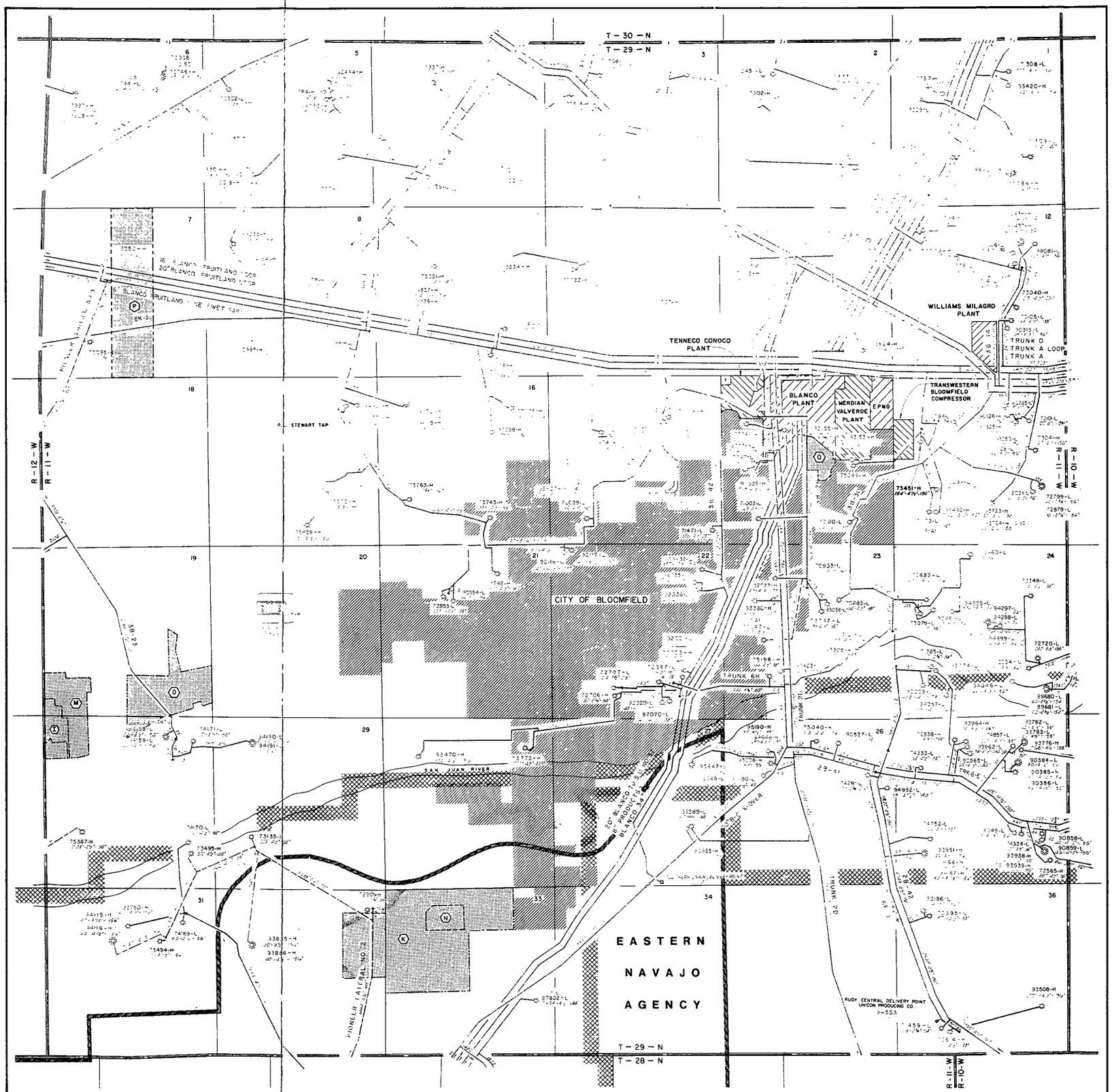
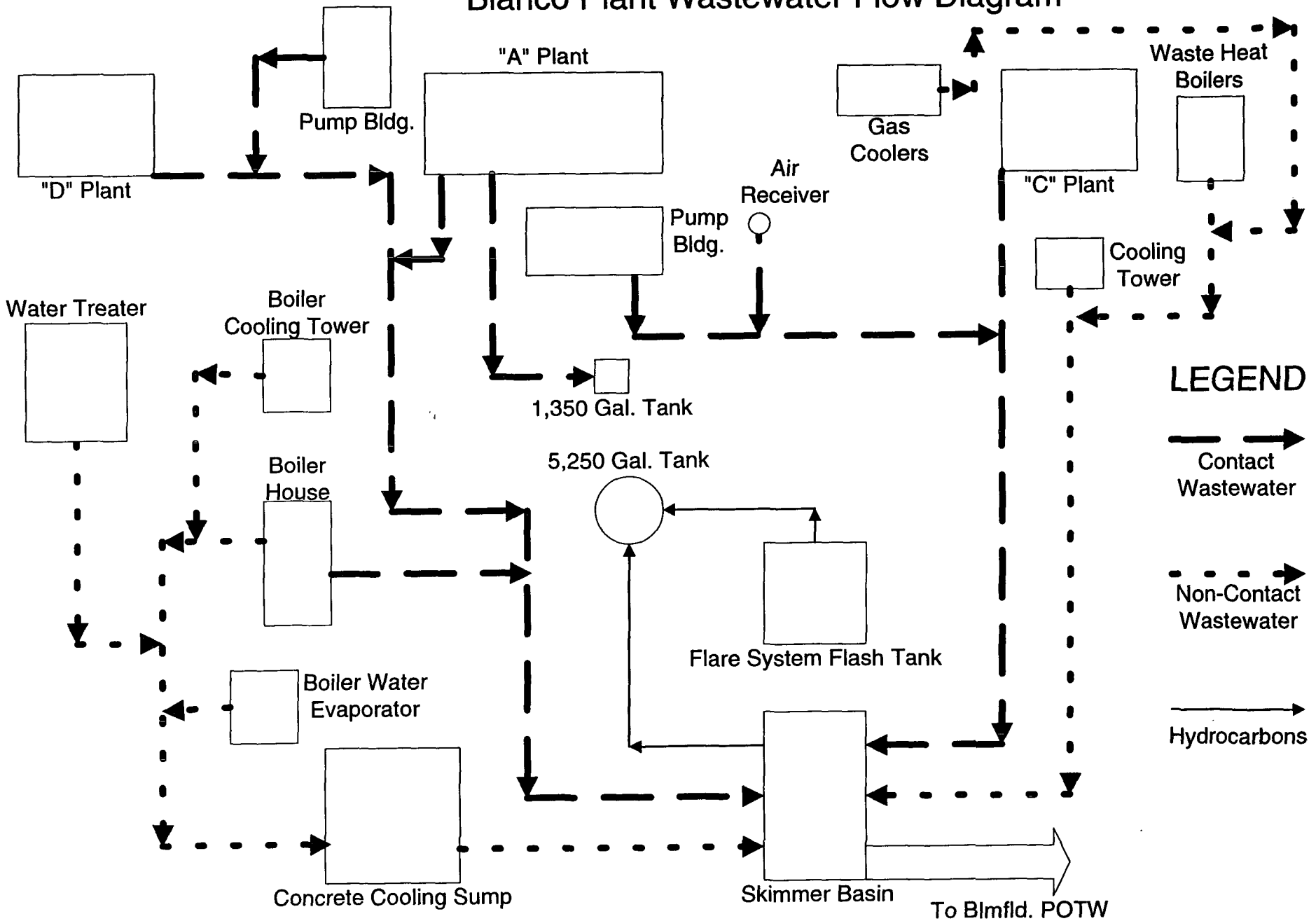


T-29-N , R-11-W N. MEX.

REV. TO: 7-92

E

El Paso Natural Gas Co.
Blanco Plant Wastewater Flow Diagram



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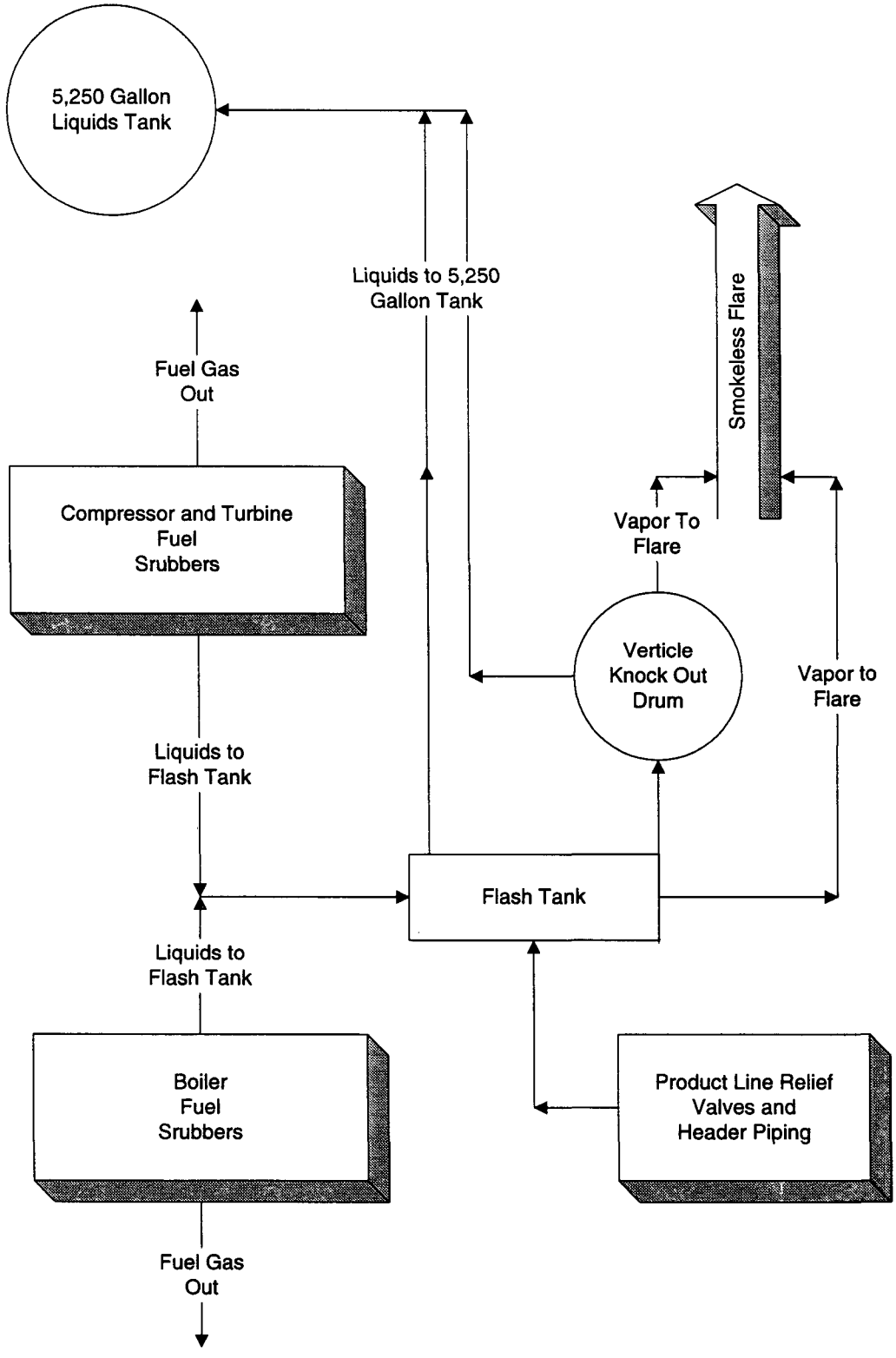
El Paso Natural Gas Co.
Blanco Plant Flare System



El Paso Natural Gas Co.

Blanco Plant

Process and Water Treatment Chemicals

Chemical Name	Use
Ethylene glycol	Closed system cooling water antifreeze
Propylene glycol	Closed system cooling water antifreeze
Unichem 1705	"A" Cooling tower scale inhibitor
Unichem 2310	Boiler water corrosion inhibitor
Unichem 3030	Boiler water scale inhibitor
Unichem 3140	Boiler water oxygen scavenger
Unichem 3270	Boiler condensate pH control
Calcium hypochlorite	Skimmer pond algae control
Sodium hydroxide	Boiler water pH control
Soda ash	Boiler water pH control
Kerosene	Portable space hater fuel
Unleaded gasoline	Vehicle fuel
Diesel fuel	Truck and tractor fuel
Mobil Pegasus 490	Reciprocating engine lubricating oil
Mobil DTE 797	Turbine engine lubricating oil
Mobil DTE oil medium	Turbine compressor lubricating oil
Mobil DTE oil medium heavy	Reciprocating compressor lubricating oil

Dow U.S.A.

Material Safety Data Sheet

The Dow Chemical Company
Midland, Michigan 48674

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 30478 Page: 1

Product Name: ETHYLENE GLYCOL (REGULAR)

Effective Date: 06/18/90 Date Printed: 05/08/92 MSDS:000597

1. INGREDIENTS: (% w/w, unless otherwise noted)

Ethylene glycol CAS# 000107-21-1 >99%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: 387.1F 197C
VAP PRESS: 0.12 mmHg @ 25C
VAP DENSITY: 2.14
SOL. IN WATER: Completely miscible.
SP. GRAVITY: 1.1155 @ 20/20C
APPEARANCE: Colorless liquid.
ODOR: Practically odorless.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: 247F, 119C
METHOD USED: Setaflash

FLAMMABLE LIMITS
LFL: 3.2%
UFL: Not determined.

EXTINGUISHING MEDIA: Water fog, alcohol foam, CO2, and dry chemical.

FIRE & EXPLOSION HAZARDS: None expected under normal storage and handling conditions (i.e. ambient temperatures). However, ethylene glycol or solutions of ethylene glycol and water can form flammable vapors with air if heated sufficiently.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus.

4. REACTIVITY DATA:

For information regarding state/provincial and federal regulations see The Regulatory Information Section.
(R) indicates a trademark of The Dow Chemical Company

* An Operating Unit of The Dow Chemical Company

4. REACTIVITY DATA: (CONTINUED)

STABILITY: (CONDITIONS TO AVOID) Will ignite in air at 775F. (413C).

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning produces normal products of combustion, such as carbon monoxide, carbon dioxide, and water.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Avoid entry into sewers or natural waters. Small spills: Soak up with absorbant material. Large spills: Dike and pump into suitable containers for disposal.

DISPOSAL METHOD: Burn in an approved incinerator in accordance with all local, state, and federal requirements, or salvage.

6. HEALTH HAZARD DATA:

EYE: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely. Vapors or mists may irritate eyes.

SKIN CONTACT: Essentially nonirritating to skin.

SKIN ABSORPTION: Repeated skin exposure to large quantities may result in absorption of harmful amounts. The dermal LD50 has not been determined.

INGESTION: Single dose oral toxicity is moderate. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. The estimated lethal dose for an average person is 100 ml. The oral LD50 for rats is in the 6000-13,000 mg/kg range. Amounts ingested incidental to industrial handling are not likely to cause injury; however ingestion of larger amounts could cause serious injury, even death.

INHALATION: At room temperature, vapors are minimal due to low vapor pressure. If heated or sprayed as an aerosol, concentrations may be attained that are sufficient to cause

For information regarding state/provincial and federal regulations see The Regulatory Information Section.

* An Operating Unit of The Dow Chemical Company

6. HEALTH HAZARD DATA: (CONTINUED)

irritation and other effects.

SYSTEMIC & OTHER EFFECTS: Excessive exposure may cause irritation to upper respiratory tract. Observations in animals include kidney and liver effects and deposition of calcium salts in various tissues after long-term dietary intake of ethylene glycol. Did not cause cancer in long-term animal studies. Based on animal studies, ingestion of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Exposures by inhalation (tested nose-only in animals) or skin contact, the primary routes of occupational exposure, have minimal or essentially no effect on the fetus. In studies on rats, ethylene glycol has been shown not to interfere with reproduction. In studies on mice, ingestion of ethylene glycol in large amounts caused a small decrease in the number of litters per pair, live pups per litter, and in live pup weight. Results of in vitro (test tube) mutagenicity tests have been negative. Results of mutagenicity tests in animals have been negative.

7. FIRST AID:

EYES: Irrigate immediately with water for at least 5 minutes.

SKIN: Wash off in flowing water or shower.

INGESTION: If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: Early administration of ethanol may counter the toxic effects of ethylene glycol--metabolic acidosis and renal damage. Hemodialysis or peritoneal dialysis have been of benefit. New Eng. J. Med. 304:21 1981. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): OSHA PEL and ACGIH TLV are 50 ppm Ceiling for ethylene glycol vapor.

For information regarding state/provincial and federal regulations see The Regulatory Information Section.
(R) Indicates a trademark of The Dow Chemical Company

* An Operating Unit of The Dow Chemical Company

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 30478 Page: R-1

Product Name: ETHYLENE GLYCOL (REGULAR)

Effective Date: 06/18/90 Date Printed: 05/08/92 MSDS:000597

REGULATORY INFORMATION: (Not meant to be all-inclusive--selected regulations represented.)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
ETHYLENE GLYCOL	000107-21-1	99 %

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

CANADIAN REGULATIONS

The Workplace Hazardous Materials Information System (W.H.M.I.S.) Classification for this product is:

D2A

The Transportation of Dangerous Goods Act (T.D.G.A.) classification for this product is:

(Continued on page R-2 , over)

* An Operating Unit of The Dow Chemical Company

MATERIAL SAFETY DATA SHEET

000381

ICI Americas Inc.
Wilmington, Delaware 19897
Phone (302) 575-3000 (24 hours)

Form No.: 4596h(C)
Date: 11/85

SECTION 1 NAME & HAZARD SUMMARY

Material name:
Diethylene Glycol

Hazard summary (as defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200):
Physical hazards: None
Health hazards: Irritation (eye, skin), harmful (oral, kidney, and liver injury)

Read the entire MSDS for a more thorough evaluation of the hazards.

SECTION 2 INGREDIENTS

	%	TLV (ACGIH)
Diethylene Glycol (CAS 111-46-6)	100	Not listed

Ingredients not precisely identified are proprietary or nonhazardous. All ingredients appear on the EPA TSCA Inventory. Values are not product specifications. gt = greater than, lt = less than, ca = approximately

SECTION 3 PHYSICAL DATA

Boiling point: 473°F, 245°C
Vapor pressure (mmHg at 20°C): 0.01
Vapor density (air = 1): 3.7
Solubility in water: Soluble
pH: No data
Specific gravity: 1.118
% Volatile by volume: 100
Appearance and odor: Colorless slightly viscous liquid with mild odor

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

Flash point (and method): 275°F, 135°C (Open cup)
Autoignition temp.: No data
Flammable limits (STP): LFL = 2.0%

Extinguishing media:
Water fog, alcohol foam, carbon dioxide, dry chemical, halon 1211.

Special fire fighting protective equipment:
Self-contained breathing apparatus with full facepiece and protective clothing.

Unusual fire and explosion hazards:
None known.

SECTION 5 REACTIVITY DATA

Stability:
Stable under normal conditions.

SECTION 5 REACTIVITY DATA (continued)

Incompatibility (materials to avoid):
Strong oxidizing agents.

Hazardous decomposition products:
Combustion products: Carbon dioxide, carbon monoxide.

Hazardous polymerization:
Will not occur.

SECTION 6 HEALTH HAZARD ASSESSMENT

General:
This health hazard assessment is based on information from the published scientific literature.

Ingestion:
The acute oral LD_{50} in rat is reported to be 16.6, 20.8 and 15.6 g/kg. In man, it is reported to be 1.0 ml/kg (approximately 2 ounces for a 150 pound person).

Eye contact:
Mild irritation will probably develop following contact with human eyes.

Skin contact:
Short contact periods with human skin are not likely to produce irritation, but repeated and/or prolonged contact can induce skin irritation.

Skin absorption:
This product can be absorbed through human skin. The dermal LD_{50} in rabbits is reported to be 13.3 g/kg.

Inhalation:
No toxic effects are known to be associated with inhalation of vapors from this material.

Other effects of overexposure:
Acute oral exposures to diethylene glycol are associated with central nervous system depression; large doses can be lethal. Acute toxic doses are not immediately fatal; repeated oral doses can induce kidney and liver injury.

First aid procedures:
Skin: Remove contaminated clothing and footwear. Wash material off the skin with copious amounts of soap and water. If redness, itching or a burning sensation develops, get medical attention. Wash contaminated clothing and decontaminate footwear before reuse.
Eyes: Immediately flush with copious amounts of water for at least 15 minutes. If redness, itching or a burning sensation develops, have eyes examined and treated by medical personnel.
Ingestion: Give one or two glasses of water to drink and refer victim to medical personnel. (Never give anything by mouth to an unconscious person.)
---continued---

ION 6 HEALTH HAZARD ASSESSMENT (continued)

l procedures (continued):

Inhalation: Remove victim to fresh air. If cough or other respiratory symptoms develop, consult medical personnel.

Note to Physician: Renal insufficiency can develop secondary to oral exposure.

TION 7 SPILL OR LEAK PROCEDURES

teps to be taken in case material is released or spilled:

Wear skin protection during cleanup. Soak up liquid with absorbent and shovel into waste container. Wash down spill area with water and flush to a sewer serviced by a wastewater treatment facility.

isposal method:

Discarded product is not a hazardous waste under RCRA, 40 CFR 261.

ontainer disposal:

Empty container retains product residue. Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product. Remove all hazardous product residue and puncture or otherwise destroy empty container before disposal.

CTION 8 SPECIAL PROTECTION INFORMATION

TLV® or suggested control value:

No TLV assigned. Minimize exposure in accordance with good hygiene practice. The American Industrial Hygiene Association recommended Workplace Environmental Exposure Level for diethylene glycol is 50 ppm (vapor and aerosol) 8-hour TWA and 10 mg/m^3 (aerosol only) 8-hour TWA. The ACGIH TLV's shown in SECTION 2 are also OSHA PEL's (Permissible Exposure Limits).

Ventilation:

As needed to control exposures.

Respiratory protection (specify type):

If needed, use MSHA-NIOSH approved respirator for organic vapors, dusts, and mists whose TLV is greater than 0.05 mg/m^3.

Protective clothing:

Impervious gloves. Depending upon conditions of use, additional protection may be required such as apron, arm covers or full body suit.

Eye protection:

Chemical tight goggles and full faceshield.

Other protective equipment:

Eyewash station and safety shower in work area.

SECTION 9 SPECIAL PRECAUTIONS OR OTHER COMMENTS

Precautions to be taken in handling or storing:

Prevent eye and skin contact.

MATERIAL SAFETY DATA SHEET

Dow Chemical U.S.A.* Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 87792 Page: 1

PRODUCT NAME: TRIETHYLENE GLYCOL - TECHNICAL

Effective Date: 08/29/89 Date Printed: 02/07/90 MSDS:000271

1. INGREDIENTS: (% w/w, unless otherwise noted)

Triethylene glycol CAS# 000112-27-6 99%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: 545.9F; 286C
VAP PRESS: < 1.0 mmHg @ 20C
VAP DENSITY: 5.18
SOL. IN WATER: Completely miscible
SP. GRAVITY: 1.1 @ 25/25C
APPEARANCE: Colorless liquid.
ODOR: Mild odor.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: 350F; 177C
METHOD USED: PMCC

FLAMMABLE LIMITS
LFL: 0.9%
UFL: 9.2%

EXTINGUISHING MEDIA: Water fog, alcohol resistant foam, CO2, dry chemical.

FIRE & EXPLOSION HAZARDS: Not available.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure self-contained

(Continued on Page 2)

* An Operating Unit of The Dow Chemical Company

3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

breathing apparatus.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) Will ignite in air at 700F.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning produces normal products of combustion, including carbon monoxide, carbon dioxide, and water.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Small spills: Soak up with absorbent material and collect for disposal. Large spills: dike to prevent contamination of waterways, then pump into suitable containers for disposal.

DISPOSAL METHOD: Burn in an approved incinerator in accordance with all local, state, and federal laws and regulations.

6. HEALTH HAZARD DATA:

EYE: Essentially nonirritating to eyes.

SKIN CONTACT: Prolonged or repeated exposure may cause skin irritation. May cause more severe response if skin is abraded (scratched or cut).

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful

(Continued on Page 3)

6. HEALTH HAZARD DATA: (CONTINUED)

amounts. The dermal LD50 has not been determined.

INGESTION: Single dose oral toxicity is low. The oral LD50 for rats is 16,800-22,060 mg/kg.

INHALATION: No adverse effects are anticipated from inhalation.

SYSTEMIC & OTHER EFFECTS: Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. Did not cause cancer in long-term animal studies. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus. In animal studies, has been shown not to interfere with reproduction.

7. FIRST AID:

EYES: Irrigate immediately with water for at least five minutes.

SKIN: Wash off in flowing water or shower.

INGESTION: Induce vomiting if large amounts are ingested. Consult medical personnel.

INHALATION: Remove to fresh air if effects occur. Call a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE: AIHA WEEL is 10 mg/m3 for polyethylene glycols.

VENTILATION: Provide general and/or local exhaust ventilation to

(Continued on Page 4)

8. HANDLING PRECAUTIONS: (CONTINUED)

control airborne levels below the exposure guidelines.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. In misty atmospheres, use an approved mist respirator.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation. If hands are cut or scratched, use impervious gloves even for brief exposures.

EYE PROTECTION: Use safety glasses.

9. ADDITIONAL INFORMATION:

REGULATORY REQUIREMENTS:

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Practice reasonable care to avoid exposure.

Trace quantities of ethylene oxide (EO) may be present in this product. While these trace quantities could accumulate in headspace areas of storage and transport vessels, they are not

(Continued on Page 5)

9. ADDITIONAL INFORMATION: (CONTINUED)

expected to create a condition which will result in EO concentrations greater than 0.5 ppm (8 hour TWA) in the breathing zone of the workplace for appropriate applications. OSHA has established a permissible exposure limit of 1.0 ppm 8 hr TWA for EO. (Code of Federal Regulations Part 1910.1047 of Title 29).

MSDS STATUS: Revised Sections 6 and 8.

Material Safety Data Sheet

The Dow Chemical Company
Midland, Michigan 48674
Emergency 517-636-4400

The Dow Chemical Company, Midland, MI 48674 Emergency Phone:517-636-4400

Product Code: 70511

Product Name: PROPYLENE GLYCOL INDUSTRIAL

Effective Date: 07/13/93 Date Printed: 04/20/94 MSDS:000248

1. INGREDIENTS: (% w/w, unless otherwise noted)

Propylene glycol CAS# 000057-55-6 99%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. PHYSICAL DATA:

BOILING POINT: 370F, 188C
VAP PRESS: 0.08 mm Hg @ 20C, 68F
VAP DENSITY: 2.62
SOL. IN WATER: Complete
SP. GRAVITY: 1.038 20/20C, 68F
APPEARANCE: Colorless liquid.
ODOR: Odorless.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: 218F, 103C
METHOD USED: PMCC

FLAMMABLE LIMITS
LFL: 2.6%
UFL: 12.5%

EXTINGUISHING MEDIA: Water fog, alcohol foam, CO2, dry chemical.

FIRE & EXPLOSION HAZARDS: Not available.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus.

(Continued on page 2)

6. HEALTH HAZARD DATA: (CONTINUED)

INGESTION: Single dose oral toxicity is extremely low. The oral LD50 for rats is 20-34 g/kg. No hazards anticipated from ingestion incidental to industrial exposure.

INHALATION: At room temperature, vapors are minimal due to physical properties. Mists may cause irritation of upper respiratory tract.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Repeated excessive ingestion may cause central nervous system effects.

CANCER INFORMATION: Did not cause cancer in long-term animal studies.

TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: In animal studies, has been shown not to interfere with reproduction.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Results of in vitro ('test tube') mutagenicity tests have been negative. Results of mutagenaicity tests in animals have been negative.

7. FIRST AID:

EYES: Flush eyes with plenty of water.

SKIN: Wash off in flowing water or shower.

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: Remove to fresh air if effects occur. Consult a

(Continued on page 4)

REGULATORY INFORMATION: (Not meant to be all-inclusive--selected regulations represented.)

NOTICE: The information herein is presented in good faith and believed to be accurate as the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numberous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

U.S. REGULATIONS

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category

CANADIAN REGULATOINS

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

This product is not a "Controlled Product" under WHMIS.

CANADIAN TDG INFORMATION: For guidance, the Transportation of Dangerous Goods Classification for this product is:

(Continued on page R-2)

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 1705

SECTION I MATERIAL IDENTIFICATION

TRADE NAME: UNICHEM 1705

CHEMICAL DESCRIPTION:
Propriatary Scale and Corrosion Inhibitor Blend

SECTION II INGREDIENTS AND HAZARDS

MATERIAL	TLV (Units)
Potassium Hydroxide CAS # 1310-58-3 (11.25%)	2 mg/m3
Propriatary Corrosion Inhibitor	10 mg/m3
Propriatary Corrosion/Scale Inhibitors	Not Established

Neither this product nor its ingredients are listed in any of OSHA Standard, Section 1910.1200 sources as carcinogenic.

SARA Hazard Catagory Acute Health Hazard

SECTION III PHYSICAL DATA

BOILING POINT, 760 mm Hg: 212F
FREEZING POINT: 25 F
SPECIFIC GRAVITY (H2O=1): 1.3 g/ml
SOLUBILITY IN WATER: Complete
APPEARANCE AND ODOR: Amber, Clear Liquid; Slight Sweet Odor

SECTION IV FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA:
Caron Dioxide, Dry Chemical, Water Spray, or Fog Foam. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE FIGHTING PROCEDURES:
Firefighters should wear self-contained breathing apparatus and full protective clothing. Firefighters should be made aware of the corrosive nature of this chemical.

SECTION V REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY (Materials to Avoid): Stongly acidic materials, oxidizers.
HAZARDOUS DEOCMPOSITION OF PRODUCTS:
Oxides of Carbon and Nitrogen
HAZARDOUS POLYMERIZAITON: Will not occur.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 1705

EPNG MSDS NO: 00910 DATE ISSUED: 09/22/1989
PRODUCT ITEM NO: 0062441 LAST REVISED DATE: / /

MANUFACTURER
NAME: UNICHEM INTERNATIONAL
ADDRESS: 707 N. LEECH
P.O. BOX 1499
CITY: HOBBS, EMERGENCY TELEPHONE: (505)393-7751
STATE: NM ZIP: 88240 24 HOUR TELEPHONE:( ) -

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: NA TRADE SECRET: N
MOLECULAR WEIGHT: NA TIER II REPORTABLE:

BOILING POINT: 212F EVAPORATION RATE: NA
MELTING POINT: NA VAPOR PRESSURE: NA
VISCOSITY: NA SPECIFIC GRAVITY: 1.300
VAPOR DENSITY: NA WATER SOLUBILITY: COMPLETE

FLASH POINT : NA METHOD: NA
AUTOIGNITION : NA LEL: NA UEL: NA

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 1705

SECTION VI HEALTH AND HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:

Contact will cause burns to the skin and severe damage to the eyes.
Inhalation of vapors or mists will irritate the entire respiratory tract.
Ingestion will cause irritation and burning of the digestive tract.

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Flush immediately with copious quantities of water for at least 15 minutes. Seek medical attention.
SKIN: Flush area with water. Wash with soap and remove contaminated clothing.

INHALATION: Remove to fresh air. Apply artificial respiration if necessary.

INGESTION: Call a physician. DO NOT induce vomiting. Dilute with water or milk.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

Provide adequate ventilation. Remove sources of ignition. Contain and absorb spill.

WASTE DISPOSAL METHOD:
Dispose via a licensed waste disposal company. Follow Local, State, and Federal regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECITON (Specify Type):
Use air-supplied or self-contained breathing apparatus if exposure levels exceed TLV for this product or its ingredients.
VENTILATION:
As needed to prevent accumulation of vapors above TLV
PROTECTIVE GLOVES: Rubber
EYE PROTECTION: Safety Glasses, Goggles, and/or Face Shield
OTHE PROTECTIVE EQUIPMENT:
Overalls, Rubber Boots, Eyewash Stations, Safety Shower.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

Store in cool, well-ventilated, low fire-risk area away from ignition sources and incompatable materials. Keep containers closed when not in use. DO NOT transfer or store in improperly marked conatiners.

Avoid prolonged or repeated breathing of vapors or contact with skin.
DO NOT ingest.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 2310

EPNG MSDS NO: 00908
PRODUCT ITEM NO: 0062442

DATE ISSUED: 07/14/1989
LAST REVISED DATE: / /

MANUFACTURER
NAME: UNICHEM INTERNATIONAL
ADDRESS: 707 N. LEECH
P.O. BOX 1499
CITY: HOBBS,
STATE: NM ZIP: 88240

EMERGENCY TELEPHONE: (505)393-7751
24 HOUR TELEPHONE:( ) -

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: NA
MOLECULAR WEIGHT: NA

TRADE SECRET: N
TIER II REPORTABLE:

BOILING POINT: 760MM HG: 212F
MELTING POINT: NA
VISCOSITY: NA
VAPOR DENSITY: NA

EVAPORATION RATE: NA
VAPOR PRESSURE: NA
SPECIFIC GRAVITY: 1.160
WATER SOLUBILITY: COMPLETE

FLASH POINT : NONE
AUTOIGNITION : NA

METHOD: NA
LEL: NA UEL: NA

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A ****

**** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 2310

SECTION I MATERIAL IDENTIFICATION

TRADE NAME: Unichem 2310
CHEMICAL DESCRIPTION: Propriatary corrosion inhibitor blend

SECTION II INGREDIENTS AND HAZARDS

MATERIAL	TLV (Units)
Sodium Nitrite (Oxidizer)	None Established

CAS# 7632-00-0
CERCLA Reportable Quantity: 500 lbs of product

Neither this product nor its ingredients are listed in any of OSHA Standard, Section 1910.1200 sources as carcinogents.

SECTION III PHYSICAL DATA

BOILING POINT, 760 mm Hg: 212 F
FREEZING POINT: 22F
SPECIFIC GRAVITY (H2O=1): 1.16 g/ml
SOLUBILITY IN WATER: COMPLETE
APPEARANCE AND ODOR: Light Yellow to water White Clear liquid; slight odor

SECTION IV FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA:
Carbon Dioxide, Dry Chemical, Water Spray or Fog, Foam. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE FIGHTING PROCEDURES:
Firefighters should wear self-contained breathing apparatus and full protective clothing.

SECTION V REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY (Materials to Avoid): Acids, Reducing Agents
HAZARDOUS DECOMPOSITION OF PRODUCTS:
Oxides of Carbon and Nitrogen
HAZARDOUS POLYMERIZATION: Will not occur

SECTION VI HEALTH AND HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:

Prolonged skin contact will cause dryness and irritation.
Ingestion may cause cathersis.
Inhalation of mist may cause respiratory irritation.
Eye contact may cause irritation.

EMERGENCY AND FIRST AID PROCEDURES:

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 2310

EYES:
Flush promptly with copious quantities of water for at least fifteen minutes. Seek medical attention.

SKIN:
Flush area with water. Wash with soap and remove contaminated clothing.

INHALATION:
Remove to fresh air. Apply artificial respiration if necessary.

INGESTION:
Call a physician. DO NOT induce vomiting. Dilute with water or milk.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

Provide adequate ventilation. Remove sources of ignition. Contain and absorb spill.

WASTE DISPOSAL METHOD:
Dispose via a licensed waste disposal company. Follow Local, State and federal regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

Use air-supplied or self-contained breathing apparatus if exposure levels exce TLV for this product or its ingredients.

VENTILATION:
As needed to prevent accumulation of vapors above TLV.

PROTECTIVE GLOVES: Rubber

EYE PROTECITON: Safety glasses, Goggles, and/or face shield
OTHER PROTECTIVE EQUIPMENT:
Overalls, Rubber Boots, Eyewash Stations, Safety Showers.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

Store in cool, well-ventilated low fire-risk area away from ignition sources and incompatible materials. Keep conatiner closed when not in use. DO NOT transfer or store in imporperly marked containers.

Avoid prolonged or repeated breathing of vapors or contact with skin. DO NOT ingest.

Liability is expressly disclaimed for any loss or injury arising of the use of this information or the use of any materials desig

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3030

EPNG MSDS NO: 00687
PRODUCT ITEM NO: 0062443

DATE ISSUED: / /
LAST REVISED DATE: 02/10/1991

MANUFACTURER
NAME: UNICHEM INTERNATIONAL
ADDRESS: P.O. BOX 1499

CITY: HOBB,
STATE: NM ZIP: 88241

EMERGENCY TELEPHONE: (505)393-7751
24 HOUR TELEPHONE:( ) -

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA:
MOLECULAR WEIGHT:

TRADE SECRET: N
TIER II REPORTABLE:

BOILING POINT:
MELTING POINT:
VISCOSITY:
VAPOR DENSITY:

EVAPORATION RATE:
VAPOR PRESSURE:
SPECIFIC GRAVITY: 0.000
WATER SOLUBILITY:

FLASH POINT :
AUTOIGNITION :

METHOD:
LEL: UEL:

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3030

SECTION I MATERIAL IDENTIFICATION

PRODUCT NAME: Unichem 3030

CHEMICAL DESCRIPTION: Proprietary boiler water scale and corrosion inhibitor.

SECTION II INGREDIENTS AND HAZARDS

COMPONENT NAME	CAS#	% RANGE
Sodium nitrate	07631-99-4	< 15%
Ethylenediaminetetraacetic acid, tetrasodium salt	00064-02-8	< 10%
Potassium hydroxide	01310-58-3	< 5%
Trisodium nitrilotriacetate	05064-31-3	< 1%

SECTION III PHYSICAL DATA

FREEZING POINT: 10 DEG F.

BOILING POINT, 760 mm Hg: 212 Deg. F

SPECIFIC GRAVITY (H2O=1): 1.300

SOLUBILITY IN WATER: Complete

APPEARANCE AND ODOR: Light brown liquid; no significant odor.

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD): None

EXTINGUISHING MEDIA:
Material is not combustible. Keep container cool. Contain fire fighting liquids for proper disposal.

SPECIAL FIRE FIGHTING PROCEDURES:
DO NOT enter confined fire space without proper personal protective equipment including NIOSH approved self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode.
DO NOT inject a solid stream of water or foam into hot, burning pools; this may cause splattering and increase fire intensity.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
None.

SECTION V REACTIVITY DATA

STABLE (Y=YES/N=NO): Y

STABILITY (CONDITIONS TO AVOID):

PRODUCT NAME: UNICHEM 3030

None Known.

INCOMPATIBILITY (MATERIALS TO AVOID):
Avoid contact with strong oxidizers or acidic materials.

HAZARDOUS DECOMPOSITION PRODUCTS:
Smoke, carbon dioxide, carbon monoxide, oxides of nitrogen.

HAZARDOUS POLYERMIZATION MAY OCCUR (Y=YES/N=NO): N

HAZARDOUS POLYMERIZATION (CONDITIONS TO AVOID): None

SECTION VI HEALTH AND HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE

EYE CONTACT:
Vapors, liquid, and mists are extremely corrosive to the eyes. Brief contact of the vapors will be severely irritating. Brief contact of the liquid or mists will severely damage the eyes and prolonged contact may cause permanent eye injury which may be followed by blindness.

SKIN CONTACT:
Vapors, mists, and liquid are extemely corrosive to the skin. Vapors will severely irritate the skin and liquid and mists will severely burn the skin. Prolonged liquid contact will burn or destroy surrounding tissue and death may accompany burns which extend over large portions of the body.

INHALATION:
Vapors and mists are extremely corrosive to the nose, throat and mucous membranes. Bronchitis, pulmonary edema, and chemical pneumonitis may occur. Irritation, coughing, chest pain, and difficulty in breathing may occur with brief exposure while prolonged exposure may result in more severe irritation and tissue damage. Breathing high concentrations may result in death.

INGESTION:
Vapors, mists, and liquid are extremely corrosive to the mouth and throat. Swallowing the liquid burns the tissues, causes severe abdominal pain, nausea, vomiting, and collapse. Swallowing large quantities can cause death.

CHRONIC EFFECTS OF EXPOSURE:
May result in area of destruction of skin tissue or primary irritant dermatitis. Similarly, inhalation of vapors or mists may cause varying degrees of damage to the affected tissues and also increasing susceptibility to respiratory illness.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3030

SYSTEMIC AND OTHER EFFECTS:
Very small amounts of nitrilotriacetic acid (NTA) are present in this product. NTA is a component listed by the IARC as a possible human carcinogen (Group 2B). While current data regarding human exposures to NTA is inadequate, large dietary doses of NTA have caused urinary tumors in laboratory animals.

EMERGENCY AND FIRST AID PROCEDURES
SKIN:
Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical attention if redness or irritation develops.

EYES:
Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION:
Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION:
Call a physician immediately. Give victim a glass of water. DO NOT induce vomiting unless instructed by a physician or poison control center. Never give anything by mouth to an unconscious person.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Persons not wearing suitable personal protective equipment should be excluded from area of spill until clean-up has been completed. Shut off source of spill if possible to do so without hazard. Prevent liquid from entering sewers or watercourses. Provide adequate ventilation. Contain spilled liquid with sand or earth. Recovered undamaged or minimally contaminated material for reuse or reclamation. Place all collected material and spill absorbents into DOT approved containers.

Advise authorities. If product is an EPA hazardous substance (See Section 9), notify the U.S. EPA or the National Response Center. Additional notification pursuant to SARA Section 302/304 (40 CFR 355) may also be required.

WASTE DISPOSAL METHOD:
Treatment, storage, transporation and disposal must be in accordance with EPA or State regulations under authority of the Resource

PRODUCT NAME: UNICHEM 3030

Conservation and Recovery Act. (40 CFR 260-271).

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
A respirator is normally not required if this product is used with adequate ventilation.

VENTILATION:
The use of mechanical dilution ventilation is recommended whenever this product is used inconfined spaces, is heated above ambient temperatures or is agitated. When applicable, sufficient local ventilation should be provided to maintain employee exposures below safe working limits (TWA's)

PROTECTIVE GLOVES:
Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC)

EYE PROTECTION:
Chemical splash goggles or face shield is compliance with OSHA regulations if advised; however OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

OTHER PROTECTIVE EQUIPMENT:
Eye wash and safety shower.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mists.

OTHER PRECAUTIONS:
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapors, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. DO NOT transfer to improperly marked container. DO NOT use pressure to empty container. DO NOT cut, heat, weld, or expose containers to flame or other sources of ignition. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

REGULATORY INFORMATION

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III
Section 302/304-Extremely Hazardous Substances (40 CFR 355):
SARA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). These values are subject to change and the regulations should be consulted

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3030

to verify current statutory requirements.
Components present in this product at a level which could require reporting under the statute are:

COMPONENT NAME	RQ	TPQ	% RANGE
****None****			

Section 311/312 Chemical Inventory Reporting Requirements (40 CFR 370)
The Superfund Amendments and Reauthorization Act (SARA) may require submission of reports (chemical lists, MSDS, Tier I and Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department. The SARA physical and health hazards related to this product are:
Acute Health Hazard
Chronic Health Hazard

Section 313-List of Toxic Chemicals (40 CFR 372)
This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

COMPONENT NAME	CAS#	% RANGE
****None****		

CERCLA, 40 CFR 261 and 302
The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center 1-800-424-8802 of any release of a Hazardous Substances equal to or greater than the reportable quantities (RQs) listed in 40 CFR 302.4. Values are given in pounds for the component and not the mixture, if applicable. (These values are subject to change and the regulations should be consulted to verify current statutory levels.)

COMPONENT NAME(S)	CAS#	CERCLA RQ
Ethylenediaminetetraacetic acid, tetrasodium salt	00064-02-8	5000
Potassium hydroxide	01310-58-3	1000

OSHA EXPOSURE LIMITS

COMPONENT NAME
****None****

NATIONAL FIRE PROTECTION AGENCY

2=Health	0=Reactive	0=Fire	CORR=other

DEPARTMENT OF TRANSPORATION SHIPPING INFORMATION
PROPER SHIPPING NAME: Alkaline liquid, n.o.s.
HAZARD CLASS: Corrosive material
IDENTIFICATION: NA 1719

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3030

This product contains:
Ethylenediaminetetraacetic acid, potassium hydroxide.

HAZARDOUS SUBSTANCE RQ: 20000#
EMERGENCY RESPONSE GUIDE NUMBER: 60
LABELS: Corrosive

TOXIC SUBSTANCES CONTROL ACT (TSCA), 40 CFR 261
This product (or components if product is a mixture) is in compliance with TSCA.

While UNICHEM INTERNATIONAL believes that the above data is correct, UNICHEM INTERNATIONAL expressly disclaims liability for any loss or injury arising out of the use of this information or the use of any materials designated.

DESCRIPTION:
UNICHEM 3030 is a phosphate-chelant internal boiler treatment which also contains sludge conditioning agents, embrittlement inhibitors, organic synthetic polymers, and antifoam agents.

USES
The use of UNICHEM 3030 for internal boiler water treatment offers the following advantages:
1. Sludge conditioning for easy removal of blowdown.
2. Helps prevent carryover by agglomerating fine precipitates that form in the boiler.
3. Reduces priming and foaming in the boiler due to its surface active effect in forming large bubbles that break easily without building up a big foam layer.
4. Protects the boiler from caustic embrittlement.
5. Usually lowers operating costs.
6. Does not color the water or introduce insoluble solids in the boiler water.
7. Maintains cleaner operating surfaces.
8. Chelates any trace hardness present in the boiler water.

APPLICATION:
UNICHEM 3030 should be fed continuously to the boiler to achieve the best results. This compound is a combination chelant-phosphate type treatment. Normally maintain 20-40 ppm phosphate in the boiler water.

HANDLING:
UNICHEM 3030 is an alkaline compound. Avoid contact with eyes, skin, and clothing by wearing the proper safety equipment including eye protection, rubber gloves, and protective clothing. In case of eye contact, flush thoroughly with water for at least fifteen minutes.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3030

Consult a physician. For skin contact, rinse with copious quantities of water and wash with soap. Remove contaminated clothing and wash thoroughly. Seek medical attention if irritation persists. Avoid breathing vapors or fumes.
Refer to the material safety data sheet for more information regarding the safe use and handling of this product.

PACKAGING:
UNICHEM 3030 is available in 55 gallon drums or in bulk quantities.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3140

EPNG MSDS NO: 00912 DATE ISSUED: 02/10/1991
PRODUCT ITEM NO: 0062444 LAST REVISED DATE: / /

MANUFACTURER
NAME: UNICHEM INTERNATIONAL
ADDRESS: 707 N. LEECH
P.O. BOX 1499
CITY: HOBBS, EMERGENCY TELEPHONE: (505)393-7751
STATE: NM ZIP: 88241 24 HOUR TELEPHONE:( ) -

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: NA TRADE SECRET: N
MOLECULAR WEIGHT: NA TIER II REPORTABLE:

BOILING POINT: NA EVAPORATION RATE: NA
MELTING POINT: NA VAPOR PRESSURE: NA
VISCOSITY: NA SPECIFIC GRAVITY: 1.200
VAPOR DENSITY: NA WATER SOLUBILITY: COMPLETE

FLASH POINT : NA METHOD: NA
AUTOIGNITION : NA LEL: NA UEL: NA

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3140

SECTION I MATERIAL IDENTIFICATION

PRODUCT NAME: UNICHEM 3140

CHEMICAL DESCRIPTION:
Propriatary boiler water oxygen scavanger

SECTION II INGREDIENTS AND HAZARDS

COMPONENT NAME	CAS #	% RANGE
Sodium Bisulfite	007631-90-5	< 30%

SECTION III PHYSICAL DATA

FREEZING POINT: 13 F
BOILING POINT, 760 mm Hg: 212 F
SPECIFIC GRAVITY (H2O=1): 1.200
SOLUBILITY IN WATER: Complete
APPEARANCE AND ODOR: Water White, Clear Liquid; Slight Musty Odor

SECTION IV FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA:
Material is not combustible. Keep containers cool. Contain fire fighting liquids for proper disposal.

SPEICAL FIRE FIGHTING PROCEDURES:
DO NOT enter cofined fire space without proper personal protective equipment including NIOSH approved self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode. DO NOT inject a solid stream of water or foam into hot, burning pools; this may cause splattering and increase fire intensity.

SECTION V REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY (Materials to Avoid): Avoid contact with oxidizers or alkaline materials.

HAZARDOUS DECOMPOSITION PRODUCTS:
Oxides of sulfur.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VI HEALTH AND HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:

EYE CONTACT:
May cause irritation or burns if not promptly removed.

PRODUCT NAME: UNICHEM 3140

SKIN CONTACT:
May cause irritation.

INHALAITON:
May cause irritation of upper respiratory tract.

INGESTION:
May cause gastrointestinal irritation, nausea, vomiting and diarrhea

EMERGENCY AND FIRST AID PROCEDURES:

SKIN:
Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical attention if redness or irritation develops.

EYES:
Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION:
Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION:
Call a physician immediately. Give victim a glass of water. DO NOT induce vomiting unless instructed by a physician or poison control center. Never give anything by mouth to an unconscious person.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

Persons not wearing suitable personal protective equipment should be excluded from area of spill until clean-up has been completed. Shut off source of spill if possible to do so without hazard. Prevent liquid from entering sewers or watercourses. Provide adequate ventilation. Contain spilled liquid with sand or earth. Recovered undamaged or minimally contaminated material for reuse or reclamation Place all collected material and spill absrobents into DOT approved containers.

Advise authorities. If this product is an EPA hazardous substan (See Section 10), notify the U.S. EPA or the National Response C Additional notification pursuant to SARA Section 302/304 (40 CFR may also be required.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3140

WASTE DISPOSAL METHOD:
Treatment, storage, transportation and disposal must be in accordance with EPA or State regulations under authority of the Resource Conservation and Recovery Act (40 CFR 260-271).

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
A respirator is normally not required if this product is used with adequate ventilation.

VENTILATION:
The use of mechanical dilution ventilation is recommended whenever this product is used in confined spaces, is heated above ambient temperatures or is agitated. When applicable, sufficient local ventilation should be provided to maintain employee exposures below safe working limits (TWA).

PROTECTIVE GLOVES:
Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC).

EYE PROTECTION:
Chemical splash goggles or face shield in compliance with OSHA regulations is advised; however, OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

OTHER PROTECTIVE EQUIPMENT:
Eye wash and safety shower.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist.

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor liquid, and/or solid all hazard precautions given in the data sheet must be observed. DO NOT transfer to improperly marked container. DO NOT use pressure to empty container. DO NOT cut, heat, weld, or expose containers to flames or other sources of ignition. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

REGULATORY INFORMATION
Superfund Amendments and Reauthorization Act of 1986 (SAFA) Title III.

Section 302/304-Extremely Hazardous Substances (40 CFR 355).
SAFA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (Used for SARA 302, 304, 311, and 31

PRODUCT NAME: UNICHEM 3140

These values are subject to change and the regulations should be consulted to verify current statutory requirements.

Components present in this product at a level which could require reporting under the statute are:

COMPONENT NAME	RQ	TPQ	% RANGE
** NONE **			

Section 311/312 chemcial Inventory Reporting Requirements (40 CFR 370)
The Superfund Amendments and Reauthorization Act (SARA) may require submission of reports (chemical list, MSDS, Tier I and Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department. The SARA physical and health hazards related to this product are:
Acute health hazard

Section 313-List of Toxic Chemicals (40 CFR 372)
This product contains the following toxic chemcials subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

COMPONENT NAME	CAS #	% RANGE
** NONE **		

CERCLA, 40 CFR 261 and 302
The comprehensive Environmental Response, Compensation, and Liabililty Act of 1980 (CERCLA) requires notificaion of the National Response Center 1-800-424-8802 of any release of a hazardous substances equal to or greater than the reporatable quantities (RQs) listed in 40 CFR 302.4. Values are given in pounds for the component and not the mixture, if applicable. (These values are subject to change and the regulations should be consulted to verify current statutory levels.)

COMPONENT NAME	CAS #	CERCLA RQ
SODIUM BISULFITE	007631-90-5	5000

OSHA EXPOSURE LIMITS
COMPONENT NAME
SODIUM BISULFITE
TWA MG/M3: 5.0

NATIONAL FIRE PROTECTION AGENCY
2 Health 0 Fire
0 Reactivity ____ Other

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3140

Department of Transportation Shipping Information
Proper Shipping Name: Nonregulated Liquid
Hazard Class: None Identification:

This product contains: Sodium bisulfite

Hazardous Substance RQ: 16700# Emergency Response Guide Number: NA
Labels: None

TOXIC SUBSTANCES CONTROL ACT (TSCA), 40 CFR 261
This product (or components if product is a mixture) is in compliance with TSCA.

Section 10 information is to remain attached to the material safety data sheet for this product.

While UNICHEM INTERNATIONAL believes that the above data is correct, UNICHEM INTERNATIONAL expressly disclaims liability for any loss or injury arising out of the use of this information or the use of any materials designated.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3270

EPNG MSDS NO: 00915 DATE ISSUED: 02/10/1991
PRODUCT ITEM NO: 0062445 LAST REVISED DATE: / /

MANUFACTURER
NAME: UNICHEM INTERNATIONAL
ADDRESS: 707 N. LEECH
P.O. BOX 1499
CITY: HOBBS, EMERGENCY TELEPHONE: (505)393-7751
STATE: NM ZIP: 88241 24 HOUR TELEPHONE:( ) -

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: NA TRADE SECRET: N
MOLECULAR WEIGHT: NA TIER II REPORTABLE:

BOILING POINT: NA EVAPORATION RATE: NA
MELTING POINT: NA VAPOR PRESSURE: NA
VISCOSITY: NA SPECIFIC GRAVITY: 0.970
VAPOR DENSITY: NA WATER SOLUBILITY: COMPLETE

FLASH POINT : NA METHOD: NA
AUTOIGNITION : NA LEL: NA UEL: NA

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3270

SECTION I MATERIAL IDENTIFICATION

PRODUCT NAME: UNICHEM 3270

CHEMICAL DESCRIPTION:
Propriatary neutralizing amine blend

SECTION II INGREDIENTS AND HAZARDS

COMPONENT NAME	CAS #	% RANGE
Cyclohexylamine	000108-91-8	< 25%

SECTION III PHYSICAL DATA

FREEZING POINT: 15F
BOILING POINT, 760 mm Hg: init 212 F
SPECIFIC GRAVITY (H20=1): .970
SOLUBILLITY IN WATER: Complete
APPEARANCE AND ODOR: Water White to Light Yellow, Clear Liquid; *Amine Odor*

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT (Test Method): 120 F TCC

EXTINGUISHING MEDIA:
CO2, Dry Chemical, Water Spray or Fog, or Foam. Use water to keep containers cool. Isolate "fuel" supply from fire. Contain fire fighting liquids for proper disposal.

SPEICAL FIRE FIGHTING PROCEDURES:
DO NOT enter confined fire space without proper personal protective equipment including NIOSH approved self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode. DO NOT inject a solid stream of water or foam into hot, burning pools; this may cause spattering and increase fire intensity.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
This material is volitale and readily gives off vapors that may travel along the ground or be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Containers may explode from internal pressure if confined to fire. Keep containers cool. Keep unnecessary people away

SECTION V REACTIVITY DATA

STABILITY: Stable

PRODUCT NAME: UNICHEM 3270

INCOMPATIBILITY (Materials to Avoid):
Avoid contact with strong oxidizers or acidic materials.

HAZARDOUS DECOMPOSITION PRODUCTS:
Smoke, Carbon Dioxide/Monoxide, Oxides of Nitrogen.

HAZARDOUS POLYMERIZATION: Will not occur

SECTION VI HEALTH AND HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:

EYE CONTACT: Contact with eyes causes severe irritation and burns.

SKIN CONTACT: Severely irritating and corrosive upon skin contact. Can cause dermatitis. material as well absorbed through skin.

INHALATION: Excessive inhalation of vapors can cause nasal and respiratory irritation.

INGESTION: Toxic; Can cause severe gastrointestinal irritation, vomiting, diarrhea, sweating, weakness, headache.
The primary routes of exposure are by inhalation of vapors and skin contact.

EMERGENCY FIRST AID AND PROCEDURES:

SKIN:
Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical attention if redness or irritation develops.

EYES:
Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION:
Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION:
Call a physician immediately. Give victim a glass of water. DO NOT induce vomiting unless instructed by a physician or poison center. Never give ahything by mouth to an unconscious person.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3270

Eliminate sources of ignition. Persons not wearing suitable personal protective equipment should be excluded from are of spill until clean-up has been completed. Shut off source of spill if possible to do so without hazard. Prevent liquid from entering sewers or watercourses. Provide adequate ventilation. Contain spilled liquid with sand or earth. Recover undamaged material for reuse or reclamation. Place all collected material and spill absorbents into DOT approved containers.

Advise authorities. If thsi product is an EPA hazardous substance (See Regulatory Information), notify the U.S.EPA or the National Response Center. Additional notification pursuant to SARA Section 302/304 (40 CFR 355) may also be required.

WASTE DISPOSAL METHOD:
Treatment, storage, transportation and disposal must be in accordance with EPA or State regulations under authority of the Resource Conservation and Recovery Act (40 CFR 260-271).

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
If workplace exposure limit(s) of product or any component is exceeded an NIOSH/MSHA approved air supplied respirator is advased in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure organic vapor type) under specified conditions. Engineering or administrative controls should be implemented to reduce exposure.

VENTILATION:
The use of mechanical dilution ventilation is recommended whenever this product is used in confined spaces, is heated above ambient temperatures or is agitated. when applicable sufficient local ventilation sufficient local ventilation should be provided to maintain employee exposures below safe working limits (TWA's).

PROTECITVE GLOVES:
Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC).

EYE PROTECTION:
Chemical splash goggles or face shield in compliance with OSHA regulations is advised; however, OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

OTHER PROTECTIVE EQUIPMENT:
Eye wash and safety showers.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3270

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist. Keep away from heat, sparks, and open flames and never usa a cutting torch on or near container (even empty) or explosion may result.

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid and/or solid all hazard precautions given in the data sheet must be observed. DO NOT use pressure to empty container. DO NOT cut, heat, weld, or expose containers to flame or other sources of ignition. Keep container closed. Use with adequate ventialtion. Wash thoroughly after handling.

REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III
Section 302/304-Extremely Hazardous Substances (40 CFR 355)
SARA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (Used for SARA 302, 304, 311 and 312). These values are subject to change and the regulations should be consulted to verify current statutory requirements.
Components present in this product at a level which could require reporting under the statute are:

COMPONENT NAME	RQ	TPQ	% RANGE
Cyclohexylamine	1	10000	<25%

Section 311/312 Chemical Inventory Reporting Requirements (40 CFR 370)
The Superfund Amendments and Reauthorization Act (SARA) may require submission of reports (chemcial list, MSDS, Tier I and Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department. The SARA physical and health hazards related to this product are:

Acute Health Hazard
Chronic Health Hazard
Fire

Section 313-List of Toxic Chemicals (40 CFR 372)
This product contains the following toxic chemcials subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

COMPONENT NAME	CAS #	% RANGE
** NONE **		

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: UNICHEM 3270

OSHA EXPOSURE LIMITS
COMPONENT NAME
Cyclohexylamine
TWA ppm: 10.0 TWA MG/M3: 40.0

DOCUMENT OR TRANSPORTATION SHIPPING INFORMAITON:
Proper shipping Name: alkaline liquid, n.o.s.
Hazard Class: Corrosive material Identification: NA 1719
This product contains: Alkylamines, Cyclicamines
Hazardous Substance RQ: *NONE*
Emergency Response Guide Number: 60
Labels: Corrosive

TOXIC SUBSTANCES CONTROL ACT (TSCA), 40 CFR 261
This product (or components if product is a mixture) is in compliance with TSCA.

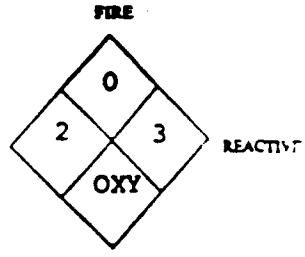
While UNICHEM INTERNATIONAL believes that the above data is correct, UNICHEM INTERNATIONAL expressly disclaims liability for any loss or injury arising out of the use of this information or the use of any materials designated.

Continental Products of Texas

100 Industrial • P.O. Box 3627 • Odessa, Texas 79760
Telephone No. (915) 337-4681

[redacted]
QUICK IDENTIFIER

NFPA Designation 704



HAZARD RATING
4 = EXTREME
3 = HIGH
2 = MODERATE
1 = SLIGHT
0 = INSIGNIFICANT

Class 3 Oxidizer (OSHA)

SPECIFIC HAZARD

MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTITY

Common Name: (used on label)
(Trade Name & Synonyms) HTH Tablets℠

Chemical Name: Calcium Hypochlorite

Formula: $Ca(OCl)_2$

Chemical Family: Hypochlorite

Cas No.

SECTION 2 - HAZARDOUS INGREDIENTS

Hazardous Component(s)	%	Threshold Limit Value (units)
Calcium hypochlorite	70	

SECTION 3 - PHYSICIAL & CHEMICAL CHARACTERISTICS (Fire & Explosive Data)

Boiling Point: NA

Specific Gravity (H_2O = 1): NA

Vapor Pressure (mm Hg): NA

Percent Volatile by Volume (%): NA

Vapor Density (Air = 1): NA

Evaporation Rate (_____ = 1): NA

Solubility in Water: Appreciable

Reactivity in Water

Appearance and Odor: White tablets, slight chlorinous odor

Flash Point: NA

Flammable Limits in Air % by Volume: NA — Lower — Upper

Extinguisher Media: Water preferable spray

Auto-Ignition Temperature

Special Fire Fighting Procedures: Drench with water and cool the surrounding drums and area with water.

Unusual Fire and Explosion Hazards: Not a combustible material. Mixing with any foreign material may result in fire and the fire can have great intensity.If drum is closed lid may be blown off or dum may rupture.

SECTION 4 - PHYSICAL HAZARDS

Stability
STABLE [X] UNSTABLE [ ]

CONDITIONS TO AVOID: When heated above 350°F it decomposes rapidly with the evolution of oxygen and heat.

INCOMPATABILITY (MATERIALS TO AVOID): HTH is strong oxydizing agent. It is incompatible with household soap, paint products, solvents, acids, pool chemicals, vinegar, beverages etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposes rapidly with chemical fuming during the evolution of oxygen and heat

Hazardous — CONDITIONS

Threshold Limit Value NA

Signs and Symptoms of Exposure

1. Acute Overexposure: May produce severe chemical burns

2. Chronic Overexposure: NA

Medical Conditions Generally Aggravated by Exposure: NA

Chemical Listed as Carcinogen or Potential Carcinogen: NA

National Toxicology Program: Yes [ ] No [X]

I.A.R.C. Monographs: Yes [ ] No. [X]

OSHA: Yes [ ] No. [X]

OSHA Permissible Exposure Limit: NA

ACGIH Threshold Limit Value: NA

Other Exposure Limit Used: NA

Emergency and First Aid Procedures

1. Inhalation: Remove to fresh air

2. Eyes: Flood eyes with plenty of water for 15 minutes, call physician immediately

3. Skin: Flood skin with plenty of water for 15 minutes, remove contaminated clothing

4. Ingestion: Drink large quantities of water or milk. Follow with milk of magnesia, vegetable oil or beaten eggs. Call physician immediately.

SECTION 6 - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): NA

Ventilation — Local Exhaust: yes — Mechanical (General): yes — Special — Other

Protective Gloves: Neoprene chemical gloves

Eye Protection: Safety goggles

Other Protective Clothing or Equipment: Protective outwear

SECTION 7 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage: Mix only with water.HTH is a powerful oxidant, keep away from combustible organic material. Do Not contaminate with foreign material. Use only clean dry container to measure & carry. Do Not Drop, roll or skid container.

Steps to be Taken in Case Material is Released or Spilled: No smoking or flame. Immediately dispose of spilled HTH by flushing with large amounts of water. Avoid breathing fumes and skin contact.

Waste Disposal Methods: Dispose of according to local, State and Federal Regulations.

Date Issued: 11/19/85

Abbreviations Used
NA Not Applicable
ND Not Determined
UN Unknown

Continental Products of Texas

Prepared by Eric Klim

Eric Klim

FEB 25 1980

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44 R1187

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
MALLINCKRODT, INC.	606/987-7000
ADDRESS (Number, Street, City, State, and ZIP Code) P.O. Box M, Paris, KY 40361	
CHEMICAL NAME AND SYNONYMS: Sodium Hydroxide	TRADE NAME AND SYNONYMS: Caustic soda, Lye
CHEMICAL FAMILY: Inorganic base	FORMULA: NaOH

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	1390°C	SPECIFIC GRAVITY (H2O=1) Density	2.13
VAPOR PRESSURE (mm Hg.) 739°C	1 mm	PERCENT, VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (=1)	
SOLUBILITY IN WATER	42 gm/100 ml		
APPEARANCE AND ODOR	White deliquescent pellets - odorless		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	LEL	UEL
Not combustible			

EXTINGUISHING MEDIA
Any media suitable for extinguishing the supporting fire.

SPECIAL FIRE FIGHTING PROCEDURES
Flood with water, using care not to splatter or splash this material. Wear full protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Not combustible, but solid form in contact with moisture or water may generate heat to ignite combustible materials. Contact with some metals can generate hydrogen gas. Highly corrosive. See Sec. VI and IX.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
2 mg./cu. meter

EFFECTS OF OVEREXPOSURE
Severely corrosive to all tissue. Ingestion may cause severe burns to mucous membranes and vomiting, prostration collapse. Constrictive scarring may result. Inhalation of dust or concentrated mist may cause damage to respiratory tract.

EMERGENCY AND FIRST AID PROCEDURES
Eyes and Skin: Immediately flush with flowing water (continue for 15 minutes) and call physician. Remove contaminated clothing at once. Inhalation: Give artificial respiration if patient is not breathing and call physician. Oral Ingestion: DO NOT INDUCE VOMITING. If patient is conscious, give large quantities of milk or water. Call physician immediately & take patient to hospital emergency room.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	X	CONDITIONS TO AVOID: Absorbs CO_2 and water from air.
	STABLE		

INCOMPATABILITY (Materials to avoid)
Water, acids, flammable liquids, organic halogens, metals (Al, Sn, Zn)

HAZARDOUS DECOMPOSITION PRODUCTS
Hydrogen gas on contact with some metals.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Sweep-up and dispose of in approved landfill. Flush residue to sewer with large amount of water.

WASTE DISPOSAL METHOD
Landfill approved to accept hazardous wastes. Small quantities--dissolve in water, neutralize and flush to sewer.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
NIOSH approved Dust Respirator

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) X	OTHER

PROTECTIVE GLOVES: Rubber
EYE PROTECTION: Goggles

OTHER PROTECTIVE EQUIPMENT
Lab coat or coveralls

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep container tightly closed. Store in a cool, dry place. Protect from physical damage.

OTHER PRECAUTIONS
This item is a strong corrosive material. Separate from acids, metals, explosi- organic peroxides and easily ignitible materials.

Product Safety Information

SODA ASH

Sodium Carbonate, Anhydrous

This Product Safety Information Sheet is principally directed to managerial, safety, hygiene and medical personnel. The description of physical, chemical and toxicological properties and handling advice is based on experimental results and past experience. It is intended as a starting point for the development of health and safety procedures.

This Product Safety Information Sheet meets the material safety data sheet (MSDS) requirements of the federal OSHA Hazard Communication standard (29 CFR 1910.1200).

New Issue 9/86
Supersedes Issue Dated 12/80
SOD.455.B

SYNONYMS:

Disodium carbonate; soda, calcined; soda ash

CAS REGISTRY NUMBER: 497-19-8

CAS INDEX NAME:

Carbonic acid disodium salt (8CI9CI)

IN CASE OF SUSPECTED POISONING, REFER TO THE INFORMATION IN SECTION VII:HUMAN HEALTH AND THE PROCEDURE AND EMERGENCY CONTACTS IN SECTION VIII:FIRST AID.

IN CASE OF SPILLAGE, REFER TO THE PROCEDURE AND EMERGENCY CONTACTS IN SECTION X:SPILL HANDLING OR CALL CHEMTREC 800-424-9300.

I. PHYSICAL/CHEMICAL PROPERTIES

FORMULA: Na_2CO_3

FORMULA WEIGHT: 106.0

PHYSICAL STATE/DESCRIPTION:

White, granular, hygroscopic, odorless solid

BULK DENSITY OF SOLID:

50-65 lb/ft^3

MELTING POINT:

1564°F (851°C)

DECOMPOSITION TEMPERATURE:

752°F (400°C) Begins to evolve CO_2

Stauffer CHEMICALS
STAUFFER CHEMICAL COMPAN
BASIC CHEMICALS DIVISION
Westport, Connecticut 06881

WATER SOLUBILITY:

7g/100g H_2O at 32°F (0°C)

pH (77°F/25°C)
11.3 (1% aqueous solution)
11.6 (10% aqueous solution)

II. CHEMICAL REACTIVITY

Relatively nonreactive. Sodium carbonate reacts with mineral acids to form carbon dioxide. It may also react violently with aluminum metal and phosphorus pentoxcide. Also reacts with hydrated lime to form caustic soda. Therefore, special hygienic care should be taken where lime and soda ash are handled in the same area.

This material, upon contact with certain food products or their residues which contain reducing sugars, may react to form deadly carbon monoxide gas. Proper [illegible] entry and occupancy [illegible]uld be observed. Monitor the tank atmosphere for the presence of carbon monoxide gas.

III. STABILITY

Stable at ambient temperature and pressure. It will begin to decompose and evolve carbon dioxide above temperatures of 752°F (400°C).

In the presence of moisture and carbon dioxide, slowly forms sodium bicarbonate.

The product has an indefinite shelf life when kept dry and in enclosed containers.

IV. FIRE HAZARD

Not considered a fire hazard. When involved in a fire, does not contribute any unusual hazards. Decomposes to form carbon dioxide, a fire extinguishing agent.

V. FIREFIGHTING TECHNIQUE

As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate nonessential personnel from the fire area. Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing.

Use standard firefighting techniques to extinguish fires involving this material -- use water spray, dry chemicals or carbon dioxide.

VI. TOXICOLOGY

INGESTION

The acute oral LD50 is approximately 4000 mg/kg in rats.

SKIN CONTACT

Non-irritant to rabbit skin following a 4-hour exposure. Moderate irritant to rabbit skin following a 24-hour exposure (NIOSH, 1983).

EYE CONTACT

Severe irritant to rabbit eyes (NIOSH, 1983).

T-4054

VII. HUMAN HEALTH

The principal routes of exposure are skin contact and inhalation. Irritation and sensitivity reactions may occur from repeated skin contact. Ingestion of large quantities may produce corrosion of the gastrointestinal tract, vomiting, and diarrhea. Concentrated solutions in contact with skin or eyes may cause local necrosis (Merck, 1983).

There are no data available which address medical conditions that are generally recognized as being aggravated by exposure to this product. (Reader should consult SECTION VI: TOXICOLOGY for effects observed in experimental animals under controlled laboratory conditions using this

product.)

VIII. FIRST AID

If a known exposure occurs or is suspected, immediately start the recommended procedures below. If further treatment is required, contact a Poison Center, a physician or the nearest hospital. Inform the person contacted of the type and extent of exposure, describe the victim's symptoms, and follow the advice given.

FOR ADDITIONAL MEDICAL OR TOXICOLOGICAL INFORMATION, CALL COLLECT, DAY OR NIGHT, STAUFFER CHEMICAL COMPANY. EMERGENCY MEDICAL ASSISTANCE, (203) 226-6602 OR CHEMTREC 800-424-9300

INGESTION

If swallowed, give several glasses of water but do not induce vomiting. If vomiting does occur, give fluids again. Have medical personnel determine if evacuation of stomach or induction of vomiting is necessary. Do not give anything by mouth to an unconscious or convulsing person.

SKIN CONTACT

Wipe or brush off as much of the material as possible, then follow up with water. Sponge or rinse off remainder using water. Get medical attention if skin irritation occurs. Wash clothing before re-use.

EYE CONTACT

Immediately flush the eyes with large quantities of running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention as soon as possible. Oils or ointments should not be used at this time. Continue the flushing for an additional 15 minutes if a physician is not immediately available.

INHALATION

If inhaled, remove to fresh air. If not breathing, clear victim's airway and start mouth-to-mouth artificial respiration. If victim is breathing, supplemental oxygen may be given from a demand-type or continuous-flow inhaler, preferably with a physician's advice. Get medical attention immediately.

IX. INDUSTRIAL HYGIENE

The recommendations described in this section are provided as general guidance for minimizing exposure when handling this product. Because use conditions will vary depending upon customer applications, specific safe handling procedures should be developed by a person knowledgeable of the intended use conditions and equipment. During the development of safe handling procedures, consideration should be given to the need for cleaning of equipment and piping systems to render them nonhazardous before maintenance and repair activities are performed. Waste resulting from these procedures should be handled in accordance with SECTION XIII: DISPOSAL OF MATERIAL.

ENGINEERING CONTROLS

In those cases where engineering controls are indicated by the use conditions, the following traditional exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation or enclosed system design in combination with appropriate use of personal protective equipment.

For more detailed information, refer to Stauffer's publication: Natural Soda Ash, available from the Basic Chemicals Division, Stauffer Chemical Company, Westport, CT 06881.

INGESTION

All food should be kept in a separate area away from the storage/use location. Eating, drinking and smoking should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, hands and face should be thoroughly washed.

SKIN CONTACT

Skin contact with dust should be minimized through the use of gloves and suitable long-sleeved clothing selected with regard for use condition exposure potential.

EYE CONTACT

Eye contact with dust should be prevented through the use of chemical safety glasses, goggles or a face shield selected with regard for use condition exposure potential.

Either half-face respirators in combination with chemical goggles or full-face respirators may be required in certain use conditions to prevent eye contact or irritation.

INHALATION

If use conditions generate airborne dust the material should be handled in an open (e.g., outdoor) or well ventilated area. Where adequate ventilation is not available, use NIOSH-approved respirators to reduce exposure. Where exposure potential under the use conditions necessitates a higher level of protection, use a positive-pressure, air-supplied respirator.

EXPOSURE LIMITS

No exposure limits have been established for this material.

X. SPILL HANDLING

Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices (refer to SECTION IX: INDUSTRIAL HYGIENE).

Any person entering either a significant spill area or an unknown concentration of a dust should use a NIOSH-approved dust respirator.

Small spills can be handled routinely. Use adequate ventilation and/or wear a NIOSH-approved dust respirator to prevent inhalation exposure. Wear protective clothing to prevent skin and eye contact. Use the following procedures:

Sweep up spilled material being careful not to create dust. Place sweepings in a chemical waste container for disposal (refer to SECTION XIII: DISPOSAL OF MATERIAL). Flush area with water. Repeat if necessary. Do not contaminate waters by disposal of flushings.

Large spills should be handled according to a predetermined plan. For assistance in developing a plan, contact the Basic Chemicals Division, Stauffer Chemical Company, Westport, CT 06881.

IN CASE OF SPILL EMERGENCY,
DAY OR NIGHT, CALL CHEMTREC
800-424-9300.

XI. CORROSIVITY TO MATERIALS OF CONSTRUCTION

Noncorrosive to materials commonly used in the construction of process equipment, storage and shipping containers. Hot concentrated solutions of the product are mildly corrosive to steel and severely corrosive to aluminum.

XII. STORAGE REQUIREMENTS

Containers should be stored in a cool, dry, well ventilated area away from flammable materials and sources of heat or flame. Store away from foodstuffs or animal feed. Exercise due caution to prevent damage to or leakage from the container.

XIII. DISPOSAL OF MATERIAL

Material that cannot be used or chemically reprocessed should be disposed of at an approved facility in accordance with any applicable regulations under the Resource Conservation and Recovery Act. NOTE: State and local regulations may be more stringent than federal.

XIV. DISPOSAL OF CONTAINER

Dispose of empty containers according to any applicable regulations under the Resource Conservation and Recovery Act. NOTE: State and local regulations may be more stringent than federal.

FOR NONEMERGENCY HANDLING INFORMATION, CONTACT THE *BASIC CHEMICALS DIVISION*, STAUFFER CHEMICAL COMPANY, WESTPORT, CT 06881 OR PHONE (203) 222-3000.

REFERENCES CITED

Merck & Company, Inc. The Merck Index, An Encyclopedia of Chemicals, Drugs and Biologicals, 10th Edition, Merck & Company: Rahway, NJ, 1983.

National Institute for Occupational Safety and Health (NIOSH), The Registry of Toxic Effects of Chemical Substances (RTEC), NIOSH: Cincinnati, OH, 1983.

GIANT REFINING CO.

MATERIAL SAFETY DATA SHEET

SUBSTANCE IDENTIFICATION

CAS-NUMBE

SUBSTANCE: KEROSENE

TRADE NAMES/SYNONYMS:
JET OIL, NO.1 ; COAL OIL; RANGE OIL; KEROSINE; STOC 4916171; UN 1223; K-10; GHS10090

CHEMICAL FAMILY: HYDROCARBON, ALIPHATIC / DROCARBON, AROMATIC

PRODUCT MANUFACTURER:
GIANT REFINING COMPANY
ROUTE 3 BOX 7
GALLUP, NEW MEXICO 87301

EMERGENCY PHONE: (505) 722-3833
INFORMATION PHONE: (505) 722-3833
DATE PREPARED: FEBRUARY 15, 1989
LAST REVISION: JANUARY 1, 1997

CERCLA RATINGS (SCALE 0-3): HEALTH = 3 FIRE = 2 REACTIVITY = 0 PERSISTENCE = 1
NFPA RATINGS (SCALE 0-4): HEALTH = 0 FIRE: = 2 REACTIVITY = 0

COMPONENTS AND CONTAMINANTS

COMPONENT: KEROSENE PERCENT: > 99.0

OTHER CONTAMINANTS: MAY CONTAIN TRACES OF SULFUR AND BENZENE. MAY CONTAIN ADDITIVES IN CONCENTRATIONS LESS THAN 0.1%.

EXPOSURE LIMITS:
KEROSENE (FUEL OIL NO. 1): 100 MG/M3 (14 PPM) NIOSH RECOMMENDED 10 HOUR TWA

PHYSICAL DATA

DESCRIPTION: COLORLESS TO LIGHT-BROWN, MOBILE, OILY LIQUID WITH A MILD PETROLEUM ODOR. BOILING POINT: 304-574 F (151-301 C) MELTING POINT: 0 F (-18 C)
SPECIFIC GRAVITY: 0.8 VAPOR PRESSURE: 5 MMHG @ 38 C SOLUBILITY IN WATER: INSOLUBLE ODOR THRESHOLD: 0.09 PPM (0.6 MG/M3) VAPOR DENSITY: 4.5
VISCOSITY: > 1.8 CST @ 40 C

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD: MODERATE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK.

DUE TO LOW ELECTROCONDUCTIVITY OF THE SUBSTANCE, FLOW OR AGITATION MAY GENERATE ELECTROSTATIC CHARGES RESULTING IN SPARKS WITH POSSIBLE IGNITION.

FLASH POINT: > 100 F (> 43 C) (CC) UPPER EXPLOSIVE LIMIT: 5.0% LOWER EXPLOSIVE LIMIT: 0.7% AUTOIGNITION TEMP.: 410 F (210 C) FLAMMABILITY CLASS (OSHA): II

FIREFIGHTING MEDIA: DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY OR STANDARD FOAM (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4)

FOR LARGER FIRES, USE WATER SPRAY, FOG OR STANDARD FOAM (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING: MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. COOL FIRE-EXPOSED CONTAINERS WITH WATER FROM SIDE UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM STORAGE
FOR MASSIVE FIRE IN STORAGE AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES. ELSE WITHDRAW FROM AREA AND LET BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SC
VENTING SAFETY DEVICE OR ANY DISCOLORATION OF STORAGE TANK DUE TO FIRE. (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 27).

EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE FLOODING AMOUNTS OF WATER AS A FOG, SOLID STREAMS MAY BE INEFFECTIVE. COOL CONTAINERS WITH FLOODING AMOUNTS OF WA
FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING VAPORS, KEEP UPWIND.

FIRE FIGHTING PHASES: USE WATER SPRAY, DRY CHEMICAL, FOAM, OR CARBON DIOXIDE. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL. IF A LEAK HAS NOT IGNITED, USE WATE
DISPERSE THE VAPORS AND TO PROTECT PERSONS ATTEMPTING TO STOP A LEAK. WATER SPRAY MAY BE USED TO FLUSH SPILLS AWAY FROM EXPOSURES (NFPA 49, HAZARDOUS CHEMI
978).

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101: COMBUSTIBLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND 172.402: NONE

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: NONE EXCEPTIONS: 49 CFR 173.118A

TOXICITY

KEROSENE (FUEL OIL NO. 1):
J MG/KG ORAL-MAN TDLO: 500 MG/KG ORAL-MAN LDLO: 1176 MG/KG UNREPORTED-MAN LDLO; 4 GM/KG ORAL-DOG LDLO; 36 GM/KG ORAL-RAT LD50; 7872 MG/KG ORAL-RABBIT LD50
UAL-GUINEA PIG LD50; 800 MG/KG INTRATRACHEAL-DOG LDLO; 800 MG/KG INTRATRACHEAL-RAT LDLO; 200 MG/KG INTRATRACHEAL-RABBIT LD50; 403 MG/KG INTRAVENOUS-
200 MG/KG INTRAVENOUS-DOG LDLO; 160 MG/KG INTRAVENOUS-RABBIT LD50; 10600 MG/KG INTRAPERITONEAL-RAT LDLO; 6800 MG/KG INTRAPERITONEAL-RABBIT LD50.
CARCINOGEN STATUS: NONE.
KEROSENE IS A SKIN AND MUCOUS MEMBRANE IRRITANT AND CENTRAL NERVOUS SYSTEM DEPRESSANT. EPINEPHRINE OR SIMILAR STIMULANTS MAY INDUCE VENTRICULAR FIBRILLA

EPIDEMOLOGICAL STUDIES INVOLVING PETROLEUM REFINERY WORKERS INDICATE PERSONS WITH ROUTINE EXPOSURE TO PETROLEUM OR ONE OF ITS CONSTITUENTS MAY BE AT AN I
RISK TO THE DEVELOPMENT OF BENIGN NEOPLASMS, DIGESTIVE SYSTEM CANCERS, AND SKIN CANCER, PARTICULARLY MELANOMA.

HEALTH EFFECTS AND FIRST AID

INHALATION:
KEROSENE (FUEL OIL NO. 1): IRRITANT/NARCOTIC.
ACUTE EXPOSURE - INHALATION HAZARD IS LOW DUE TO THE LOW VAPOR PRESSURE. ONE STUDY CONCLUDED THAT THERE IS NO INDICATION OF TOXICITY AT CONCENTRATIONS OF
OR BELOW. HIGH CONCENTRATIONS OF MIST OR VAPOR MAY CAUSE MUCOUS MEMBRANE IRRITATION. A BURNING SENSATION IN THE CHEST, AN ODOR OF KEROSENE ON THE BR
CHEMICAL PNEUMONITIS. THERE MAY BE TRANSIENT EUPHORIA AND EXCITEMENT FOLLOWED BY SYMPTOMS OF CENTRAL NERVOUS SYSTEM DEPRESSION WHICH MAY INCLUDE H
NAUSEA, DIZZINESS, WEAKNESS, ATAXIA, RESTLESSNESS, AND RINGING IN THE EARS. DISORIENTATION AND CONFUSION MAY PROGRESS TO DROWSINESS AND COMA. SOMET
CONVULSIONS, VASOMOTOR DISTURBANCES, POSSIBLY WITH CYANOSIS OF THE EXTREMITIES MAY OCCUR. DEATH IS USUALLY DUE TO RESPIRATORY ARREST, BUT RARELY SUDC
MAY OCCUR, PRESUMABLY DUE TO VENTRICULAR FIBRILLATION.
CHRONIC EXPOSURE - REPEATED OR PROLONGED EXPOSURE TO KEROSENE MIST MAY CAUSE MUCOUS MEMBRANE IRRITATION AND POLYEMIA. AEROSOL EXPOSURE AT 500-12,000 M
2 HOURS/DAY FOR 2-6 WEEKS CAUSED LEUKOCYTOSIS, TRACHEITIS, BRONCHITIS, AND PNEUMONIA. MALAISE, WEAKNESS, TREMOR, TWITCHING, VERTIGO, AND PAIN IN THE EX
HAVE ALSO BEEN REPORTED. DOGS AND RATS EXPOSED TO 100 MG/M3 FOR 6 HOURS/DAY, 5 DAYS/WEEK FOR 67 DAYS SHOWED NO TOXIC EFFECTS.

FIRST AID - REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRES
ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL A
IMMEDIATELY.

SKIN CONTACT:
KEROSENE (FUEL OIL NO. 1): IRRITANT.
ACUTE EXPOSURE - DIRECT CONTACT MAY CAUSE DEFATTING WITH DRYNESS, IRRITATION, DERMATITIS, AND EDEMA. SECONDARY INFECTIONS ARE POSSIBLE. IN ONE STUDY, SKIN DE
BURNING SENSATION DURING THE FIRST HOUR OF EXPOSURE, ERYTHEMA BY THE SECOND, AND BLISTER FORMATION BY THE TWELFTH. ALTHOUGH ABSORPTION THROUGH INTA
SLIGHT, IT MAY BE MODERATE THROUGH INJURED SKIN. KEROSENE MAY AUGMENT THE TOXICITY OF SKIN-SENSITIZING AGENTS.
CHRONIC EXPOSURE - REPEATED OR PROLONGED EXPOSURE MAY CAUSE DEFATTING AND DERMATITIS. SEVERAL CASES HAVE BEEN REPORTED IN HUMANS WHERE MISUSE OF KER
MASSAGE EXTREMITIES RESULTED IN APLASTIC ANEMIA AND DEATH, PROBABLY DUE TO ABSORPTION OF BENZENE. RABBITS TREATED FOR 3 DAYS WITH 5 ML/KG/DAY EXPERIE
LOSS, SCALING, CRACKING OF THE EPIDERMIS, BUT NO SYSTEMIC TOXICITY.

AN EPIDEMOLOGICAL STUDY OF PETROLEUM REFINERY WORKERS HAS REPORTED ELEVATIONS IN STANDARD MORTALITY RATIOS FOR SKIN CANCER ALONG WITH A DOSE-RESPONSE REL
WHICH INDICATES AN ASSOCIATION BETWEEN ROUTINE WORKPLACE EXPOSURE TO PETROLEUM OR ONE OF ITS CONSTITUENTS AND SKIN CANCER, PARTICULARLY MELANOMA.

FIRST AID - REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVI
CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
KEROSENE (FUEL OIL NO. 1):
ACUTE EXPOSURE - APPLICATION TO THE HUMAN EYE IS REPORTED TO CAUSE NO DISCOMFORT OR INJURY.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

FIRST AID - WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPRO
15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
KEROSENE (FUEL OIL NO. 1): NARCOTIC.
ACUTE EXPOSURE - MAY CAUSE LOCAL IRRITATION WITH A BURNING SENSATION IN THE MOUTH, ESOPHAGUS, AND STOMACH, AND VOMITING, BELCHING, AND DIARRHEA WITH BLOC
FECES. ASPIRATION INTO THE LUNGS MAY OCCUR READILY DURING INGESTION OR SUBSEQUENT VOMITING OR BELCHING. EVEN SMALL AMOUNTS MAY CAUSE CHEMICAL PNE
WHICH MAY BE COMPLICATED BY PULMONARY EDEMA AND HEMORRHAGE AND POSSIBLY SECONDARY BACTERIAL PNEUMONIA. SIGNS OF LUNG INVOLVEMENT ARE SUDDEN DEVE
OF RAPID, LABORED BREATHING, DISTRESS, CYANOSIS WITH RALES, FEVER, AND TACHYCARDIA. DROWSINESS AND CENTRAL NERVOUS SYSTEM DEPRESSION MAY PROGRESS
SEVERE CASES MAY BE FATAL.
CHRONIC EXPOSURE - REPEATED DOSING TO RATS AND RABBITS BY GASTRIC INTUBATION DID NOT RESULT IN PULMONARY INJURY.

FIRST AID - EXTREME CARE MUST BE USED TO PREVENT ASPIRATION. USE GASTRIC LAVAGE WITH ACTIVITED CHARCOAL AND A CUFFED ENDOTRACHEAL TUBE WITHIN 15 MINUTES. IN THE
OF DEPRESSION OR CONVULSIONS OR IMPAIRED GAG REFLEX, (PECAC SYRUP CAN BE DONE. WHEN VOMITING BEGINS, KEEP HEAD BELOW THE HIPS TO PREVENT ASPIRATION. AFTER
STOPS, GIVE 30-60 MILLILITERS OF FLEET'S PHOSPHO-SODA DILUTED 1:4 IN WATER. MAINTAIN AIRWAY, BLOOD PRESSURE AND RESPIRATION. (DREISBACH, HANDBOOK OF POISONING.
GET MEDICAL ATTENTION. TREATMENT MUST BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL.

NOOTE: EPINEPHRINE AND RELATED SUBSTANCES SHOULD BE AVOIDED BECAUSE THEY MAY INDUCE CARDIAC ARRHYTHMIAS. (85 IDAC).

REACTIVITY

REACTIVITY: STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES: KEROSENE (FUEL OIL NO. 1):
OXIDIZERS: POSSIBLE VIOLENT REACTION OR IGNITION.
NITROGEN TETROXIDE: POSSIBLE EXPLOSION.
CHLORINE: VIGOROUS REACTION OR POSSIBLE IGNITION OR EXPLOSION.
FLUORINE: POSSIBLE IGNITION OR EXPLOSION.
MAGNESIUM PERCHLORATE: POSSIBLE EXPLOSION ON HEATING.

DECOMPOSITION: THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE HYDROCARBON AND HYDROCARBON DERIVITIVES, CARBON DIOXIDE, CARBON MONOXIDE, AND SULFUR DI

POLYMERIZATION: HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE.

STORAGE

STORE IN ACCORDANCE WITH 29 CFR 1910.106.
BONDING AND GROUNDING: SUBSTANCES WITH LOW ELECTROCONDUCTIVITY WHICH MAY BE IGNITED BY ELECTROSTATIC SPARKS, SHOULD BE STORED IN CONTAINERS WHICH MEET THE AND GROUNDING GUIDELINES SPECIFIED IN NFPA 77-1982, RECOMMENDED PRACTICE ON STATIC ELECTRICITY.

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

DISPOSAL

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 40 CFR 262, EPA HAZARDOUS WASTE NUMBER D001.

CONDITIONS TO AVOID

MAY BE IGNITED BY HEAT, SPARKS, OR FLAMES. VAPORS MAY TRAVEL TO A SOURCE OF IGNITION AND FLASH BACK. CONTAINER MAY EXPLODE IN HEAT OR FIRE. VAPOR EXPLOSIO INDOORS, OUTDOORS OR IN SEWERS. RUNOFF TO SEWER MAY CREATE FIRE OR EXPLOSION HAZARD.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MAT PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA. KEEP UNN PEOPLE AWAY. ISOLATE HAZARD AREA AND RESTRICT ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION AND/OR GENERAL DILUTION VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS.

RESPIRATOR:
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON THE CONTAMINATION LEVELS FOUND IN THE WORK PLACE. MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND E APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION.

THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON THE DATA FOUND IN THE PHYSICAL DATA, HEALTH EFFECTS AND TOXICITY SECTIONS. THEY ARE RANKED IN ORDER FROM M:
MAXIMUM RESPIRATORY PROTECTION:
TYPE "C" SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACEPIECE, HELMET OR HOOD OP CONTINUOUS-FLOW MODE.

SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:
WEAR OIL IMPERVIOUS CLOTHING. AVOID PROLONGED OR REPEATED CONTACT WITH SUBSTANCE. AVOID WEARING OIL SOAKED CLOTHING.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

THE INFORMATION CONTAINED HEREIN IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. TO THE BEST OF GIANT'S KNOWLEDGE AND BELIEF, THE INFORMATION IS ACCURATE AS OF THE DATE OF PREPARATION. GIANT MAKES NO EXPRESS OR IMPLIED REPRESENTATIONS, WARRANTIES, OR GUARANTEES WITH RESPECT TO THE ACCURACY, COMPLETENESS AND RELIABILITY OF THE INFORMATION. GIANT ASSUMES NO LIABILITY FOR DAMAGE, LOSS OR INJURY ARISING OUT OF, OR RESULTING FROM, USE OF THE INFORMATION.

GIANT REFINING CO.

ENVIRONMENTAL DATA SHEET

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

SUPPLEMENT TO MSDS: Kerosene

DATE PREPARED: January 17, 1992

SARA - TITLE III INFORMATION

This material is regulated under the indicated section(s) of TITLE III of the Superfund Amendments and Reauthorization Act ("SARA"), 42 U.S.C. Section 11001 et seq. Please note that regulations pertaining Sections 302 and 304 of SARA are found in the Code of Federal Regulations at 40 C.F.R. PART 355 and the regulations pertaining to Section 313 of SARA are found at 40 C.F.R. PART 372.

1. This product contains the following toxic chemicals (Section 313):

Chemical Name	CAS #	WT %
None	N/A	N/A

If you are unsure if you are subject to the reporting requirements of Section 313, or need more information, call the EPA Emergency Planning and Community Right-To-Know Information Hotline: (800)535-0202. Your other suppliers should also be notifying you if Section 313 chemicals are present in mixtures, trade name products or chemicals they sell to you. Please note that if you repackage or redistribute this product to industrial customers, a notice should be sent to those customers.

2. This product contains the following extremely hazardous substance(s) (Sections 302 and 304):

Chemical Name	TPQ (lbs)	RQ (lbs)
None	N/A	N/A

3. This product contains the following CERCLA hazardous substance(s) (Sections 302 and 304):

Chemical Name	WT %	RQ (lbs)
None	N/A	N/A

4. This Environmental Data Sheet is a part of the MSDS for the specified substance. It must not be detached from the MSDS. Any copy and redistribution of the MSDS must include copying and redistribution of this Environmental Data Sheet.

5. Sections 2 and 3 are required for emergency response reporting.

MATERIAL SAFETY DATA SHEET

Shell

MSDS NUMBER ▶ 51,270-6 PAGE

97367 (4-95)

24 HOUR EMERGENCY ASSISTANCE	GENERAL MSDS ASSISTANCE
SHELL: 713-473-9461 CHEMTREC: 800-424-9300	SHELL: 713-241-4819

ACUTE HEALTH *	FIRE	REACTIVITY	HAZARD RATING ▶
3	4	0	LEAST - 0 SLIGHT - 1 MODERATE - 2 HIGH - 3 EXTREME - 4

*For acute and chronic health effects refer to the discussion in Section III

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION ... AND PASS IT ON
(PRODUCT LIABILITY LAW REQUIRES IT)

SECTION I NAME

PRODUCT ▶	RU 2000(R) (REGULAR UNLEADED GASOLINE)
CHEMICAL NAME ▶	PETROL
CHEMICAL FAMILY ▶	HYDROCARBON
SHELL CODE ▶	C2100

SECTION II-A PRODUCT/INGREDIENT

NO.	COMPOSITION	CAS NUMBER	PERCENT
P	RU 2000 (REGULAR UNLEADED GASOLINE)	MIXTURE	100
1	ALKANES, CYCLOALKANES, ALKENES AND AROMATIC HYDROCARBONS	MIXTURE	BALANCE
2	TOLUENE	108-88-3	0-25.0
3	XYLENE	1330-20-7	0-25.0
4	BENZENE	71-43-2	<5.0

SECTION II-B ACUTE TOXICITY DATA

NO.	ACUTE ORAL LD50	ACUTE DERMAL LD50	ACUTE INHALATION LC50
P	>5 GM/KG (RAT)	>2 GM/KG (RABBIT)	>5 MG/L/4HR (RAT)

SECTION III HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATIC STANDARD (29 CFR 1910.1200).

EYE CONTACT
BASED ON PRODUCT TESTING PRODUCT IS MODERATELY IRRITATING TO THE EYES.

SKIN CONTACT
PROLONGED AND REPEATED LIQUID CONTACT CAN CAUSE DEFATTING AND DRYING OF THE SKIN RESULTING IN SKIN IRRITATION AND DERMATITIS.

INHALATION
THIS PRODUCT MAY CAUSE IRRITATION TO THE NOSE, THROAT AND RESPIRATORY TRACT AND ADDITIONALLY, MAY PRODUCE LIVER AND KIDNEY DAMAGE.

INGESTION
THIS PRODUCT MAY BE HARMFUL OR FATAL IF SWALLOWED. INGESTION OF PRODUCT MAY RESULT IN VOMITING: ASPIRATION (BREATHING) OF VOMITUS INTO THE LUNGS MUST BE AVOIDED AS EVEN SMALL QUANTITIES MAY RESULT IN ASPIRATION PNEUMONITIS.

SIGNS AND SYMPTOMS
IRRITATION AS NOTED ABOVE. EARLY TO MODERATE CNS (CENTRAL NERVOUS SYSTEM) DEPRESSION MAY BE EVIDENCED BY GIDDINESS, HEADACHE, DIZZINESS AND NAUSEA; IN EXTREME CASES, UNCONCIOUSNESS AND DEATH MAY OCCUR. ASPIRATION PNEUMONITIS MAY BE EVIDENCED BY COUGHING, LABORED BREATHING AND CYANOSIS (BLUISH SKIN); IN SEVERE CASES DEATH MAY OCCUR. KIDNEY DAMAGE MAY BE EVIDENCED BY CHANGES IN URINE OUTPUT, URINE APPEARANCE OR EDEMA (SWELLING FROM FLUID RETENTION). LIVER DAMAGE MAY BE EVIDENCED BY LOSS OF APPETITE, JAUNDICE (YELLOWISH SKIN COLOR) AND SOMETIMES PAIN IN THE UPPER ABDOMEN ON THE RIGHT SIDE.

AGGRAVATED MEDICAL CONDITIONS
PREEXISTING EYE, SKIN, AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT. IMPAIRED LIVER AND KIDNEY FUNCTION(S) FROM PREEXISTING DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

OTHER HEALTH EFFECTS
IT HAS BEEN REPORTED THAT CHRONIC INHALATION EXPOSURE TO AN UNLEADED MOTOR GASOLINE, WHICH WAS FULLY VAPORIZED, HAS PRODUCED KIDNEY AND LIVER CANCERS IN SOME LABORATORY RODENTS. THE STUDIES WERE SPONSORED BY THE AMERICAN PETROLEUM INSTITUTE. THE API TEST MATERIAL USED WAS BLENDED TO REPRESENT A TYPICAL UNLEADED MOTOR GASOLINE. BENZENE IS LISTED BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, AND OSHA AS A CHEMICAL CAUSALLY ASSOCIATED WITH CANCER IN HUMANS.

SEE SECTION VI FOR SUPPLEMENTAL INFORMATION.

SECTION IV — **OCCUPATIONAL EXPOSURE LIMITS**

	OSHA		ACGIH		OTHER
NO.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	
P			300 PPM	500 PPM	
4	1 PPM	5 PPM*	10 PPM**		

*15 MINUTE STEL; **CLASSIFIED BY ACGIH AS A "SUSPECTED HUMAN CARCINOGEN" (A2)

SECTION V — **EMERGENCY AND FIRST AID PROCEDURES**

EYE CONTACT
FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

SKIN CONTACT
FLUSH WITH WATER WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. FOLLOW BY WASHING WITH SOAP AND WATER. DO NOT REUSE CLOTHING OR SHOES UNTIL CLEANED. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

INHALATION
REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING. GET MEDICAL ATTENTION.

INGESTION
DO NOT INDUCE VOMITING. IF VOMITING OCCURS SPONTANEOUSLY KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION OF LIQUID INTO THE LUNGS. GET MEDICAL ATTENTION.*

NOTE TO PHYSICIAN
*IF MORE THAN 2.0 ML PER KG HAS BEEN INGESTED AND VOMITING HAS NOT OCCURRED, EMESIS SHOULD BE INDUCED WITH MEDICAL SUPERVISION. KEEP VICTIM'S HEAD BELOW HIPS TO PREVENT ASPIRATION. IF SYMPTOMS SUCH AS LOSS OF GAG REFLEX, CONVULSIONS OR UNCONSCIOUSNESS OCCUR BEFORE EMESIS, GASTRIC LAVAGE USING A CUFFED ENDOTRACHEAL TUBE SHOULD BE CONSIDERED.

SECTION VI — **SUPPLEMENTAL HEALTH INFORMATION**

CHRONIC INHALATION STUDY (REFERENCED IN SECTION III) SUPPORTED BY THE AMERICAN PETROLEUM INSTITUTE FOUND THAT FULLY VAPORIZED UNLEADED GASOLINE EXPOSURE PRODUCED DOSE-RELATED INCIDENCES OF KIDNEY CANCER IN MALE RATS. GASOLINE EXPOSURE ALSO PRODUCED AN INCREASE OF LIVER CANCER AT HIGH DOSES (2056 PPM) IN FEMALE MICE. EXPOSURES WERE FOR 6 HRS/DAY, 5 DAYS/WEEK FOR A TOTAL OF 27 MONTHS. THE RELATIONSHIP AND SIGNIFICANCE TO MAN OF THE RESULTS OF THIS STUDY IS NOT KNOWN.

INHALATION STUDIES ON GASOLINE VAPORS HAVE CAUSED CENTRAL NERVOUS SYSTEM EFFECTS IN DOGS AT 10,000 PPM.

UNLEADED GASOLINE WAS EVALUATED FOR GENETIC ACTIVITY IN ASSAYS USING MICROBIAL CELLS, CULTURED MAMMALIAN CELLS AND RAT BONE MARROW CELLS. THE RESULTS WERE ALL NEGATIVE. UNLEADED GASOLINE WAS CONSIDERED NON-MUTAGENIC UNDER THESE CONDITIONS.

LABORATORY ANIMALS EXPOSED BY VARIOUS ROUTES TO HIGH DOSES OF XYLENE SHOWED EVIDENCE OF EFFECTS IN THE LIVER, KIDNEYS, LUNGS, SPLEEN, HEART AND ADRENALS. RATS EXPOSED TO XYLENE VAPOR DURING PREGNANCY SHOWED EMBRYO/FETOTOXIC EFFECTS. MICE EXPOSED ORALLY TO DOSES PRODUCING MATERNAL TOXICITY ALSO SHOWED EMBRYO/FETOTOXIC EFFECTS. LABORATORY RATS EXPOSED TO HIGH CONCENTRATIONS OF XYLENE EXPERIENCED RECORDABLE HEARING LOSS.

WHILE THERE IS NO EVIDENCE THAT INDUSTRIALLY ACCEPTABLE LEVELS OF TOLUENE VAPORS (E.G., THE TLV) HAVE PRODUCED CARDIAC EFFECTS IN HUMANS, ANIMAL STUDIES HAVE SHOWN THAT INHALATION OF HIGH LEVELS OF TOLUENE PRODUCED CARDIAC SENSITIZATION. SUCH SENSITIZATION MAY CAUSE FATAL CHANGES IN HEART RHYTHMS. THIS LATTER EFFECT WAS SHOWN TO BE ENHANCED BY HYPOXIA OR THE INJECTION OF ADRENALIN-LIKE AGENTS. LABORATORY RATS EXPOSED TO HIGH CONCENTRATIONS OF TOLUENE EXPERIENCED RECORDABLE HEARING LOSS.

PROLONGED AND REPEATED BENZENE EXPOSURE MAY CAUSE SERIOUS INJURY TO BLOOD FORMING ORGANS; BENZENE IS SUSPECTED OF CARCINOGENIC (LEUKEMIA) POTENTIAL IN MAN. ANIMAL STUDIES ON BENZENE HAVE DEMONSTRATED IMMUNOTOXOCITY, TESTICULAR EFFECTS AND ALTERATIONS IN REPRODUCTIVE CYCLES, EVIDENCE OF CHROMOSOMAL DAMAGE OR OTHER CHROMOSOMAL CHANGES, AND EMBRYO/FETOTOXICITY BUT NOT TERATOGENICITY.

THE HANDLING PROCEDURES AND SAFETY PRECAUTIONS IN THIS MSDS SHOULD BE FOLLOWED TO MINIMIZE EMPLOYEE EXPOSURE.

SECTION VII PHYSICAL DATA

BOILING POINT: 100-425 APPROX. (DEG F)

SPECIFIC GRAVITY: 0.72-0.76 (H2O=1)

VAPOR PRESSURE: 7-14.5 PSI (MM HG) (REID)

MELTING POINT: NOT AVAILABLE (DEG F)

SOLUBILITY: NEGLIGIBLE (IN WATER)

VAPOR DENSITY: 3.5 (AIR=1)

EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT AVAILABLE

% VOLATILE BY VOL= 100 (@ 415 DEG. F)

APPEARANCE AND ODOR: BRONZE COLOR; CLEAR AND BRIGHT LIQUID. HYDROCARBON ODOR.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD:
-40 DEG F TAG CLOSED TESTER

FLAMMABLE LIMITS /% VOLUME IN AIR
LOWER: 1.3 UPPER: 7.6

EXTINGUISHING MEDIA
USE WATER FOG, FOAM, DRY CHEMICAL OR CO2. DO NOT USE A DIRECT STREAM OF WATER. PRODUCT WILL FLOAT AND CAN BE REIGNITED ON SURFACE OF WATER.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS
DANGER. EXTREMELY FLAMMABLE. CLEAR FIRE AREA OF UNPROTECTED PERSONNEL AND ISOLATE. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS
VAPORS ARE HEAVIER THAN AIR ACCUMULATING IN LOW AREAS AND TRAVELING ALONG THE GROUND AWAY FROM THE HANDLING SITE. DO NOT WELD, HEAT OR DRILL ON OR NEAR CONTAINER. HOWEVER, IF EMERGENCY SITUATIONS REQUIRE DRILLING, ONLY TRAINED EMERGENCY PERSONNEL SHOULD DRILL.

SECTION IX REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:
AVOID HEAT, SPARKS, OPEN FLAMES AND STRONG OXIDIZING AGENTS. PREVENT VAPOR ACCUMULATION.

HAZARDOUS DECOMPOSITION PRODUCTS
CARBON MONOXIDE AND OTHER UNIDENTIFIED ORGANIC COMPOUNDS CAN BE FORMED UPON COMBUSTION.

SECTION X EMPLOYEE PROTECTION

RESPIRATORY PROTECTION
UNDER CONDITIONS OF POTENTIAL HIGH EXPOSURE, THE USE OF A NIOSH-APPROVED RESPIRATOR IS RECOMMENDED (SEE SECTION X). PER 29 CFR 1910.134 OR 29 CFR 1910.1028 USE EITHER AN ATMOSPHERE-SUPPLYING RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS. FOR SERVICE STATION PERSONNEL PROTECTION, SEE SECTION XII.

PROTECTIVE CLOTHING
AS REQUIRED TO MINIMIZE SKIN AND EYE CONTACT, WEAR IMPERVIOUS GLOVES, EYE PROTECTION, AND OTHER PROTECTIVE CLOTHING.

ADDITIONAL PROTECTIVE MEASURES
USE EXPLOSION-PROOF VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS.

SECTION XI ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES
DANGER. EXTREMELY FLAMMABLE. ELIMINATE ALL IGNITION SOURCES. HANDLING EQUIPMENT MUST BE GROUNDED TO PREVENT SPARKING. *** LARGE SPILLS *** ISOLATE THE HAZARD AREA AND DENY ENTRY TO UNNECESSARY PERSONNEL. WEAR APPROPRIATE RESPIRATOR AND PROTECTIVE CLOTHING. SHUT OFF SOURCE OF LEAK ONLY IF SAFE TO DO SO. DIKE AND CONTAIN. WATER FOG MAY BE USEFUL IN SUPPRESSING VAPOR CLOUD; CONTAIN RUN-OFF. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; PLACE IN NON-LEAKING CONTAINERS FOR PROPER DISPOSAL. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE; DISPOSE OF FLUSH SOLUTIONS AS ABOVE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND PLACE IN NON-LEAKING CONTAINERS; SEAL TIGHTLY FOR PROPER DISPOSAL.

WASTE DISPOSAL METHOD
EPA - RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) REGULATIONS. AS PRODUCED, THIS MATERIAL IS A PETROLEUM PRODUCT AND NOT A WASTE. IF DISCARDED OR INTENDED TO BE DISCARDED AS IS, IT IS A LIQUID IGNITABLE HAZARDOUS WASTE AS DEFINED IN RCRA (40 CFR 261.21). THE EPA HAZARDOUS WASTE NUMBER IS D001. FREE LIQUID IGNITABLE WASTES ARE BANNED FROM DISPOSAL BY LANDFILLING BULK OR IN CONTAINERS. PRODUCT RECOVERY AND RECYCLING ARE RECOMMENDED WHERE POSSIBLE.

ENVIRONMENTAL HAZARDS
EPA - CLEAN WATER ACT (CWA). THIS PRODUCT IS CLASSIFIED AS AN OIL UNDER SECTION 311 OF THE CLEAN WATER ACT. SPILLS ENTERING (A) SURFACE WATERS OR (B) ANY WATERCOURSES OR SEWERS ENTERING/LEADING TO SURFACE WATERS THAT CAUSE A SHEEN MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802. KEEP OUT OF SURFACE WATERS AND ANY WATER COURSES OR SEWERS ENTERING OR LEADING TO SURFACE WATERS.

SECTION XII SPECIAL PRECAUTIONS

DANGER. EXTREMELY FLAMMABLE. AVOID HEAT, SPARKS, OPEN FLAMES, INCLUDING PILOT LIGHTS, AND STRONG OXIDIZING AGENTS. USE EXPLOSION-PROOF VENTILATION TO PREVENT VAPOR ACCUMULATION. ALL HANDLING EQUIPMENT MUST BE GROUNDED TO PREVENT SPARKING. HARMFUL OR FATAL IF SWALLOWED. DO NOT SIPHON GASOLINE BY MOUTH.

FOR USE AS A MOTOR FUEL ONLY. DO NOT USE AS A CLEANING SOLVENT OR FOR OTHER NON-MOTOR FUEL USES. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE. UNDER NORMAL WORKING CONDITIONS AT SERVICE STATIONS, A RESPIRATOR IS NOT WARRANTED.

IF A MAJOR SPILL OCCURS, GET UPWIND AND NOTIFY LOCAL EMERGENCY PERSONNEL. REMEMBER EXPLOSION AND FIRE IS THE MOST IMMEDIATE DANGER.

SECTION XIII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: FLAMMABLE LIQUID
D.O.T. PROPER SHIPPING NAME: GASOLINE

OTHER REQUIREMENTS:
D.O.T. I.D. #UN 1203, GUIDE NO. 27.

SECTION XIV OTHER REGULATORY CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: FEBRUARY 18, 1988

JOHN P. SEPESI

SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
P. O. BOX 4320
HOUSTON, TX 77210

BE SAFE

READ OUR PRODUCT
SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

GIANT
REFINING COMPANY

Original

ROUTE 3, BOX 7 • GALLUP, NEW MEXICO 87301
(505) 722-3833 • TWX 910-981-0504

MATERIAL SAFETY DATA SHEET

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
DIESEL FUEL #2

CHEMICAL NAME
Petroleum Distillate Fuel

PRODUCT MANUFACTURE
GIANT REFINING CO.
ROUTE 3 BOX 7
GALLUP, NM 87301
EMERGENCY PHONE: (505) 722-3833
INFORMATION PHONE: (505) 722-3833
DATE PREPARED: November 19, 1987

PRODUCT APPEARANCE AND ODOR
Clear liquid, light yellow color
Faint petroleum hydrocarbon odor

CAS NUMBER
68476-34-6

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Diesel Fuel No. 2	68476-34-6	100%

EXPOSURE LIMIT FOR TOTAL PRODUCT
300 ppm (900 mg/m3) for an 8-hour workday

C. EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT
If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN CONTACT
In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INHALATION
Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, remove fr exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation, administer oxygen, if available.

INGESTION
If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT (MINIMUM)
52 degrees C. (125 degrees F.)
ASTM D 93, Pensky Martens Closed Cup

AUTOIGNITION TEMPERATURE
Greater than 204 C. (400 F.)

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)
Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES
The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials". Eighth Edition (1984):

Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liqui type extinguishing agents may all be suitable for extinguishing fires involving this type of product.

Water should be used to keep fire-exposed containers cool. If a leak or spill has ignited, use water spray to disperse the vapors and to protect men attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS
Fumes, smoke, carbon monoxide, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING
"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS
Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)
Prolonged or repeated liquid contact with the skin will dry and defat the skin, leading to possible irritation and dermatitis.
High vapor concentrations (greater than approximately 1000 ppm, attainable at temperatures well above ambient) are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, may cause unconsciousness, and may have other central nervous system effects.

TOXICITY INFORMATION

Lifetime skin painting studies conducted by the American Petroleum Institute, and others have shown that similar products boiling between 17[illegible] 370 degrees C (350-700 F) usually produce skin tumors and/or skin cancer laboratory mice. The degree of carcinogenic response was weak to moderat with a relatively long latent period. The implications of these results for humans have not been determined.

Limited studies on oils that are very active carcinogens have shown that washing the animals' skin with soap and water between applications greatl reduces tumor formation.

Potential risks to humans can be minimized by observing good work practic and personal hygiene procedures generally recommended for petroleum products. See Section I for recommended protection and precautions.

Reports of animal studies using both sexes of several species have shown that kidney effects can occur in male rats after prolonged and repeated inhalation exposures to light hydrocarbon vapors of the general type represented by this product. While the effects are of a low order of severity in animals, the implications of these results for humans have n yet been determined.

Product has a low order of acute oral toxicity.

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F. PHYSICAL DATA

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The following data are approximate or typical values and should not be u for precise design purposes.

BOILING RANGE
160-350 degrees C. (320-650 F)

SPECIFIC GRAVITY (15.6 C/15.8 C)
0.86

MOLECULAR WEIGHT
Approximately 212 average

pH
Essentially neutral

POUR, CONGEALING OR MELTING POINT
-10 degrees C. (+14 F.)
Pour Point by ASTM D 97

VISCOSITY
2.7 cSt @ 40 degrees C.

VAPOR PRESSURE
Less than 1 mm Hg @ 20 C.

VAPOR DENSITY (AIR = 1)
Greater than 5

PERCENT VOLATILE BY VOLUME
100

EVAPORATION RATE @ 1 ATM. AN
25 C (77 F) (n-BUTYL ACETATE
0.02

SOLUBILITY IN WATER @ 1 ATM.
AND 25 C (77 F)
Negligible; less than 0.1%

G. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.

H. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Shut off and eliminate all ignition sources. Keep people away. Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Ventilate confined spaces. Open all windows and doors. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses or extensive land areas. Assure conformity with applicable governmental regulations. Continue to observe precautions for volatile, flammable vapors from absorbed material

I. PROTECTION AND PRECAUTIONS

VENTILATION
Provide greater than 60 feet per minute hood face velocity. Use only [illegible]t ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air.

RESPIRATORY PROTECTION
Normally not needed at ambient temperatures. Use supplied-air respirator protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION
Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing which could result in prolonged or repeated skin contact.

WORK PRACTICES/ENGINEERING CONTROLS
Keep containers closed when not in use. Do not handle or store near hea sparks, flame, or strong oxidants.

PERSONAL HYGIENE
Minimize breathing vapor, mist or fumes. Avoid prolonged or repeate contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean and dry

before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION

For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents, DOT P 5800.3.

The information contained herein is provided for informational purposes only. To the best of Giant's knowledge and belief, the information is accurate as of the date of preparation. Giant, however, makes no express or implied representations, warranties, or guarantees with respect to the accuracy, completeness and reliability of the information. Giant disclaims responsibility for damage, loss, or injury arising out of, or resulting from use of the information.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL PEGASUS 490

EPNG MSDS NO: 00437 DATE ISSUED: 09/17/1993
PRODUCT ITEM NO: 0012047 LAST REVISED DATE: 12/30/1992

MANUFACTURER
NAME: MOBIL OIL CORPORATION
ADDRESS: 3225 GALLOWS ROAD

CITY: FAIRFAX, EMERGENCY TELEPHONE: (609)737-4411
STATE: VA ZIP: 22037 24 HOUR TELEPHONE:(800)662-4525

NFPA HEALTH: 0 FIRE: 1 REACTIVITY: 0
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: NA TRADE SECRET: N
MOLECULAR WEIGHT: NA TIER II REPORTABLE:

BOILING POINT: NA EVAPORATION RATE: NA
MELTING POINT: NA VAPOR PRESSURE: < .1
VISCOSITY: @ 100F, 695.8 SPECIFIC GRAVITY: 0.000
VAPOR DENSITY: NA WATER SOLUBILITY: NEGLLIGIBLE

FLASH POINT : >425(218) METHOD: ASTM D-92
AUTOIGNITION : NA LEL: .6% UEL: 7.0%

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL PEGASUS 490

SECTION I MATERIAL IDENTIFICATION

SUPPLIER: Mobil Oil Corp

CHEMICAL NAMES AND SYNONYMS: Pet. Hydrocarbons and Additives

USE OR DESCRIPTION: Natural Gas Engine Oil

24-HOUR EMERGENCY (CALL COLLECT): (609) 737-4411

CHEMTREC: (800) 424-9300

PRODUCT AND MSDS INFORMATION: (800) 662-4525

SECTION II INGREDIENTS AND HAZARDS

POTENTIALLY HAZARDOUS INGREDIENTS: None.

SECTION III PHYSICAL DATA

APPEARANCE: Amber Liquid
ODOR: Mild
PH: NA
VISCOSITY AT 40 C, CS: 132.0
VISCOSITY AT 100 C, CS: 12.5
FLASH POINT F(C): > 425(218)
METHOD: ASTM D-92
MELTING POINT F(C): NA
POUR POINT F(C): 5(-15)
BOILING POINT F(C): > 600(316)
RELATIVE DENSITY, 15/4 C: 0.89
SOLUBILITY IN WATER: Negligible
VAPOR PRESSURE-mm Hg 20C: < .1

NA= NOT APPLICABLE NE= NOT ESTABLISHED D= DECOMPOSES

FOR FURTHER INFORMATION, CONTACT YOUR LOCAL MARKETING OFFICE.

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT F(C): < 425(218) (ASTM D-92)

FLAMMABLE. LEL: .6% UEL: 7.0%

EXTINGUISHING MEDIA: Carbon Dioxide, Foam, Dry Chemical and water fog

SPECIAL FIRE FIGHTING PROCEDURES:

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL PEGASUS 490

Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. For fires in enclosed areas, firefighters must use self-contained breathing apparatus. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

SECTION V REACTIVITY DATA

STABILITY (Thermal, Light, etc.): Stable
CONDITIONS TO AVOID: Extreme heat
INCOMPATIBILITY (Materials to Avoid): Strong Oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VI HEALTH AND HAZARD INFORMATION

—— INCLUDES AFFRAVATED MEDICAL CONDITIONS, IF ESTABLISHED ——

THRESHOLD LIMIT VALUE: 5.00 mg/m3 Suggested for Oil Mist
EFFECTS OF OVEREXPOSURE: Slight eye and skin irritation.

EMERGENCY AND FIRST AID PROCEDURES:
— FOR PRIMARY ROUTES OF ENTRY —

EYE CONTACT: Flush thoroughly with water. If irritation persists, call a physician.

SKIN CONTACT: Wash contact areas with soap and water.

INHALATION: Not expected to be a problem

INGESTION: Not expected to be a problem. However, if greater than 1/2 liter(pint) ingested, immediately give 1 oto 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

TOXICOLOGICLA DATA
—— ACUTE TOXICOLOGY ——

ORAL TOXICITY (RATS): Slight toxic —— Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS): Slightly toxic —— Based on testing of similar products and/or the components.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL PEGASUS 490

INHALATION TOXICITY (RATS): Not applicable —— Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use, or misuse of this product.

EYE IRRITATION (RABBITS): May cause slight irritation. —— Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS): May cause slight irritation on prolonged or repeated contact. —— Based on testing of similar products and/or the components.

—— SUBCHRONIC TOXICOLOGY (SUMMARY) ——

Severely solvent refined and severely hydrotreated mineral base oils have been tested at Mobil Environmental and Health Sciences Laboratory by dermal application to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.

—— CHRONIC TOXICOLOGY (SUMMARY) ——

The base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of similar oils showed no evidence of carcinogenic effects.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

ENVIRONMENTAL IMPACT:
In case of accident or road spill notivy CHEMTRIEC (800) 424-9300. Report spills as required to appropriate authorities. U.S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800) 424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:
Absorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

WASTE MANAGEMENT:
Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Such burning may be limited pursuant to the resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved r recycling facility or can be disposed of at any governmental approved

disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION:
Normal industrial eye protection practices should be employed.

SKIN PROTECTION: No special equipment required. However, good personal hygiene practices should always be followed.

RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.

VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

No special precautions required.

REGULATORY INFORMAION

GOVERNMENTAL INVENTORY STATUS: All components registered in accordance with TSCA and EINECS.
DOT:
Shipping Name: NA
Hazard Class: NA
US OSHA HAZARD COMMUNICATION STANDARD:
Product assessed in accordance with OSHA 29CFR 1910.1200 and determined not to be hazardous.
RCRA INFORMATION:
The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous wastes. It does not exhibit the hazardous characteristics fo ignitability, corrosivity, or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristics Leaching Procedure (TLCP). However, used product may be regulated.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".
SARA (311/312 - Formerly 302) REPORTABLE HAZARD CATEGORIES: None
This product contains no chemicals reportable under SARA (313) toxic release program.
The following product ingredients are cited on the lists below:

CHEMICAL NAME:	CAS #	LIST CITATIONS
ZINC (ELEMENTAL ANALYSIS) (.03%)	7440-66-6	22
PHOSPHORODITHOIC ACID, 0,0-DI C1-	68649-42-3	22

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL PEGASUS 490

14-ALKYL ESTERS, ZINC SALTS (2:1)
(ZDDP) (.23%)

— REGULATORY LISTS SEARCHED —				
1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2a	12 = TSCA 5a2	18 = CA RTK	23 = NM RTK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RTK	24 = NJ RTK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RTK	26 = RI RTK
		16 = WHMIS		

CARC = CARCINOGEN; SUS = SUSPECTED CARCINOGEN
NOTE: MOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

********** APPENDIX **********
FOR MOBIL USE ONLY: MHC: 1* 1* NA 1* 1*, MPPEC: A, PPEC: , US92-547
APPROVE CCODE: 13 07/30/92 REQ: US - MARKETING
****

Information given herein is offered in good faith as accurate, but wit without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and we EXPRESSLY DISCLAIM AL ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARANTIES OF MERCHA MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

PREPARED BY: Mobil Oil Corporation
Environmental Health and Safety Department, Princeton, NJ

FOR FURTHER INFORMATION, CONTACT:
Mobil Oil Corporation, Product Fromulation and Quality Control
3225 Gallows Road, Fairfax, VA 22037 (800) 227-0707 X3265

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE 797 OIL

EPNG MSDS NO: 00760 DATE ISSUED: 01/11/1993
PRODUCT ITEM NO: 0012043 LAST REVISED DATE: 09/17/1993

MANUFACTURER
NAME: MOBIL OIL CORP
ADDRESS: U.S. DIVISION
3225 GALLOWS ROAD
CITY: FAIRFAX EMERGENCY TELEPHONE: (609)737-4411
STATE: VA ZIP: 22037 24 HOUR TELEPHONE:(800)662-4525

NFPA HEALTH: 0 FIRE: 1 REACTIVITY: 0
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: TRADE SECRET: N
MOLECULAR WEIGHT: TIER II REPORTABLE:

BOILING POINT: F(C)>600(316) EVAPORATION RATE:
MELTING POINT: F(C) NA VAPOR PRESSURE: MM HG 20C<0.1
VISCOSITY: AT 40C>28.8 SPECIFIC GRAVITY: 0.000
VAPOR DENSITY: WATER SOLUBILITY: NEGLIGIBLE

FLASH POINT : F(C)>405(207) METHOD: ASTM D-92
AUTOIGNITION : LEL: 0.6% UEL: 7.0%

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:
APPEARANCE: STRAW LIQUID; ODOR: MILD

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE 797 OIL

SECTION I MATERIAL IDENTIFICATION

SUPPLIER: Mobil Oil Corporation

CHEMICAL NAMES AND SYNONYMS: Pet. Hydrocarbon and Additives

USE OR DESCRIPTION: Stream Turbine Oil

24 HOUR EMERGENCY (CALL COLLECT): 609-737-4411

CHEMTREC: 800-424-9300

PRODUCT AND MSDS INFORMATION: 800-662-4525

SECTION II INGREDIENTS AND HAZARDS

POTENTIALLY HAZARDOUS INGREDIENTS:
None.

See Section IX for regulatory data.

INGRED. DESCRIPTION	%	CAS NUMBER
CONTAINS THE FOLLOWING BASE OIL:	>95.00	
DISTILLATES (PETROLEUM),HYDROTREATED HEAVY PARAFFINIC		64742-54-7

SECTION III PHYSICAL DATA

APPEARANCE: Straw Liquid

ODOR: Mild

VISCOSITY AT 100 C, CS: 5.4
AT 40 C, CS: >28.8

FLASH POINT F (C): > 405 (207) (ASTM D-92)

MELTING POINT F (C): NA

POUR POINT F (C): 20 (-7)

BOILING POINT F (C): > 600 (316) VOC: < 4.00 (Wt. %; 0.288 lbs/ga

RELATIVE DENSITY, 15/4 C: 0.86

SOLUBILITY IN WATER: Negligible

VAPOR PRESSURE MM HG 20 C: < .1

NA= Not Applicable

NE=Not Established
D =Decomposes

FOR FURTHER INFORMATION, CONTACT YOUR LOCAL MARKETING REPRESENTATIVE.

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT F (C): > 405 (207) (ASTM D-92)

FLAMMABLE LIMITS
LEL: .6% UEL: 7.0%

EXTINGUISHING MEDIA:
Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES:
Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT:
For fires in enclosed area, fire fighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

NFPA HAZARD ID:
Health=0, Flammability=1, Reactivity=0

SECTION V REACTIVITY DATA

STABILITY (THERMAL, LIGHT, ETC.): Stable

CONDITIONS TO AVOID: Extreme heat.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VI HEALTH AND HAZARD INFORMATION

HEALTH HAZARD DATA/INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED

EFFECTS OF OVEREXPOSURE:
No significant effects expected.

EMERGENCY AND FIRST AID PROCEDURES/FOR PRIMARY ROUTES OF ENTRY

PRODUCT NAME: MOBIL DTE 797 OIL

EYE CONTACT:
Flush thoroughly with water. If irritation persists, call a physician.

SKIN CONTACT:
Wash contact areas with soap and water.

INHALATION:
Not expected to be a problem.

INGESTION:
Not expected to be a problem. However, if greater than 1/2 liter (pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency room or poison control center for assistance. Do not induce vomiting or give anything by mouth to an unconscious person.

TOXICOLOGICAL DATA

ORAL TOXICITY (RATS):
Practically non-toxic (LD50: greater than 2000 mg/kg). Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS):
Practically non-toxic (LD50: greater than 2000 mg/kg). Based on testing of similar products and/or the components.

INHALATION TOXICITY (RATS):
Not applicable. Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreseeable handling, use, or misuse of this product.

EYE IRRITATION (RABBITS):
Practically non-irritating. (Draize score: 0 or greater but 6 or less). Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS):
Practically non-irritating. (Primary Irritation Index: 0.5 or less) Based on testing of similar products and/or the components.

OTHER ACUTE TOXICITY DATA:
The acute toxicological results summarized above are based on testing of representative Mobil products. Representative Mobil formulations have shown no acute effects, administered via the inhalation route, when tested at maximum attainable oil mist or vapor concentrations.

SUBCHRONIC TOXICOLOGY (SUMMARY):
Representative Mobil formulations have been tested at the Mobil Environmental and Health Sciences Laboratory by dermal applications

to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations, including microscopic examination of internal organs and clinical chemistry of body fluids, showed no advers effects.

REPRODUCTIVE TOXICOLOGY (SUMMARY):
Dermal exposure of pregnant rats to representative formulations did not cause adverse effects in either the mothers or their offspring.

CHRONIC TOXICOLOGY (SUMMARY):
The base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using the Mobil Modified Ames Test.

SENSITIZATION (SUMMARY):
Representative Mobil formulations have not caused skin sensitization in guinea pigs.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

ENVIRONMENTAL IMPACT:
Report spills as required to appropriate authorities. U.S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number 800-424-8802. In case of accident or road spill notify CHEMTREC 800-424-9300.

ENVIRONMENTAL FATE AND EFFECTS:
Acute LC/EC50 Fish: Juvenile Rainbow Trout: Practically non-toxic based on testing of similar products.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:
Absorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

WASTE MANAGEMENT:
Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Such burning may be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved re-cycling facility or can be disposed of at any government approved waste disposal facility.
Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION:
Normal industrial eye protection practices should be employed.

SKIN PROTECTION:
No special equipment required. However, good personal hygiene practices should always be followed.

RESPIRATORY PROTECTION:
No special requirements under ordinary conditions of use and with adequate ventilation.

VENTILATION:
No special requirements under ordinary conditions of use and with adequate ventilation.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

No special precautions required.

REGULATORY INFORMATION

GOVERNMENTAL INVENTORY STATUS:
All components comply with TSCA.

US OSHA HAZARD COMMUNICATION STANDARD:
Product assessed in accordance with OSHA 29 CFR 1910.1200 and deter mined not to be hazardous.

RCRA INFORMATION:
The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formula to contain materials which are listed hazardous wastes. It does nc exhibit the hazardous characteristics of ignitibility, corrosivity, reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, use product may be regulated.

THIS PRODUCT HAS BEEN AUTHORIZED BY USDA FOR USE UNDER THE FOLLOWI
CATEGORY:
H2-Lubricants With No Food Contact.

U.S. SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312-FORMERLY 302) REPORTABLE HAZARD CATEGORIES:
None.

PRODUCT NAME: MOBIL DTE 797 OIL

This product contains no chemicals reportable under SARA (313) toxic release program.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
**********NO REPORTABLE INGREDIENTS**********		

REGULATORY LISTS SEARCHED

1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2A	12 = TSCA 5a2	18 = CA RTK	23 = MN RTK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RTK	24 = NJ RTK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RTK	26 = RI RTK

NOTE:
Mobil products are not formulated to contain PCBS.

TRANSPORT AND LABEL INFORMATION
USA DOT: NOT REGULATED BY USA DOT.

IMO: NOT REGULATED BY IMO.

IATA: NOT REGULATED BY IATA.

APPENDIX
PRECAUTIONARY EEC LABEL TEXT:
* - EC labeling not required.

FOR MOBIL USE ONLY:
MHC: 1* 1* NA 0* 0*, MPPEC: A, PPEC: US93-365

APPROVE CODE: 5 07/26/93 REQ: US - MARKETING

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and we expressly disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

PREPARED BY: Mobil Oil Corporation
Environmental Health and Safety Department, Princeton, NJ

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL MEDIUM

EPNG MSDS NO: 00758 DATE ISSUED: / /
PRODUCT ITEM NO: 0012049 LAST REVISED DATE: 06/19/1992

MANUFACTURER
NAME: MOBIL OIL CORP.
ADDRESS:

CITY: EMERGENCY TELEPHONE: (800)424-9300
STATE: ZIP: 24 HOUR TELEPHONE:(800)662-4525

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: TRADE SECRET: N
MOLECULAR WEIGHT: TIER II REPORTABLE:

BOILING POINT: EVAPORATION RATE:
MELTING POINT: VAPOR PRESSURE:
VISCOSITY: SPECIFIC GRAVITY: 0.000
VAPOR DENSITY: WATER SOLUBILITY:

FLASH POINT : METHOD:
AUTOIGNITION : LEL: UEL:

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL MEDIUM

SECTION I MATERIAL IDENTIFICATION

SUPPLIER: Mobil Oil Corp.

CHEMICAL NAMES AND SYNONYMS: Pet. Hydrocarbons and Additives

USE OR DESCRIPTION: Lubricant.

24 HOUR EMERGENCY (CALL COLLECT): (609)737-4411

CHEMTREC: (800)424-9300

PRODUCT AND MSDS INFORMATION: (800) 662-4525

SECTION II INGREDIENTS AND HAZARDS

None.

See this Section and Section IX for Regulatory and further compositional data.

SOURCES
A=ACGIH-TLV
A*=SUGGESTED-TLV
M=MOBIL
O=OSHA
S=SUPPLIER
NOTE:
Limits shown for guidance only. Follow applicable regulations.

INGRED. DECRIPTION	%	CAS NUMBER
Contains one or more of the following BASE OILS:	>95.00	
DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC		64742-54-7
DISTILLATES (PETROLEUM),SOLVENT-REFINED HEAVY PARAFFINIC		64741-88-4
PHOSPHORIC ACID, TRIS(METHYLPHENYL) ESTER	0.05	1330-78-5

SECTION III PHYSICAL DATA

APPEARANCE:
Lt. Amber Liquid.

ODOR:
Mild

pH:

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL MEDIUM

NA

VISCOSITY AT 100 F, SUS: 226.0 AT 40 C, CS: 43.7
AT 210 F, SUS: 48.8 AT 100C, CS: 6.5
FLASH POINT F (C):
> 400 (204) (ASTM D-92)

MELTING POINT F (C):
NA

POUR POINT F (C):
20 (-7)

BOILING POINT F (C):
> 600 (316)
RELATIVE DENSITY, 15/4 C:
0.87

SOLUBILITY IN WATER:
Negligible.

VAPOR PRESSURE MM HG 20 C:
< .1

NA= Not Applicable
NE= Not Established.
D=Decomposes.

FOR FURTHER INFORMATION, CONTACT YOUR LOCAL MARKETING OFFICE.

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT F (C):
> 400 (204) (ASTM D-92)

FLAMMABLE LIMITS
LEL: .6% UEL: 7.0%

EXTINGUISHING MEDIA:
Carbon dioxide, foam, dry chemical and water fog.

SPECIAL FIRE FIGHTING PROCEDURES:
Water or foam may cause frothing. Use Water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. For fires in enclosed areas, firefighters must use self-contained breathing apparatus. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL MEDIUM

None.

NFPA HAZARD ID:
Health: 0. Flammability: 1. Reactivity: 0

SECTION V REACTIVITY DATA

STABILITY (THERMAL, LIGHT, ETC.):
Stable.

CONDITIONS TO AVOID:
Extreme heat.

INCOMPATIBILITY (MATERIALS TO AVOID):
Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon monoxide.
HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION VI HEALTH AND HAZARD INFORMATION

HEALTH HAZARD DATA/INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED

THRESHOLD LIMIT VALUE:
5.00 mg/m3 Suggested for Oil Mist.

EFFECTS OF OVEREXPOSURE:
Slight skin irritation.

EMERGENCY AND FIRST AID PROCEDURES/FOR PRIMARY ROUTES OF ENTRY

EYE CONTACT:
Flush thoroughly with water. If irritation persists, call a physician.

SKIN CONTACT:
Wash contact area with soap and water.

INHALATION:
Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance and call a physician. If breathing has stopped, use mouth to mouth resuscitation.
INGESTION:
Not expected to be a problem when ingested. If uncomfortable seek medical assistance.

TOXICOLOGICAL DATA--ACUTE TOXICOLOGY--

ORAL TOXICITY (RATS):
Nontoxic--Based on testing of similar products and/or the components.

DERMAL TOXICITY (RABBITS):
Nontoxic--Based on testing of similar products and/or the components.
INHALATION TOXICITY (RATS):
Not established.

EYE IRRITATION (RABBITS):
Expected to be non-irritating--Based on testing of similar products and/or the components.

SKIN IRRITATION (RABBITS):
May cause slight irritation on prolonged or repeated contact--Based on testing of similar products and/or the components.

SUBCHRONIC TOXICOLOGY (SUMMARY):
Severely solvent refined and severely hydrotreated mineral base oils have been tested at Mobil Environmental and Health Sciences Laboratory by dermal application to rats 5 day/week for 90 days at does significantly higher than those expected during normal industrial exposure. Extensive evaluations including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.

CHRONIC TOXICOLOGY (SUMMARY):
The base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of similar oils showed no evidence of carcinogenic effects.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

ENVIRONMENTAL IMPACT:
Report spills as required to appropriate authorities. U.S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800)424-8802. In case of accident or road spill notify CHEMTREC (800)424-9300.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:
Absorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

WASTE MANAGEMENT:
Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Such burning may

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL MEDIUM

be limited pursuant to the Resource Conservation and Recovery Act. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at any government approved waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION:
Normal industrial eye protection practices should be employed.

SKIN PROTECTION:
No special equipment required. However, good personal hygiene practices should always be followed.

RESPIRATORY PROTECTION:
No special requirements under ordinary conditions of use and with adequate ventilation.

VENTILATION:
Use in well ventilated area.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

No special precautions required.

REGULATORY INFORMATION

GOVERNMENTAL INVENTORY STATUS:
All components registered in accordance with TSCA.

DOT

SHIPPING NAME:
Not Applicable
HAZARD CLASS:
Not Applicable.

US OSHA HAZARD COMMUNICATION STANDARD:
Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not be hazardous.

RCRA INFORMATION:
The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed hazardous waste. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL MEDIUM

product may be regulated.

U.S. SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III:
This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

SARA (311/312-FORMERLY 302) REPORTABLE HAZARD CATEGORIES:
None.

This product contains no chemicals reportable under SARA (313) toxic release program.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATION
********** No Reportable Ingredients **********		

KEY TO LIST CITATION
1=OSHA Z, 2=ACGIH, 3=IARC, 4=NTP, 7=NFPA 49,
8=NFPA 325M, 9=DOT HMT, 10=CA RTK, 11=IL RTK, 12=MA RTK
13=MN RTK, 14=NJ RTK, 15=MI 293, 16=FL RTK 17=PA RTK,
18=CA P65

NTP, IARC, AND OSHA INCLUDE CARCINOGENIC LISTINGS

NOTE:
Mobil products are not formulated to contain PCBS.

**********APPENDIX**********
For MOBIL use only: MHC: 0* 08 NE 0* 1*, MPPEC: A, PPEC: A,US92-371
APPROVE CCODE:2 04/21/92 REQ: US-MARKETING

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and we expressely disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

PREPARED BY: Mobil Oil Corporation
Environmental Health and Safety Department, Princeton, NJ

FOR FURTHER INFORMATION CONTACT:
Mobil Oil Corp., Product Formulation and Quality Control
3225 Gallows Rd., Fairfax, VA 22037 (800)227-0707 x3265

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL HEAVY MEDIUM

EPNG MSDS NO: 01310 DATE ISSUED: / /
PRODUCT ITEM NO: 0012049 LAST REVISED DATE: 06/29/1990

MANUFACTURER
NAME: MOBIL OIL CORPORTION
ADDRESS: 3225 GALLOW ROAD

CITY: FAIRFAX EMERGENCY TELEPHONE: (800)424-9300
STATE: VA ZIP: 22037 24 HOUR TELEPHONE:(800)227-0707

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: NA TRADE SECRET: N
MOLECULAR WEIGHT: NA TIER II REPORTABLE:

BOILING POINT: NA EVAPORATION RATE: NA
MELTING POINT: >600(316) VAPOR PRESSURE: <.1
VISCOSITY: 334/7 @ 40 C,CS SPECIFIC GRAVITY: 0.000
VAPOR DENSITY: 0.377 WATER SOLUBILITY: NEG

FLASH POINT : N METHOD: NA
AUTOIGNITION : NA LEL: UEL:

PHYSICAL FORMS PURE: MIX: LIQUID: Y GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL HEAVY MEDIUM

SECTION I MATERIAL IDENTIFICATION

SUPPLIER: Mobil Oil Corp.
CHEMICAL NAMES AND SYNONYMS: Pet. Hydrocarbon and Additives
USE OR DESCRIPTION: Steam Turbine Oil

SECTION II INGREDIENTS AND HAZARDS

SEE SECTION XII AND XII FOR REGULATORY AND FURTHER COMPOSITIONAL DATA>

.

TOXICOLOGY DATA

----------ACUTE TOXICOLOGY----------

ORAL TOXICITY (RATS): LD50: >5g/kg Slightly toxic (estimated)--
Based on testing of similar products and/or the components.

.

DERMAL TOXICITY (RABBITS): LD 50: >2g/kg slightly toxic (estimated)--
Based on testing of similar products and/or the components.

.

INHALATION TOXICITY (RATS): Not applicable--Harmful concentrations of mists and/or vapors are unlikely to be encountered through any customary or reasonably foreeseeable handling, use, or misuse of this product.

.

EYE IRRITATION (RABBITS) : Expected to be non-irritating--Based on testing of similar products and/or the components.

.

SKIN IRRITATION (RABBITS) May cause slight irritation on prolonged or repeated contact. --Based on testing of similar products and/or the components.

.

----------SUBCHRONIC TOXICOLOGY (SUMMARY)----------

SEVERELY SOLVENT REFINED AND SEVERELY HYDROTREATED MINERAL BASE OILS Have been tested at Mobil Environmental and Health Sciences Lab by Dermal application to rats 5 days/week for 90 days at doses significantly higher than those expected during normal industrial exposure. Extensive evaluations including microscopic examination of internal organs and clinical chemistry of body fluids, showed no adverse effects.

----------CHRONIC TOXICOLOGY (SUMMARY)----------

The base oils in this product are severely solvent refined and/or severely hydrotreated. Two year mouse skin painting studies of similar oils showed no evidence of carcinogenic effects.

----------REGULATORY INFORMATION----------

GOVERNMENTAL INVENTORY STATUS: All components registered in accordance with TSCA.

.

DOT SHIPPING NAME: NA
DOT HAZARD CLASS: NA

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL HEAVY MEDIUM

US OSHA HAZARD COMMUNICATION STANDARD: PRODUCT ASSESSED IN ACCORDANCE WITH OSAH 29 CFR 1910.1200 AND DETERMINED NOT BE HAZARDOUS.

.

RCRA INFORMATION: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261DO: does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity, and is not formulated with the metals cited inteh EP Toxicity Test. However, used product may be regulated.

.

U.S. SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III; THIS PRODUCT CONTAINS NO "EXTREMELY HAZARDOUS SUBSTANCES".

.

SARA (302) REPORTABLE HAZARD CATEGORIES: None

.

THIS PRODUCT CONTAINS NO CHEMICALS REPORTABLE UNDER SARA (313) TOXIC RELEASE PROGRAM.

.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ONTHE LISTS BELOW:

.

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS
****NO REPORTABLE INGREDIENTS****		

----------KEY TO LIST CITATIONS----

1=OSHA Z,	2=ACGIH	3=IARC	4=NTP	5=NCI
6=EPA CARC	7=NFPA 49	8=NFPA 325m,	9=DOT HMT	10=CA RTK
11=IL RTK	12=MA RTK	13=MN RTK	14=NJ RTK	15=MI 293
16=FL RTK	17=PA RTK	18=CAP65		

----NTP, IARC, AND OSHA INCLUDE CARCINOGENIC LISTINGS-----

.

NOTE: Mobil Product are not formulated to contain PCBS.

.

XIII-------INGREDIENTS----------

INGREDIENT DESCRIPTION: Contains the following Base Oils: Distillates (Petroleum), Hydrotreated Heavy Paraffinic

.

PERCENT: >95.00

.

CAS NUMBER: 64742-54-7

SECTION III PHYSICAL DATA

APPEARANCE: Amber Liquid ODOR: Mild pH: NA
VISCOSITY AT 100F, SUS: 334.7 @ 40 C,CS: 64.6
VISCOSITY AT 210 F, SUS: 54.5 @ 100 C, CS: 8.4
FLASH POINT F(C): >400 (204) (ASTM D-92)
MELTING POINT F(C): >600 (316)
RELATIVE DENSITY, 15/4 C: 0.877
SOLUBILITY IN WATER: Negligible
VAPOR PRESSURE: mmHg20C: <.1

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL HEAVY MEDIUM

.

NA NOT APPLICABLE
NE=NOT ESTABLISHED
D=DECOMPOSES
FOR FURTHER INFORMATION, CONTACT YOUR LOCAL MARKETING OFFICE.

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT F(C): >400 (204) (ASTM) D-92
FLAMMABLE LIMITS: LEL: .6 UEL: 7.0
EXTINGUISHING MEDIA: Carbon dioxide, foam, dry chemical and water fog.

.

SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. For fires in enclosed areas, firefighters must use self-contained breathing apparatus. Prevent runoff from fire control or dilutin from entering streams or drinking water supply.

.

USUSUAL FIRE AND EXPLOSION HAZARDS: None
NFPA HAZARD IS: Health: 0, FLammability: 1, Reactivity: 0

SECTION V REACTIVITY DATA

STABILITY (THERMAL, LIGHT ETC): Stable
CONDITIONS TO AVOID: Extreme heat

.

INCOMPATABILITY (MATERIAL TO AVOID): Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide
HAZARDOUS POLYMERIZATIN: Will not occur

.

SECTION VI HEALTH AND HAZARD INFORMATION

----------INCLUDES AGGRAVATED MEDICAL CONDITIONS, IF ESTABLISHED-----

.

THRESHOLD LIMITS VALUE: 5.00mg/m3 Suggested for oil mist

.

EFFECTS OF OVEREXPOSURE: Slight skin irritation.

.

EMERGENCY AND FIRST AID PROCEDURES

----------FOR PRIMARY ROUTES OF ENTRY----------

EYE CONTACT: Flush with water
SKIN CONTACT: Wash contact areas with soap and water.
INHALATION: Not expected to be a problem.
INGESTION: Not extpected to be problem. However, if greater than 1/2 liter (Pint) ingested, immediately give 1 to 2 glasses of water and call a physician, hospital emergency roomf or poison control center for assistance. DO notk induce vomiting or give anything by mouth to an unconscious person.

SECTION VII SPILL, LEAK, AND DISPOSAL PROCEDURES

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MOBIL DTE OIL HEAVY MEDIUM

ENVIRONMENTAL IMPACT: Report spills as required to appropriate authorities, U.S. Coast Guard regualtins require immediate reportingq of spills that could reach any waterway including intermittent dry creeks. Report spill to coast guard toll free number 800-424-8802. In case of accident or road spill notify Chemtrec 800-424-9300.

.

PRECEDURES IF MATERIAL IS RELEASED OR SPILLED: Absorb on fire retardant treated sawdust, distomacedous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

.

WASTE MANAGEMENT: Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Such burning may be limited pursuant to the resource suitable for processing by an approved recycling facility or can be disposed of at any government approved waste disposal facility. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

SECTION VIII SPECIAL PROTECTION INFORMATION

EYE PROTECTION: No special equipment required.

.

SKIN PROTECTION: No special equipment required. However, good personal hygiene practices should always be followed.

.

RESPIRATORY PROTECTION: No special requirements under ordinary conditions of use and with adequate ventilation.

.

VENTILATION: No special requirements under ordinary conditions of use and with adequate ventilation.

SECTION IX SPECIAL PRECAUTIONS AND COMMENTS

Information given herein is offeed in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

EL PASO NATURAL GAS

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: GREASE MOBILUX (NO MSDS AVAILABLE)

EPNG MSDS NO: 02389 DATE ISSUED: / /
PRODUCT ITEM NO: 0050793 LAST REVISED DATE: / /

MANUFACTURER
NAME: MOBILUX
ADDRESS:

CITY: EMERGENCY TELEPHONE: ( ) -
STATE: ZIP: 24 HOUR TELEPHONE:( ) -

NFPA HEALTH: FIRE: REACTIVITY:
CERCLA HEALTH: FIRE: REACTIVITY: PERSISTENCE:

MOLECULAR FORMULA: TRADE SECRET: N
MOLECULAR WEIGHT: TIER II REPORTABLE:

BOILING POINT: EVAPORATION RATE:
MELTING POINT: VAPOR PRESSURE:
VISCOSITY: SPECIFIC GRAVITY: 0.000
VAPOR DENSITY: WATER SOLUBILITY:

FLASH POINT : METHOD:
AUTOIGNITION : LEL: UEL:

PHYSICAL FORMS PURE: MIX: LIQUID: GAS: SOLID:

REMARKS:

PRODUCT SYNONYMS

**** N/A **** **** N/A ****

El Paso Natural Gas Company - Field Services Lab Report

LOCATION: Blanco Plant
DATE OF REPORT: 10/22/94
SAMPLED BY: Roger Bizzell

PROJECT: W.W. Disc.
SAVE FILE: 941422

****All Results By Standard Methods (AWWA) Or EPA Method 300****

SAMPLE POINT	Total Discharge				
LAB ID #	941422				
Date Of Sample	12-Oct-94				
pH (Units)	8.84				
ALKALINITY AS CO3	16				
ALKALINITY AS HCO3	166				
CALCIUM AS Ca	36				
MAGNESIUM AND Mg	7				
TOTAL HARDNESS AS CACO3	119	0	0	0	0
CHLORIDE AS Cl	79				
SULFATE AS SO4	70				
SILICA AS SiO2					
FLUORIDE AS F	0.66				
POTASSIUM AS K	8				
SODIUM AS Na	101				
TOTAL DISSOLVED SOLIDS	376				
CONDUCTIVITY (umhos)	687				

****All Results Expressed as ppm or umhos****

REMARKS:

Approvals:

Analyst: Veronica Bird Date: 10/22/94

Lab Super.: John Sarda Date: 11/4/94

El Paso Natural Gas Company - Field Services Lab Report

LOCATION: Blanco Plant
DATE OF REPORT: 1/13/95
SAMPLED BY: Roger Bizzell

PROJECT: W.W. Disc.
SAVE FILE: 950043

****All Results By Standard Methods (AWWA) Or EPA Method 300****

SAMPLE POINT	Total Discharge				
LAB ID #	950043				
Date Of Sample	11-Jan-95				
pH (Units)	8.26				
ALKALINITY AS CO3	0				
ALKALINITY AS HCO3	224				
CALCIUM AS Ca	72				
MAGNESIUM AND Mg	14				
TOTAL HARDNESS AS CACO3	237	0	0	0	0
CHLORIDE AS Cl	42				
SULFATE AS SO4	98				
SILICA AS SiO2					
FLUORIDE AS F	0.9				
POTASSIUM AS K	12				
SODIUM AS Na	57				
TOTAL DISSOLVED SOLIDS	434				
CONDUCTIVITY (umhos)	645				

****All Results Expressed as ppm or umhos****

REMARKS:

Approvals:

Analyst: Bonnie Bird Date: 1-13-95

Lab Super.: John Faith Date: 1-13-95

WASTEWATER TREATMENT AGREEMENT

This Wastewater Treatment Agreement is made and entered into as of the 1st day of June, 1993, between the El Paso Natural Gas Company, Blanco Plant, ("El Paso"), and the City of Bloomfield, New Mexico ("the City").

ARTICLE I

EFFECTIVE DATES

This agreement shall be effective as of this 1st day of June, 1993, and, except as provided herein, shall remain effective for a period of three (3) years ending therefore on the 31st day of May, 1996.

ARTICLE II

DEFINITIONS

As used in this Agreement, the following terms shall have the following meanings (such meanings to be equally applicable to both the singular and plural forms of the terms defined):

Section 2.1 "Agreement" means this Wastewater Treatment Agreement between El Paso and the City, dated the date written above, and all Exhibits attached hereto.

Section 2.2 "Cooling Tower Blowdown" means the stream of purged wastewater from the operation of the circulating cooling water system at the Blanco Plant.

Section 2.3 "Boiler Blowdown" means the stream of wastewater from the operation of the boilers at the Blanco Plant.

Section 2.4 "Domestic Wastewater" means sanitary sewage wastes collected from the rest rooms, kitchen, and office areas of the Blanco Plant.

Section 2.5 "Parties" means both El Paso and the City.

Section 2.6 "Party" means either El Paso or the City, depending upon the context in which the term is used.

Section 2.7 "Stormwater" means the water resulting from rainfall runoff from the processing and storage areas of the Blanco Plant.

Section 2.8 "Washwater" means water collected from the processing and storage areas of the Blanco Plant resulting from maintenance and cleaning activities.

Section 2.9 "Wastewater" means the combined streams of all Wastewater discharged from the Blanco Plant to the City of Bloomfield, New Mexico, Wastewater Treatment System. The streams to be combined include Cooling Tower Blowdown, Boiler Blowdown, Domestic Wastewater, Stormwater and Washwater.

Section 2.10 "Wastewater Treatment" means the receipt, treatment and proper discharge of treated wastewater by the City of Bloomfield, New Mexico, Wastewater Treatment System, in accordance with all applicable regulations and permits.

Section 2.11 "Wastewater Treatment System" means the piping and treatment equipment operated by the City of Bloomfield, New Mexico, for the receipt, treatment, and discharge of municipal and industrial wastewater.

ARTICLE III

PERFORMANCE

Section 3.1 The City will provide Wastewater Treatment for Wastewater from El Paso.

Section 3.2 El Paso will discharge Wastewater to the City in accordance with the quality limitations listed in Exhibit A except as provided herein. El Paso will meet the Total Dissolved Solids ("TDS") limit of 600 mg/l so long as such limit does not cause the City to exceed limits set by the Environmental Protection Agency ("EPA") for Publicly Owned Treatment Works ("POTW") or cause the City not to comply with the Colorado River Basin Salinity Control Act (Public Law 93-32, June 24, 1974). In the event that the City no longer complies with POTW limits or the Colorado River Basin Salinity Control Act and El Paso's TDS discharge is 600 mg/l, the City will immediately notify El Paso of its reasonable requirements to appropriately adjust El Paso's TDS limits for that period of time necessary to bring the City into compliance with all relevant laws.

Section 3.3 El Paso will provide analytical testing of Wastewater discharged to the City by El Paso, according to the list of tests, at such frequency as shown in Exhibit A and bear all costs related to such analyses.

Section 3.4 The City, at the City of Bloomfield Wastewater Treatment System Superintendent's discretion,

will collect 24-hours time Proportional Sample of water discharged from El Paso to the Wastewater Treatment System and will analyze the water and bear all costs related to such analyses.

Section 3.5 El Paso will maintain in good working order that effluent flow meter installed by El Paso for use by the City in determining the quantity of Wastewater discharged to the Wastewater Treatment System.

ARTICLE IV

REPORTING

Section 4.1 El Paso will provide the results of analyses performed under Section 3.3 herein to the City within 10 days of their receipt by El Paso. El Paso will report all test results to the City at the intervals described in Exhibit A.

Section 4.2 El Paso will, as soon as possible after recognition, report any upset, abnormal operation, emergency, or other condition that could reasonably be expected to result in adverse impact upon the operation of the Wastewater Treatment System. El Paso will report such incidents and conditions to the City of Bloomfield Engineer/Planner, as required in Section 18-70, City Code of the City of Bloomfield (as amended). See Exhibit B for text of Section 18-70.

ARTICLE V

COST REIMBURSEMENT

Section 5.1 El Paso will pay industrial user rates for treatment of Wastewater. The industrial user rates mandated at Section 18-54(4) of the City Code of the City of Bloomfield (as amended) require that El Paso pay FIFTY-ONE DOLLARS ($51.00) each month for the first 50,000 gallons of Wastewater discharged into the Wastewater Treatment System and ONE DOLLAR and FORTY CENTS ($1.40) each month for each additional 1,000 gallons of Wastewater discharged into the Wastewater Treatment System. Quantities of Wastewater shall be measured by a flow meter installed according to Section 3.5 above. See Exhibit B for text of Section 18-54(4).

Section 5.2 El Paso and the City shall review the monthly rate being charged on an annual basis. At such time, upon review, the parties may change the rate through written mutual agreement. If, upon review, the parties

cannot agree upon the monthly rate to be charged, either party may terminate this Agreement to be effective in thirty (30) days upon written notice to the other party.

ARTICLE VI

DAMAGES

In the event El Paso discharges or causes to discharge any substance or material which results in an adverse impact upon the operation of the Wastewater Treatment System, El Paso shall promptly pay the City all actual damages as a result of said discharge, pursuant to Section 18-71 City Code of the City of Bloomfield (as amended). See Exhibit B for full text of Section 18-71.

ARTICLE VII

INSPECTIONS, MONITORING AND ENTRY BY THE CITY

El Paso shall comply with the City Code of the City of Bloomfield, Section 18-72, in allowing the City to inspect and monitor El Paso's Wastewater discharge provided all entries by the City on El Paso property are limited to inspection and monitoring of El Paso's Wastewater equipment. Due to the nature of the gas transmission business and the desire to reduce unnecessary risk to any of the City's authorized representatives, all on-site inspectors shall adhere to El Paso's safety procedures. Except in the event of an emergency, all on-site inspectors must be accompanied by an El Paso representative. See Exhibit B for full text of Section 18-72.

ARTICLE VIII

ATTORNEY'S FEES

In the event the City incurs attorney's fees or costs to enforce the terms of this Agreement or attorney's fees, costs, fines or penalties as a result of a third party action due to El Paso's non-compliance of the terms of this Agreement, the City shall be paid any such attorney's fees, costs, fines and penalties by El Paso. Section 18-72 City Code of the City of Bloomfield (as amended). See Exhibit B for full text of Section 18-72.

ARTICLE IX

ASSIGNMENT

Neither Party may assign its rights under this Agreement without prior written consent of the other Party. Neither

Party shall unreasonably withhold its consent to the assignment of rights under this Agreement.

ARTICLE X

GOVERNING LAW

All provisions of this Agreement shall be governed by and construed in accordance with applicable Federal Regulations and the laws of the State of New Mexico, excluding any conflict of law rule or principle that might apply the laws of another jurisdiction. Each Party is responsible for abiding by all such laws and regulations in its operations.

ARTICLE XI

MISCELLANEOUS PROVISIONS

Section 11.1 The Section headings contained in this Agreement are for the convenience of the Parties only and shall not be interpreted as part of this Agreement.

Section 11.2 This Agreement shall not be modified except by written instrument mutually executed by duly authorized representatives of the respective Parties.

Section 11.3 Waiver by one Party of the other's breach of any provision of this Agreement shall not be deemed a waiver of any subsequent or continuing breach of such provision or of the breach of any other provision or provisions of this Agreement.

Section 11.4 This Agreement may be renewed or extended upon the mutual agreement and written verification of both Parties.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed in two (2) counterparts by their duly authorized representatives as of the day and year first above written.

CITY OF BLOOMFIELD

ATTEST:

BY: Carol Miller
Carol Miller
City Clerk

BY: Arthur C Kittell
Arthur C. Kittell
Mayor

EL PASO NATURAL GAS COMPANY

ATTEST:

By: Harold Ray
Title: ASS'T SECRETARY

BY: Larry R. Tarver
Larry R. Tarver
Vice President

WPPENV13:28

EXHIBIT A

ANALYTICAL TESTS
TO BE PERFORMED BY EL PASO
ON WASTEWATER DISCHARGED
TO THE CITY OF BLOOMFIELD

		PARAMETERS		
I.	Analyses to be performed Monthly:	* TOTAL DISSOLVED SOLIDS	600.00	mg/l
II.	Analyses to be performed Quarterly:	OIL and GREASE (Freon Ext.)	50.00	mg/l
		ETHYLBENZENE	0.75	mg/l
		TOTAL XYLENES	0.62	mg/l
		CHLOROFORM	0.10	mg/l
		BIOCHEMICAL OXYGEN DEMAND (5 DAY)	200.00	mg/l
		CHEMICAL OXYGEN DEMAND	500.00	mg/l
		TOTAL SUSPENDED SOLIDS	200.00	mg/l
III.	Analyses to be performed semi-annually:	ARSENIC (As)	0.10	mg/l
		BARIUM (Ba)	1.00	mg/l
		CADMIUM (Cd)	0.01	mg/l
		CHROMIUM (Cr)	0.05	mg/l
		CYANIDE (CN)	0.20	mg/l
		FLOURIDE (F)	1.60	mg/l
		LEAD (Pb)	0.05	mg/l
		TOTAL MERCURY (Hg)	0.002	mg/l
		NITRATE (NO_3as N)	10.00	mg/l
		SELENIUM (Se)	0.05	mg/l
		SILVER (Ag)	0.05	mg/l
		URANIUM (U)	5.00	mg/l
		CHLORIDE (Cl)	250.00	mg/l
		COPPER (Cu)	1.00	mg/l
		IRON (Fe)	1.00	mg/l
		MANGANESE (Mn)	0.20	mg/l
		SULFATE (SO_4)	600.00	mg/l
		ZINC (Zn)	10.00	mg/l
		pH Between 6 & 9		
		ALUMINUM (Al)	5.00	mg/l
		BORON (B)	0.75	mg/l
		COBALT (Co)	0.05	mg/l
		MOLYBDENUM (Mo)	1.00	mg/l
		NICKEL (Ni)	0.20	mg/l
		PHOSPHATES (Total)	15.00	mg/l
		PHENOL	0.05	mg/l

* See § 3.2

IV. Analyses to be performed Yearly:

PARAMETERS		
RADIOACTIVITY: COMBINED RADIUM-266 AND RADIUM-288	30.00	pCi/l
BENZENE	0.01	mg/l
POLYCHLORINATED BIPHENYLS (PCB's)	0.001	mg/l
TOLUENE	0.75	mg/l
CARBON TETRACHLORIDE	0.01	mg/l
1,2-DICHLOROETHANE (EDC)	0.01	mg/l
1,1-DICHLOROETHYLENE (1,1-DCE)	0.005	mg/l
1,1,2,2-TETRACHLOROETHYLENE (PCE)	0.02	mg/l
1,1,2-TRICHLOROETHYLENE (TEC)	0.10	mg/l
METHYLENE CHLORIDE	0.10	mg/l
1,1-DICHLOROETHANE	0.025	mg/l
ETHYLENE DIBROMIDE (EDB)	0.0001	mg/l
1,1,1-TRICHLOROETHANE	0.06	mg/l
1,1,2-TRICHLOROETHANE	0.01	mg/l
1,1,2,2-TETRACHLOROETHANE	0.01	mg/l
VINYL CHLORIDE	0.001	mg/l
PAHs: total NAPHTHALENE plus MONOMETHYLNAPHTHALENES	0.03	mg/l
BENZO-A-PYRENE	0.0007	mg/l

EXHIBIT B

CITY CODE OF THE CITY OF BLOOMFIELD (as amended)
SELECTED SECTIONS

Section 18-53 (3): "Industrial User": An industrial user is defined as a user connected to the city sewer system contributing waste to the system having a composition unlike ordinary domestic waste, produced from water used in a manufacturing or industrial process.

Section 18-54: The rates for sewer users shall be as follows:

(4) Industrial users:

a. First 50,000 gallons, minimum per month, $51.00.
b. Over 50,000 gallons, per each additional 1,000 gallons, $1.40.

Section 18-70: DANGEROUS DISCHARGE NOTIFICATION REQUIREMENTS.

(a) Telephone Notification - Any person causing or suffering any discharge whether accidental or not which presents or may present an imminent or substantial endangerment to the health and welfare of persons, to the environment, or which is likely to cause interference with the POTW, shall notify the treatment plant.

(b) Written Report - Within five (5) days following such occurrence, the user shall provide the City with the detailed written report describing the cause of the dangerous discharge and measures to be taken by the user to prevent similar future occurrences. Such notification shall not relieve the user of any expenses, loss, damage, or other liability which may be incurred as a result of damage to the POTW, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by this division or other applicable law.

(c) Notice to Employees - A notice shall be permanently posted on the user's bulletin board or other prominent place advising employees who to call in the event of a dangerous discharge. Employers shall insure that all employees who may cause or suffer such a dangerous discharge to occur and advise of the emergency notification procedure. (Ord. No. 203, s 7 5-11-87)

Section 18-71: ENFORCEMENT AND ABATEMENT

(a) Public Nuisances - Discharge of wastewater in any manner in violation of this division or any condition that endangers the publicly owned treatment works is declared a public nuisance and shall be corrected or abated as provided herein.

(b) City May Notify User of Violation - Whenever the City determines or has reasonable cause to believe that a discharge of wastewater has occurred in violation of the provisions of this division, the City may notify the user of the violation and request voluntary compliance. Failure of the City to provide notice to the user shall not in any way relieve the user from any consequences of a wrongful or illegal discharge.

(c) Conciliation Meetings - The City may, but shall not be required to, invite representatives of the user to a conciliation meeting to discuss the violation and methods of correcting the cause of the violation. Additional meetings may also be held as required. If the user and Mayor or his representative can agree to appropriate remedial and preventative measures, they shall commit such an agreement to writing with provisions for a reasonable compliance schedule. If an agreement is not reached through the conciliation process within sixty (60) days and a violation of the provision of this division continues, the City shall take whatever appropriate action may be required to bring the user into compliance with the division.

(d) Citation to Municipal Court - The plant superintendent or wastewater supervisor may also cite the user to municipal court for violation of any provision of this division.

(e) Injunctive Relief - As an additional means of enforcement, the City attorney may, in the name of the City of Bloomfield, file in the district court of San Juan County, or such other courts as may have jurisdiction, a suit seeking the issuance of an injunction, damages, or other appropriate relief to enforce the provisions of this division or other applicable law or regulation. Suit may be brought to recover any and all damages suffered by the City as a result of any action or inaction of any user or other person who causes or suffers damage to occur to the POTW or for any other expense, loss or damage of any kind or nature suffered by the City.

(f) Assessment of Damages to Users

(1) When a discharge of waste causes an obstruction, damage, or any other impairment to the facilities, or any expense of whatever character or nature to the City, the City shall assess the expenses incurred by the City to clear the obstruction, repair damage to the facility, and any other expenses or damages incurred by the City. The attorney of the City shall file a claim with the user or any other person causing or suffering said damages to incur seeking reimbursement for any and all expenses or damage suffered by the City. If the claim is ignored or denied, the department shall notify the City Attorney to take such measures as shall be appropriated to recover any expenses or other damages suffered by the City.

(2) In addition to other remedies for enforcement provided herein, the City may petition the State of New Mexico or the United States, EPA, as appropriate, to exercise such methods or remedies as shall be available to such government entities to seek criminal or civil penalties, injunctive relief, or other remedies as may be provided by applicable federal or state law to insure compliance by users of applicable pretreatment standards, to prevent the introduction of toxic pollutants or other regulated pollutants into the POTW, or to prevent such other water pollution as may be required by state or federal law.

(g) Emergency Termination of Service - In the event of an actual or threatened discharge to the POTW of any pollutant which in the opinion of the plant superintendent presents or may present an imminent and substantial endangerment to the health and welfare of persons, or cause interference with the POTW, the plant superintendent or in his absence the person then in charge of the treatment works shall immediately notify the City Planner/Engineer of the nature of the emergency. The superintendent shall also attempt to notify the user or the person causing the emergency and request their assistance in abating the same. Following consultation with the aforementioned officials of the City or in their absence such officials of the City as may be available, the superintendent shall temporarily terminate the service of such user or users as are necessary to abate the condition when such action appears reasonably necessary. Such service shall be restored by

the respondent, when the superintendent is satisfied that the violation has been corrected. (Ord. No. 203, s 8,5-11-87)

SECTION 18-72: INSPECTIONS, MONITORING AND ENTRY.

(a) Specific Requirements and Right of Entry - Whenever required to carry out the objectives of this division, including, but not limited to (1) developing or assisting in the development of any effluent limitations, prohibition, or effluent standard, pretreatment standard, standard of performance, or permit condition under this division; (2) determining whether any person is in violation of any such effluent limitation, prohibition or effluent standard, pretreatment standard, standard of performance, or permit condition; (3) enforcing any requirement established under this section:

(1) The superintendent shall require any user to:

a. Establish and maintain records as necessary;

b. Make reports as necessary;

c. Provide a sampling manhole or any other device or facility suitable and appropriate to enable the superintendent or his authorized representative to conduct gauging and sampling operations to determine conformance with the criteria and effluent standards of Section 3 adopted by this ordinance;

d. Sample such effluents, in accordance with such methods, at such locations, at such intervals, and in such manner as the superintendent shall prescribe;

e. Provide such other information as the superintendent may reasonably require.

(2) The superintendent or his authorized representative, upon notification of Plant Superintendent, presentation of his credentials:

a. Shall have a right of entry to, upon or through any premises in which an effluent source is located or in which any records are required to be maintained under subsection (1)(a) herein are located; and

b. May at reasonable times have access to and copy any records, inspect any monitoring equipment or

method required herein and sample any effluents which the owner or operator of such source is required to sample under such clause. (Ord. No. 203 § 9, 5-11-87)

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

January 28, 1994

Mr. Bill Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Subject : Blanco North Recovery Well

Dear Mr. Olson:

El Paso Natural Gas Company completed installation of a groundwater pumping system to remediate the groundwater contamination north of Blanco Plant. A pneumatic system was selected over other options due to the low yielding and tight aquifer. The system was installed in July 1993 and pumping began on August 2nd. The major items of the pumping system are listed below:

- (2) Relia-Flo Model 50001 Controllers
- (2) Relia-Flo Model 51005 2 inch Pumps
- (1) 210 barrel steel storage tank
- (1) 5 HP Ingersol Rand Air Compressor

The system is equipped with a totalizing meter. A pneumatic system is utilized to pump the groundwater into a 210 barrel aboveground storage tank. Since the system is powered by air, on occasion, a mixture of air and water is forced through the totalizing meter. Therefore, the meter does not always accurately reflect the amount of water pumped from the recovery wells since it registers both the water and air.

EPNG has been unable to design a cost effective method that enables the meter to accurately measure the amount of liquids pumped. Therefore, it was decided to gauge the volume collected in the aboveground storage tank on a monthly basis. The amount of liquids pumped in 1993 is summarized below:

Month	Approximate Amount of Water Pumped (gallons)	Approximate Amount of Hydrocarbons Pumped (gallons)
August	2450	196
September	2156	49
October	2425	73
November	3395	24
December	1176	49

On November 11th, approximately 6972 gallons of water was removed from the storage tank and hauled to a nearby EPNG oil/water separator. The oil from the separator is recycled and the water is discharged into a lined pond.

In 1993, the north area monitor wells were monitored for BETX. Attached is a diagram showing the location of the monitor wells and a summary of the BETX analysis. The amount of free floating hydrocarbons in the closest downgradient well from the pumping system, MW-27, was reduced from 4.3 feet to less than one foot. In 1993, no free floating hydrocarbons were found in MW-20, MW-23, and MW-24. The benzene concentration in the furthest downgradient well, MW-2, is currently below WQCC requirements.

EPNG plans to continue pumping from MW-19 and MW-26 until the amount of floating hydrocarbons pumped from the wells is negligible. Please contact me the next time you are in the area if you would like a tour of the pumping system. If you need additional information or have any questions, please call me at 599-2176.

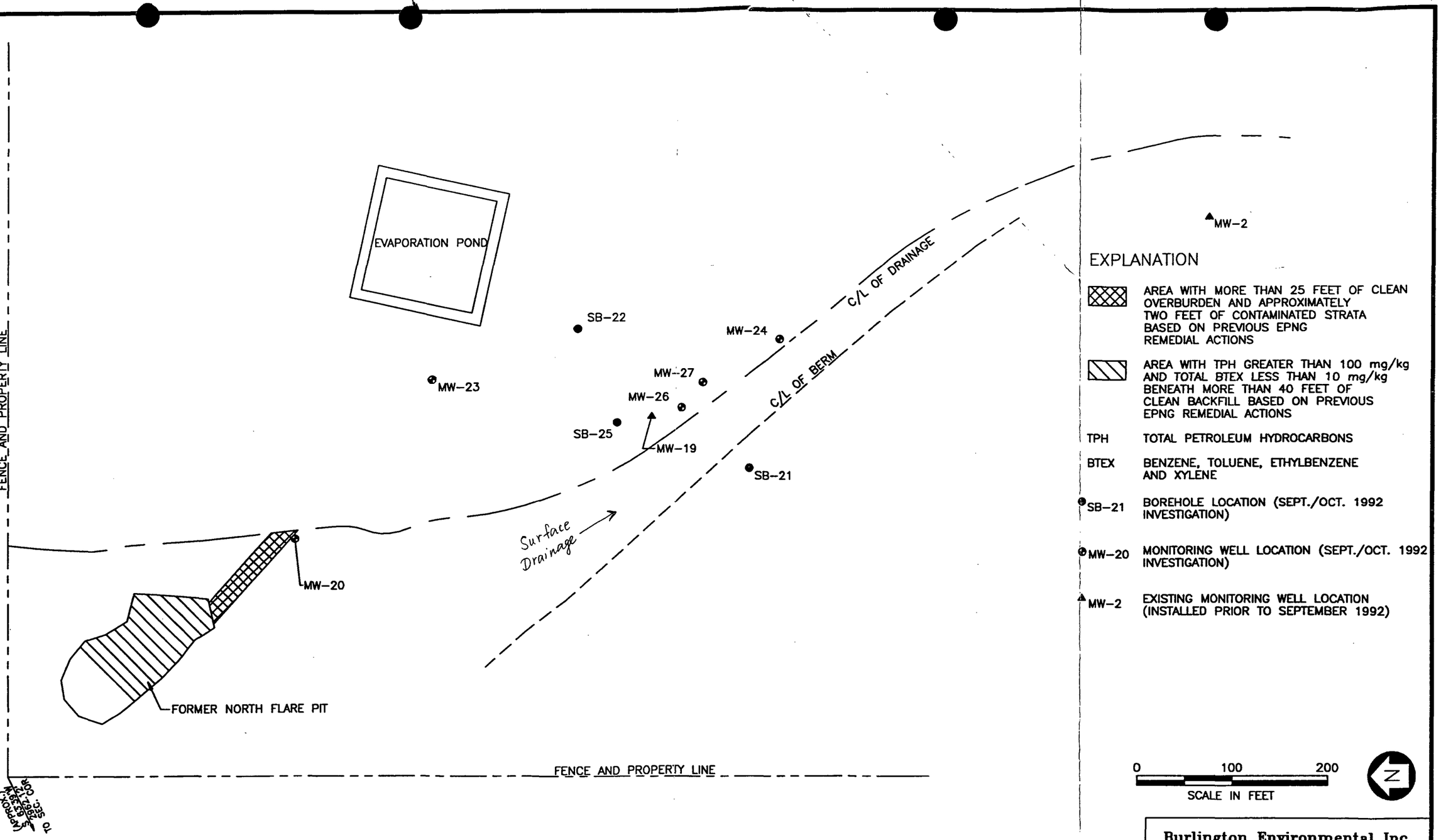
Sincerely,

Anu Pundari

Anu Pundari
Sr. Compliance Engineer

cc: Mr. David Hall (EPNG)
Ms. Nancy Prince (EPNG)
Mr. Denny Foust (NMOCD)

REV.	DATE	DRAWN BY	CHECKED BY	DOCUMENT MANAGER	PROJECT MANAGER	
B	11/30/92	11/30-92	11-30-92			12/1/92



EXPLANATION

	AREA WITH MORE THAN 25 FEET OF CLEAN OVERBURDEN AND APPROXIMATELY TWO FEET OF CONTAMINATED STRATA BASED ON PREVIOUS EPNG REMEDIAL ACTIONS
	AREA WITH TPH GREATER THAN 100 mg/kg AND TOTAL BTEX LESS THAN 10 mg/kg BENEATH MORE THAN 40 FEET OF CLEAN BACKFILL BASED ON PREVIOUS EPNG REMEDIAL ACTIONS
TPH	TOTAL PETROLEUM HYDROCARBONS
BTEX	BENZENE, TOLUENE, ETHYLBENZENE AND XYLENE
SB-21	BOREHOLE LOCATION (SEPT./OCT. 1992 INVESTIGATION)
MW-20	MONITORING WELL LOCATION (SEPT./OCT. 1992 INVESTIGATION)
MW-2	EXISTING MONITORING WELL LOCATION (INSTALLED PRIOR TO SEPTEMBER 1992)

0 100 200
SCALE IN FEET

N

Burlington Environmental Inc.

NORTH FLARE PIT
BOREHOLE AND MONITORING
WELL LOCATIONS–OCTOBER 1992

BLANCO
SAN JUAN COUNTY, NM
224857

FIGURE 3

BLANCO NORTH AREA MONITOR WELLS
1993 ANALYSIS

	Feb-93 MW-20	Jun-93 MW-20	Sep-93 MW-20
BENZENE(UG/L)	<0.5	<2.0	<2.0
ETHYLBENZENE(UG/L)	<0.5	<2.0	<2.0
TOLUENE(UG/L)	3.5	<2.0	<2.0
XYLENES(UG/L)	31	<2.0	<2.0

	Feb-93 MW-23	Jun-93 MW-23	Sep-93 MW-23
BENZENE(UG/L)	2900	1680	2133
ETHYLBENZENE(UG/L)	3500	1850	1807
TOLUENE(UG/L)	190	30.1	216
XYLENES(UG/L)	4100	2906	3823

	Feb-93 MW-24	Jun-93 MW-24	Sep-93 MW-24
BENZENE(UG/L)	1300	59.2	1040
ETHYLBENZENE(UG/L)	<12.5	7.03	8
TOLUENE(UG/L)	71	15	62.7
XYLENES(UG/L)	600	94.7	918

	Feb-93 MW-2	Jun-93 MW-2	Sep-93 MW-2
BENZENE(UG/L)	<0.5	<2.0	6.2
ETHYLBENZENE(UG/L)	<0.5	<2.0	<2.0
TOLUENE(UG/L)	<0.5	<2.0	<2.0
XYLENES(UG/L)	<0.5	<2.0	<2.0

MONITOR WELL 27

MONTH	AMOUNT OF FLOATING HYDROCARBONS IN WELL CASING (FEET)
FEBRUARY	4.3
JUNE	1.9
SEPTEMBER	0.6

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

November 18, 1993

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

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-411

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: SOUTH FLARE PIT MONITOR WELL REPORT
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) has completed a review of El Paso Natural Gas Company's (EPNG) November 10, 1993 "INSTALLATION OF THREE MONITOR WELLS NEAR BLANCO PLANT SOUTH FLARE PIT" and EPNG's October 1993 "BLANCO PLANT SOUTH FLARE PIT SUBSURFACE DRILLING INVESTIGATION AND MONITORING WELL INSTALLATION". These documents contain the results of EPNG's monitor well installation program at the EPNG Blanco south flare pit and recommendations for further ground water monitoring.

The recommendations contained in the above referenced documents **are hereby approved with the following conditions:**

1. The quarterly ground water quality sampling will include laboratory analysis of concentrations of nitrate.

2. The final quarterly ground water quality sampling event will include laboratory analysis of concentrations of polynuclear aromatic hydrocarbons.

3. The OCD will be notified of all investigation and sampling activities at least 48 hours prior to commencement such that OCD has the opportunity to witness work elements and/or split samples.

Please be advised that OCD approval does not limit EPNG to the work proposed should contaminants be found to be migrating from the flare pit. In addition, OCD approval does not relieve EPNG of liability for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

November 10, 1993

Mr. Bill Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Subject : Installation of Three Monitor Wells near Blanco Plant South Flare Pit

Dear Mr. Olson :

El Paso Natural Gas Company (EPNG) recently installed three new monitor wells near the Blanco Plant South Flare Pit. A monitoring well installation report prepared by Burlington Environmental is under Tab B. The new wells were constructed with four inch casings so that recovery operations could be undertaken, if necessary, at a later date.

The new wells and MW-6 were sampled for aromatic and halogenated volatile organics, major cations and anions, polynuclear aromatic hydrocarbons (PAHs) and heavy metals using EPA approved methods. A copy of the analytical results is under Tab A. Prior to the excavation of the flare pit, three inches of floating hydrocarbons was found in MW-6 in January 1992. Currently, there is no floating hydrocarbons in MW-6 and the new wells. In addition, the BETX levels in MW-6 and the new wells are below WQCC standards.

Since the new wells were placed downgradient of MW-6 and downgradient of the highest levels of soil contaminants remaining in the pit, continued monitoring of the new wells will assist us in determining if there is groundwater contamination at the site. Therefore, EPNG proposes to continue monitoring MW-6 and the new wells for BETX every three months until November 1994. A need for further monitoring and/or groundwater remediation at the site will be assessed based on the quarterly monitoring results.

Please send us a letter approving our monitoring plan for the site. If you have any questions, please call me at (505) 599-2176.

Sincerely,

Anu Pundari

Anu Pundari
Sr. Compliance Engineer

cc: Mr. David Hall (EPNG)

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Contract Laboratory
L5350	BLANCO PLANT	EL PASO NATURAL GAS CO. 770 WEST NAVAJO FARMINGTON N.M.

Samplers: (Signature)	Date	Receiving Temp. (°F)
Dennis Bird	10-7-93	

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Composite or Grab	See Attached	GENERAL CHEMISTRY	NO3-N	BTXE	Remarks
	10-7-93	1056	WATER	N31080	4					X	X	X	MONITOR WELL W-6
	10-7-93	1252	WATER	N31081	4					X	X	X	MONITOR WELL MW-28
	10-7-93	1357	WATER	N31082	4					X	X	X	MONITOR WELL MW-29
	10-7-93	1357	WATER	N31083	4					X	X	X	MONITOR WELL MW-29 FIELD DUP
	10-7-93	1436	WATER	N31084	4					X	X	X	MONITOR WELL MW-30

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	10-7-93 1618				

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:
		Richard [illegible]	10-7-93 1630	

Results & Invoices to::

Charge Code

Date Results Reported / by: (Signature)

WHITE-Testing Laboratory **YELLOW**-EPNG Lab **PINK**-Field Sampler

san juan repro Form 71-65

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **310327**

October 22, 1993

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: BLANCO M.W. L5350

Attention: John Lambdin

On **10/08/93**, Analytical Technologies, 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.

D indicates the compound was analyzed at a greater dilution.

Due to matrix interferences, acenaphthylene analysis by EPA Method 8310 for samples N31082 and N31083 was performed at a dilution. The reporting limit has been raised accordingly.

The relative percent difference (RPD) for quality control duplicate analyses for barium meets ATI acceptance criteria; the results are <5X the reporting limit.

EPA Method 601 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

All other analyses were performed by Analytical Technologies, Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

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

Adela M. Cantu
Senior Organic Chemist

Letitia Krakowski
Acting Laboratory Manager

LAK:jd

Enclosure

Analytical Technologies, Inc.

CLIENT : EL PASO NATURAL GAS CO. DATE RECEIVED : 10/08/93
PROJECT # : L5350
PROJECT NAME : BLANCO M.W. REPORT DATE : 10/22/93
ATI I.D. : 310327

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	N31080 - Monitor Well W-6	AQUEOUS	10/07/93
02	N31081 - Monitor Well MW-28	AQUEOUS	10/07/93
03	N31082 - Monitor Well MW-29	AQUEOUS	10/07/93
04	N31083 - Monitor Well MW-29 Field Duplicate	AQUEOUS	10/07/93
05	N31084 - Monitor Well MW-30	AQUEOUS	10/07/93

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	5

ATI 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.

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 310327

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : L5350
PROJECT NAME : BLANCO M.W.

DATE RECEIVED : 10/08/93
REPORT DATE : 10/22/93

PARAMETER	UNITS	01	02	03	04	05
SILVER (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010
ARSENIC (EPA 206.2/7060)	MG/L	<0.005	<0.005	<0.005	<0.005	<0.005
BARIUM (EPA 200.7/6010)	MG/L	0.014	0.016	0.029	0.032	0.013
CADMIUM (EPA 213.2/7131)	MG/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
CHROMIUM (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010
MERCURY (EPA 245.1/7470)	MG/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
LEAD (EPA 239.2/7421)	MG/L	<0.002	<0.002	0.002	<0.002	<0.002
SELENIUM (EPA 270.2/7740)	MG/L	0.011	<0.005	<0.005	<0.005	<0.005
		W-6	MW-28	MW-29	MW-29 Field Duplicate	MW-30

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : L5350
PROJECT NAME : BLANCO M.W. ATI I.D. : 310327

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	31032701	<0.010	<0.010	NA	0.898	1.00	90
ARSENIC	MG/L	31032705	<0.005	<0.005	NA	0.046	0.050	92
BARIUM	MG/L	31032701	0.014	0.011	24	0.951	1.00	94
CADMIUM	MG/L	31064701	<0.0005	<0.0005	NA	0.0048	0.0050	96
CHROMIUM	MG/L	31032701	<0.010	<0.010	NA	0.890	1.00	89
MERCURY	MG/L	31058501	<0.0002	<0.0002	NA	0.0051	0.0050	102
LEAD	MG/L	31032701	<0.002	<0.002	NA	0.043	0.050	86
SELENIUM	MG/L	31032705	<0.005	<0.005	NA	0.044	0.050	88

Acceptable.
JS
10/28/93

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

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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS (EPA 601)
CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 310327
PROJECT # : L5350
PROJECT NAME: BLANCO M.W.

SAMPLE I.D. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	N31080	AQUEOUS	10/07/93	NA	10/11/93	1
02	N31081	AQUEOUS	10/07/93	NA	10/11/93	1
03	N31082	AQUEOUS	10/07/93	NA	10/11/93	1
04	N31083	AQUEOUS	10/07/93	NA	10/11/93	1

PARAMETER	UNITS	01	02	03	04
BROMODICHLOROMETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
BROMOFORM	UG/L	<0.5	<0.5	<0.5	<0.5
BROMOMETHANE	UG/L	<0.5	<0.5	<0.5	<0.5
CARBON TETRACHLORIDE	UG/L	<0.2	<0.2	<0.2	<0.2
CHLOROBENZENE	UG/L	<0.5	<0.5	<0.5	<0.5
CHLOROETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
CHLOROFORM	UG/L	<0.2	<0.2	<0.2	<0.2
CHLOROMETHANE	UG/L	<0.5	<0.5	<0.5	<0.5
DIBROMOCHLOROMETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.2	<0.2	<0.2	<0.2
1,1-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2	<0.2
1,2-DICHLOROPROPANE	UG/L	<0.2	<0.2	<0.2	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2	<0.2	<0.2	<0.2
METHYLENE CHLORIDE	UG/L	<2.0	<2.0	<2.0	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
TETRACHLOROETHENE	UG/L	<0.2	<0.2	<0.2	<0.2
1,1,1-TRICHLOROETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
1,1,2-TRICHLOROETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
TRICHLOROETHENE	UG/L	<0.2	<0.2	<0.2	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2	<0.2	<0.2	<0.2
VINYL CHLORIDE	UG/L	<0.5	<0.5	<0.5	<0.5
SURROGATES:					
BROMOCHLOROMETHANE (%)		99	98	96	95
		MW-6	MW-28	MW-29	MW-29 Field Duplicate

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS (EPA 601)
CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 310327
PROJECT # : L5350
PROJECT NAME: BLANCO M.W.

SAMPLE I.D. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
05	N31084	AQUEOUS	10/07/93	NA	10/11/93	1

PARAMETER	UNITS	05
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<0.5
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.2
CHLOROFORM	UG/L	<0.2
CHLOROMETHANE	UG/L	<0.5
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.5
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	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.2
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<0.2
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.5
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.2
1,1,1-TRICHLOROETHANE	UG/L	<0.2
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
SURROGATES:		
BROMOCHLOROMETHANE (%)		97

MW-30

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS (EPA 601)	ATI I.D.	: 310327
BLANK I.D.	: 101193	DATE EXTRACTED:	NA
CLIENT	: EL PASO NATURAL GAS CO.	DATE ANALYZED	: 10/11/93
PROJECT #	: L5350	DIL. FACTOR	: 1
PROJECT NAME:	BLANCO M.W.		

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<0.5
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.2
CHLOROFORM	UG/L	<0.2
CHLOROMETHANE	UG/L	<0.5
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.5
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	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.2
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<0.2
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.5
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.2
1,1,1-TRICHLOROETHANE	UG/L	<0.2
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
SURROGATES:		
BROMOCHLOROMETHANE (%)		100

Acceptable.
JS.
10/28/93

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST	: PURGEABLE HALOCARBONS (EPA 601)	ATI I.D.	: 310327
MSMSD #	: 31032702	DATE EXTRACTED	: NA
CLIENT	: EL PASO NATURAL GAS CO.	DATE ANALYZED	: 10/11/93
		SAMPLE MATRIX	: AQUEOUS
PROJECT #	: L5350	REF. I.D.	: 31032702
PROJECT NAME	: BLANCO M.W.	UNITS	: UG/L

PARAMETERS	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
CHLOROBENZENE	<0.5	10	11	110	11	110	0
1,1-DICHLOROETHENE	<0.2	10	9.1	91	8.9	89	2
TRICHLOROETHENE	<0.2	10	9.8	98	9.8	98	0

Acceptable.
JS
10/28/93

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 31032701

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

CLIENT	: EL PASO NATURAL GAS CO.	DATE SAMPLED	: 10/07/93
PROJECT #	: L5350	DATE RECEIVED	: 10/08/93
PROJECT NAME	: BLANCO M.W.	DATE EXTRACTED	: 10/09/93
CLIENT I.D.	: N31080 monitor Well W-6	DATE ANALYZED	: 10/1[illegible]/93
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.50
ACENAPHTHYLENE	<1.0
ACENAPHTHENE	<0.50
FLUORENE	0.75
PHENANTHRENE	0.39
ANTHRACENE	<0.05
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO(A)ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO(B)FLUORANTHENE	<0.10
BENZO(K)FLUORANTHENE	<0.10
BENZO(A)PYRENE	<0.10
DIBENZO(a,h)ANTHRACENE	<0.20
BENZO(g,h,i)PERYLENE	<0.10
INDENO(1,2,3-CD)PYRENE	<0.10
1-METHYLNAPHTHALENE	<0.30
2-METHYLNAPHTHALENE	<0.30

SURROGATE PERCENT RECOVERIES

2-CHLOROANTHRACENE (%)	81

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 31032702

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

CLIENT	: EL PASO NATURAL GAS CO.	DATE SAMPLED	: 10/07/93
PROJECT #	: L5350	DATE RECEIVED	: 10/08/93
PROJECT NAME	: BLANCO M.W.	DATE EXTRACTED	: 10/09/93
CLIENT I.D.	: N31081 - monitor Well MW-28	DATE ANALYZED	: 10/12/93
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.50
ACENAPHTHYLENE	<1.0
ACENAPHTHENE	<0.50
FLUORENE	<0.10
PHENANTHRENE	<0.05
ANTHRACENE	<0.05
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO(A)ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO(B)FLUORANTHENE	<0.10
BENZO(K)FLUORANTHENE	<0.10
BENZO(A)PYRENE	<0.10
DIBENZO(a,h)ANTHRACENE	<0.20
BENZO(g,h,i)PERYLENE	<0.10
INDENO(1,2,3-CD)PYRENE	<0.10
1-METHYLNAPHTHALENE	<0.30
2-METHYLNAPHTHALENE	<0.30
SURROGATE PERCENT RECOVERIES	
2-CHLOROANTHRACENE (%)	76

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 31032703

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

CLIENT	: EL PASO NATURAL GAS CO.	DATE SAMPLED	: 10/07/93
PROJECT #	: L5350	DATE RECEIVED	: 10/08/93
PROJECT NAME	: BLANCO M.W.	DATE EXTRACTED	: 10/09/93
CLIENT I.D.	: N31082 - Monitor Well MW-29	DATE ANALYZED	: 10/12/93
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.50
ACENAPHTHYLENE	<5.0 D
ACENAPHTHENE	<0.50
FLUORENE	<0.10
PHENANTHRENE	<0.05
ANTHRACENE	<0.05
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO(A)ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO(B)FLUORANTHENE	<0.10
BENZO(K)FLUORANTHENE	<0.10
BENZO(A)PYRENE	<0.10
DIBENZO(a,h)ANTHRACENE	<0.20
BENZO(g,h,i)PERYLENE	<0.10
INDENO(1,2,3-CD)PYRENE	<0.10
1-METHYLNAPHTHALENE	<0.30
2-METHYLNAPHTHALENE	<0.30
SURROGATE PERCENT RECOVERIES	
2-CHLOROANTHRACENE (%)	73

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 31032704

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

CLIENT	: EL PASO NATURAL GAS CO.	DATE SAMPLED	: 10/07/93
PROJECT #	: L5350	DATE RECEIVED	: 10/08/93
PROJECT NAME	: BLANCO M.W.	DATE EXTRACTED	: 10/09/93
CLIENT I.D.	: N31083 - Monitor Well MW-29 Field Dplicate	DATE ANALYZED	: 10/12/93
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.50
ACENAPHTHYLENE	<5.0 D
ACENAPHTHENE	<0.50
FLUORENE	<0.10
PHENANTHRENE	<0.05
ANTHRACENE	<0.05
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO(A)ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO(B)FLUORANTHENE	<0.10
BENZO(K)FLUORANTHENE	<0.10
BENZO(A)PYRENE	<0.10
DIBENZO(a,h)ANTHRACENE	<0.20
BENZO(g,h,i)PERYLENE	<0.10
INDENO(1,2,3-CD)PYRENE	<0.10
1-METHYLNAPHTHALENE	<0.30
2-METHYLNAPHTHALENE	<0.30
SURROGATE PERCENT RECOVERIES	
2-CHLOROANTHRACENE (%)	97

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 31032705

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

CLIENT	: EL PASO NATURAL GAS CO.	DATE SAMPLED	: 10/07/93
PROJECT #	: L5350	DATE RECEIVED	: 10/08/93
PROJECT NAME	: BLANCO M.W.	DATE EXTRACTED	: 10/09/93
CLIENT I.D.	: N31084 - monitor well MW-30	DATE ANALYZED	: 10/12/93
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.50
ACENAPHTHYLENE	<1.0
ACENAPHTHENE	<0.50
FLUORENE	<0.10
PHENANTHRENE	<0.05
ANTHRACENE	<0.05
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO(A)ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO(B)FLUORANTHENE	<0.10
BENZO(K)FLUORANTHENE	<0.10
BENZO(A)PYRENE	<0.10
DIBENZO(a,h)ANTHRACENE	<0.20
BENZO(g,h,i)PERYLENE	<0.10
INDENO(1,2,3-CD)PYRENE	<0.10
1-METHYLNAPHTHALENE	<0.30
2-METHYLNAPHTHALENE	<0.30
SURROGATE PERCENT RECOVERIES	
2-CHLOROANTHRACENE (%)	80

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

		ATI I.D.	: 310327
CLIENT	: EL PASO NATURAL GAS CO.	DATE EXTRACTED	: 10/09/93
PROJECT #	: L5350	DATE ANALYZED	: 10/12/93
PROJECT NAME	: BLANCO M.W.	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
NAPHTHALENE	<0.50
ACENAPHTHYLENE	<1.0
ACENAPHTHENE	<0.50
FLUORENE	<0.10
PHENANTHRENE	<0.05
ANTHRACENE	<0.05
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO(A)ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO(B)FLUORANTHENE	<0.10
BENZO(K)FLUORANTHENE	<0.10
BENZO(A)PYRENE	<0.10
DIBENZO(a,h)ANTHRACENE	<0.20
BENZO(g,h,i)PERYLENE	<0.10
INDENO(1,2,3-CD)PYRENE	<0.10
1-METHYLNAPHTHALENE	<0.30
2-METHYLNAPHTHALENE	<0.30

SURROGATE PERCENT RECOVERIES

2-CHLOROANTHRACENE (%)	78

Acc. Table.
10/28/93

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 310327

TEST : POLYNUCLEAR AROMATICS (EPA METHOD 8310)

CLIENT : EL PASO NATURAL GAS CO.
PROJECT # : L5350
PROJECT NAME : BLANCO M.W.
REF I.D. : 31032701

DATE ANALYZED : 10/13/93
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHYLENE	<1.0	20	12	60	13	65	8
PHENANTHRENE	0.39	2.5	2.1	68	2.4	80	13
PYRENE	<0.10	2.5	2.2	88	2.5	100	13
BENZO(K)FLUORANTHENE	<0.10	2.5	1.7	68	1.9	76	11
DIBENZ(a,h)ANTHRACENE	<0.20	5.0	3.9	78	4.2	84	7

Acceptable.
10/28/93

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

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

DISPATCH OF SAMPLES
DATE: 10-7-93 PAGE 1 OF 1

310327

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER: JOHN CAMBLIN

COMPANY: EL PASO NATURAL GAS CO.
ADDRESS: P.O. BOX 4990
FARMINGTON NM. 87499
PHONE: 505-599-2144
FAX: 505-599-2281

BILL TO: SAME AS ABOVE
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
N31080	10-7-93	1056	WATER	1
N31081	10-7-93	1352	WATER	2
N31082	10-7-93	1357	WATER	3
N31083	10-7-93	1357	WATER	4
N31084	10-7-93	1436	WATER	5

Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020			Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.			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)			SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal		The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)	NUMBER OF CONTAINERS
						X									X									X		5
						X									X									X		5
						X									X									X		5
						X									X									X		5
						X									X									X		5

PROJECT INFORMATION

PROJ. NO.: L5350
PROJ. NAME: BLANCO M.V.
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS: 25
CUSTODY SEALS: Y / N (NA)
RECEIVED INTACT: Y
RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:
107-L5350-01-0525-0017- -1170
PLEASE RUSH

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY:
Signature: Dennis Bird Time: 1612	Signature: Time:	Signature: Time:
Printed Name: DENNIS BIRD Date: 10-7-93	Printed Name: Date:	Printed Name: Date:
Company: EL PASO NATURAL GAS Phone:	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Terri Dettre Date: 10/8/93
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 10/8/93 PAGE 1 OF 2

NETWORK PROJECT MANAGER: BETH PROFFITT

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

CLIENT PROJECT MANAGER: [illegible]

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	[illegible]	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
310327-01	10/7/93	1056	Aq	1								X	X													3
-02	↓	1252	↓	2								X	X													3
-03	↓	1357	↓	3								X	X													3
-04	↓	1357	↓	4								X	X													3
-05	↓	1436	↓	5								X	X													3

PROJECT INFORMATION

PROJECT NUMBER: 310327
PROJECT NAME: EPNG
QC LEVEL: STD. IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD (RUSH!)
DUE DATE: 10/15/93
RUSH SURCHARGE: 50%
CLIENT DISCOUNT: 10 %

WO# LK1697

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	15
CHAIN OF CUSTODY SEALS	N
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	310327

SAMPLES SENT TO: SAN DIEGO, FT. COLLINS, RENTON, PENSACOLA, PHOENIX, BARRINGER, FIBERQUANT

RELINQUISHED BY: 1.
Signature: [signature] Time: 4:30PM
Printed Name: [illegible] Date: 10/8/93
Analytical Technologies, Inc.
Albuquerque

RECEIVED BY: (LAB) 1.
Signature: Time:
Printed Name: Date:
Company:

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

RECEIVED BY: (LAB) 2.
Signature: Roselle Vidal Time: 1000a
Printed Name: Roselle Vidal Date: 10/9/93
Company: ATI

El Paso Natural Gas Company - Field Services Lab Report

LOCATION: Blanco Plant
DATE OF REPORT: 10/22/93
SAMPLED BY: Dennis Bird

PROJECT: M.W.
SAVE FILE: N31080

SAMPLE POINT	Monitor Well W-6	Monitor Well MW-28	Monitor Well MW-29	Monitor Well MW-29 Dup.	Monitor Well MW-30
LAB ID #	N31080	N31081	N31082	N31083	N31084
Date Of Sample	7-Oct-93	7-Oct-93	7-Oct-93	7-Oct-93	7-Oct-93
pH (Units)	7.04	6.93	7.08	7.08	7.02
ALKALINITY AS CO3	0	0	0	0	0
ALKALINITY AS HCO3	750	988	1054	1069	990
CALCIUM AS Ca	533	509	610	616	542
MAGNESIUM AND Mg	43	44	54	54	49
TOTAL HARDNESS AS CACO3	1508	1452	1745	1760	1555
CHLORIDE AS Cl	96	32	281	287	74
SULFATE AS SO4	2763	2426	2016	1954	2738
SILICA AS SiO2					
FLUORIDE AS F					
POTASSIUM AS K	3	3	4	5	3
SODIUM AS Na	1091	956	741	712	1089
TOTAL DISSOLVED SOLIDS	5540	4868	4532	4464	5464
CONDUCTIVITY (umhos)	5630	5000	4710	4630	5600
NITRATES AS NO3-N	94.5	2.1	6.7	8.3	28.1

All Results Expressed as ppm or umhos

REMARKS:

Approvals:

Analyst: Dennis Bird Date: 10-22-93

Lab Super.: J. Sanders Date: 10/22/93

Anion/Cation Balance Information and Calculations

Sample Number:	N31080	N31081	N31082	N31083	N31084
SAMPLE POINT	Monitor Well W-6	Monitor Well MW-28	Monitor Well MW-29	Monitor Well MW-29 Dup.	Monitor Well MW-30
Concentration:	meq/l	meq/l	meq/l	meq/l	meq/l
CATIONS:					
CALCIUM AS Ca	26.60	25.40	30.44	30.74	27.05
MAGNESIUM AS Mg	3.54	3.62	4.44	4.44	4.03
POTASSIUM AS K	0.08	0.08	0.10	0.13	0.08
SODIUM (+/- Difference)	42.31	38.51	32.19	30.99	44.16
SODIUM (Actual)	47.43	41.57	32.22	30.96	47.35
CATIONS TOT(w/o Na)	30.21	29.10	34.98	35.31	31.15
CATIONS TOT(w/act. Na)	77.65	70.66	67.20	66.27	78.50
CATIONS TOT(w/cal. Na)	72.53	67.60	67.17	66.30	75.32
ANIONS:					
ALKALINITY AS CO3	0.00	0.00	0.00	0.00	0.00
ALKALINITY AS HCO3	12.29	16.19	17.27	17.52	16.22
CHLORIDE AS Cl	2.71	0.90	7.93	8.10	2.09
SULFATE AS SO4	57.53	50.51	41.97	40.68	57.01
FLUORIDE AS F	0.00	0.00	0.00	0.00	0.00
ANIONS (TOTAL)	72.53	67.60	67.17	66.30	75.32
TDS (ACTUAL)	5540	4868	4532	4464	5464
TDS (CALC. w/cal. Na)	4780	4386	4224	4154	4909
PERCENT DIFF. w/cal. Na	14	10	7	7	10
TDS (CALC. w/act. Na)	4898	4456	4225	4154	4982
PERCENT DIFF. w/act. Na	12	8	7	7	9
SODIUM (CALCULATED)	973	885	740	712	1015
SODIUM AS Na (ACTUAL)	1091	956	741	712	1089
Relative % Difference RPD	3%	2%	0%	0%	2%
ANION/CATION % Difference	93.40	95.67	99.96	100.05	95.94

El Paso Natural Gas Company - Field Services Lab Report

LOCATION: Blanco Plant
DATE OF REPORT: 10/14/93
SAMPLED BY: Dennis Bird

PROJECT: M.W.
SAVE FILE: N31030

SAMPLE POINT	Monitor Well 19 &26 Composite				
LAB ID #	N31030				
Date Of Sample	27-Sep-93				
pH (Units)	6.94				
ALKALINITY AS CO3	0				
ALKALINITY AS HCO3	1368				
CALCIUM AS Ca	389				
MAGNESIUM AND Mg	263				
TOTAL HARDNESS AS CACO3	2054	0	0	0	0
CHLORIDE AS Cl	52				
SULFATE AS SO4	12670				
SILICA AS SiO2					
FLUORIDE AS F					
POTASSIUM AS K	14				
SODIUM AS Na	5789				
TOTAL DISSOLVED SOLIDS	20380				
CONDUCTIVITY (umhos)	22347				
NITRATE AS NO-3	28.4				

All Results Expressed as ppm or umhos

REMARKS:

Approvals:

Analyst: Dennis Bird Date: 10-14-93

Lab Super.: John Faulds Date: 10-18-93

Anion/Cation Balance Information and Calculations

Sample Number:	N31030	0	0	0	0
SAMPLE	Monitor	0	0	0	0
POINT	Well 19 &26	0	0	0	0
	Composite	0	0	0	0
Concentration:	meq/l	meq/l	meq/l	meq/l	meq/l
CATIONS:					
CALCIUM AS Ca	19.41	0.00	0.00	0.00	0.00
MAGNESIUM AS Mg	21.64	0.00	0.00	0.00	0.00
POTASSIUM AS K	0.36	0.00	0.00	0.00	0.00
SODIUM (+/- Difference)	246.27	0.00	0.00	0.00	0.00
SODIUM (Actual)	251.70	0.00	0.00	0.00	0.00
CATIONS TOT(w/o Na)	41.41	0.00	0.00	0.00	0.00
CATIONS TOT(w/act. Na)	293.11	0.00	0.00	0.00	0.00
CATIONS TOT(w/cal. Na)	287.68	0.00	0.00	0.00	0.00
ANIONS:					
ALKALINITY AS CO3	0.00	0.00	0.00	0.00	0.00
ALKALINITY AS HCO3	22.42	0.00	0.00	0.00	0.00
CHLORIDE AS Cl	1.47	0.00	0.00	0.00	0.00
SULFATE AS SO4	263.79	0.00	0.00	0.00	0.00
FLUORIDE AS F	0.00	0.00	0.00	0.00	0.00
ANIONS (TOTAL)	287.68	0.00	0.00	0.00	0.00
TDS (ACTUAL)	20380	0	0	0	0
TDS (CALC. w/cal. Na)	19723	0	0	0	0
PERCENT DIFF. w/cal. Na	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TDS (CALC. w/act. Na)	19850	0	0	0	0
PERCENT DIFF. w/act. Na	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
SODIUM (CALCULATED)	5662	0	0	0	0
SODIUM AS Na (ACTUAL)	5789	0	0	0	0
Relative % Difference RPD	1%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ANION/CATION % Difference	98.15	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: N31080
MATRIX: Water
SAMPLE DATE: 7-Oct-93
SAMPLE TIME (Hrs.): 1056
SAMPLED BY: Dennis Bird
PROJECT: Blanco Plant Monitor Well Installation
FACILITY ID: 5200
SAMPLE LOCATION: Monitor Well, W-6
SAMPLE POINT: Well Opening
DATE OF ANALYSIS: 12-Oct-93

REMARKS: None

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT PPB	QUALIFIER	WQCC LIMIT PPB
BENZENE	<5.0	None	10
TOLUENE	<5.0	None	740
ETHYLBENZENE	<5.0	None	750
TOTAL XYLENES	<5.0	None	620
SURROGATE % RECOVERY	80	Allowed Range 80 to 120 %	

NOTES:

Acceptable Quality Control.

Approved By: John Landers

14-Oct-93
Date

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: N31081
MATRIX: Water
SAMPLE DATE: 7-Oct-93
SAMPLE TIME (Hrs.): 1252
SAMPLED BY: Dennis Bird
PROJECT: Blanco Plant Monitor Well Installation
FACILITY ID: 5200
SAMPLE LOCATION: Monitor Well, MW-28
SAMPLE POINT: Well Opening
DATE OF ANALYSIS: 12-Oct-93

REMARKS: None

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT PPB	QUALIFIER	WQCC LIMIT PPB
BENZENE	<5.0	None	10
TOLUENE	<5.0	None	740
ETHYLBENZENE	<5.0	None	750
TOTAL XYLENES	<5.0	None	620
SURROGATE % RECOVERY	80	Allowed Range 80 to 120 %	

NOTES:

Acceptable Quality Control.

Approved By: _____ 14-Oct-93
Date

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: N31082
MATRIX: Water
SAMPLE DATE: 7-Oct-93
SAMPLE TIME (Hrs.): 1357
SAMPLED BY: Dennis Bird
PROJECT: Blanco Plant Monitor Well Installation
FACILITY ID: 5200
SAMPLE LOCATION: Monitor Well, MW-29
SAMPLE POINT: Well Opening
DATE OF ANALYSIS: 12-Oct-93

REMARKS: None

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT PPB	QUALIFIER	WQCC LIMIT PPB
BENZENE	<5.0	None	10
TOLUENE	<5.0	None	740
ETHYLBENZENE	<5.0	None	750
TOTAL XYLENES	<5.0	None	620
SURROGATE % RECOVERY	80	Allowed Range 80 to 120 %	

NOTES:

Acceptable Quality Control.

Approved By: _____ 14-Oct-93
Date

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: N31083
MATRIX: Water
SAMPLE DATE: 7-Oct-93
SAMPLE TIME (Hrs.): 1357
SAMPLED BY: Dennis Bird
PROJECT: Blanco Plant Monitor Well Installation
FACILITY ID: 5200
SAMPLE LOCATION: Monitor Well, MW-29 Field Duplicate
SAMPLE POINT: Well Opening
DATE OF ANALYSIS: 12-Oct-93

REMARKS: *This was a field duplicate for QA/QC purposes.*

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT PPB	QUALIFIER	WQCC LIMIT PPB
BENZENE	<5.0	None	10
TOLUENE	<5.0	None	740
ETHYLBENZENE	<5.0	None	750
TOTAL XYLENES	<5.0	None	620
SURROGATE % RECOVERY	80	Allowed Range 80 to 120 %	

NOTES:

Acceptable Quality Control.

Approved By: _____ 14-Oct-93
Date

El Paso Natural Gas Company

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER: N31084
MATRIX: Water
SAMPLE DATE: 7-Oct-93
SAMPLE TIME (Hrs.): 1436
SAMPLED BY: Dennis Bird
PROJECT: Blanco Plant Monitor Well Installation
FACILITY ID: 5200
SAMPLE LOCATION: Monitor Well, MW-30
SAMPLE POINT: Well Opening
DATE OF ANALYSIS: 12-Oct-93

REMARKS: None

EPA Method 8020 (BTEX) RESULTS

PARAMETER	RESULT PPB	QUALIFIER	WQCC LIMIT PPB
BENZENE	<5.0	None	10
TOLUENE	<5.0	None	740
ETHYLBENZENE	<5.0	None	750
TOTAL XYLENES	<5.0	None	620
SURROGATE % RECOVERY	80	Allowed Range 80 to 120 %	

NOTES:

Acceptable Quality Control.

Approved By: _____ 14-Oct-93
Date

QUALITY CONTROL REPORT

EPA METHOD 8020 - BTEX

Samples: N31070 to N31076 and N31080 to N31084

LABORATORY DUPLICATES:

SAMPLE NUMBER N31073	TYPE	SAMPLE RESULT (S) (PPB)	DUPLICATE RESULT (D) (PPB)	RPD	ACCEPTABLE RANGE + / - 25% YES	NO
Benzene	2nd Run	<5.0	<5.0	0.0	X	
Toluene	2nd Run	<5.0	<5.0	0.0	X	
Ethylbenzene	2nd Run	<5.0	<5.0	0.0	X	
Total Xylenes	2nd Run	<5.0	<5.0	0.0	X	

Narrative: Acceptable!

LABORATORY CONTROL, CALIBRATION CHECK:

SAMPLE NUMBER 100 PPB Standard	TYPE	KNOWN RESULT (PPB)	FOUND RESULT (PPB)	%R	ACCEPTABLE RANGE 75 - 125 % YES	NO
Benzene	Standard	100.0	97.5	97.5	X	
Toluene	Standard	100.0	97.8	97.8	X	
Ethylbenzene	Standard	100.0	98.9	98.9	X	
Total Xylenes	Standard	300.0	306	102.0	X	

Narrative: Acceptable!

LABORATORY SPIKES:

SAMPLE NUMBER N31071	SPIKE ADDED (SA) PPB	SAMPLE RESULT (S) (PPB)	SPIKE SAMPLE RESULT (SR) (PPB)	%R	ACCEPTABLE RANGE 75-125 %R YES	NO
Benzene	100.0	0.0	96.9	97	X	
Toluene	100.0	0.0	95.5	96	X	
Ethylbenzene	100.0	0.0	96.5	97	X	
Total Xylenes	300.0	0.0	299	100	X	

Narrative: Acceptable.

LABORATORY AND TRIP BLANKS:

SAMPLE ID	SOURCE	Component (PPB)	STATUS
Benzene	EPNG Water	<5.0	ACCEPTABLE
Toluene	EPNG Water	<5.0	ACCEPTABLE
Ethylbenzene	EPNG Water	<5.0	ACCEPTABLE
Total Xylenes	EPNG Water	<5.0	ACCEPTABLE

Narrative: Acceptable!

Approved By: John Laskis

10/14/93

Date

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

August 23, 1993

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

CERTIFIED MAIL
RETURN RECEIPT NO. P- 667-242-377

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: PIGGING LIQUIDS PIT INVESTIGATION
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) is in receipt of El Paso Natural Gas Company's (EPNG) August 13, 1993 "BLANCO PLANT : OLD PIGGING LIQUIDS OVERFLOW PONDS" correspondence. This document presents the results of EPNG's contaminant investigation of an unlined pit at the EPNG Blanco Plant which had previously received natural gas pipeline pigging wastes.

The above referenced investigation report **is hereby approved.** At this time, the OCD does not require remediation of the low level contaminated soils in the old pigging pit based upon the information presented in the report.

Please be advised that OCD approval does not relieve EPNG of liability should remaining contaminants pose a future threat to fresh waters, human health or the environment. In addition, OCD approval does not relieve EPNG of responsibility for compliance with any other federal, state and local laws and/or regulations.

If you have any questions, please contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: OCD Aztec District Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

August 13, 1993

Mr. Bill Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Subject : Blanco Plant : Old Pigging Liquids Overflow Ponds

In April 1993, El Paso Natural Gas Company (EPNG) conducted a soil boring survey in the area of the old pigging liquid overflow ponds. The ponds were located near the Conoco/EPNG property line. The ponds were used in the past to contain overflow from the pigging liquids receiver located north of the ponds.

The purpose of the soil boring survey was to evaluate the presence of any residual hydrocarbon contaminated soil in the old pond area. A hydraulic probe driving unit was used to drive and withdraw the soil sampling probe. A drawing of the area with sample locations and a summary of the analytical results is under Tab 1.

All of the TPH concentrations were below 100 ppm except for Sample CN3W and Sample CN2. It is our understanding that a few years ago, the nearby aboveground tank overflowed. This may be the reason that the soil at CN3W, CN2 and at the corner of the Conoco/EPNG fence line had a hydrocarbon odor. Although some of the soil samples had a slight hydrocarbon odor, none of the samples exceeded the recommended NMOCD limits. All of the benzene concentrations were below 5 ppm and all of the sum of BETX concentrations were below 50 ppm.

In the larger pond area, auger refusal was encountered from 3 feet to 18 feet below grade. Auger refusal was encountered from 9 feet to 11 1/2 feet below grade in the small pond area. Since there is no evidence of any residual contamination from historical use of the pigging liquids overflow ponds, EPNG does not plan any further investigation of the area.

If you have any questions, please call me at 599-2176.

Sincerely,

Anu Pundari

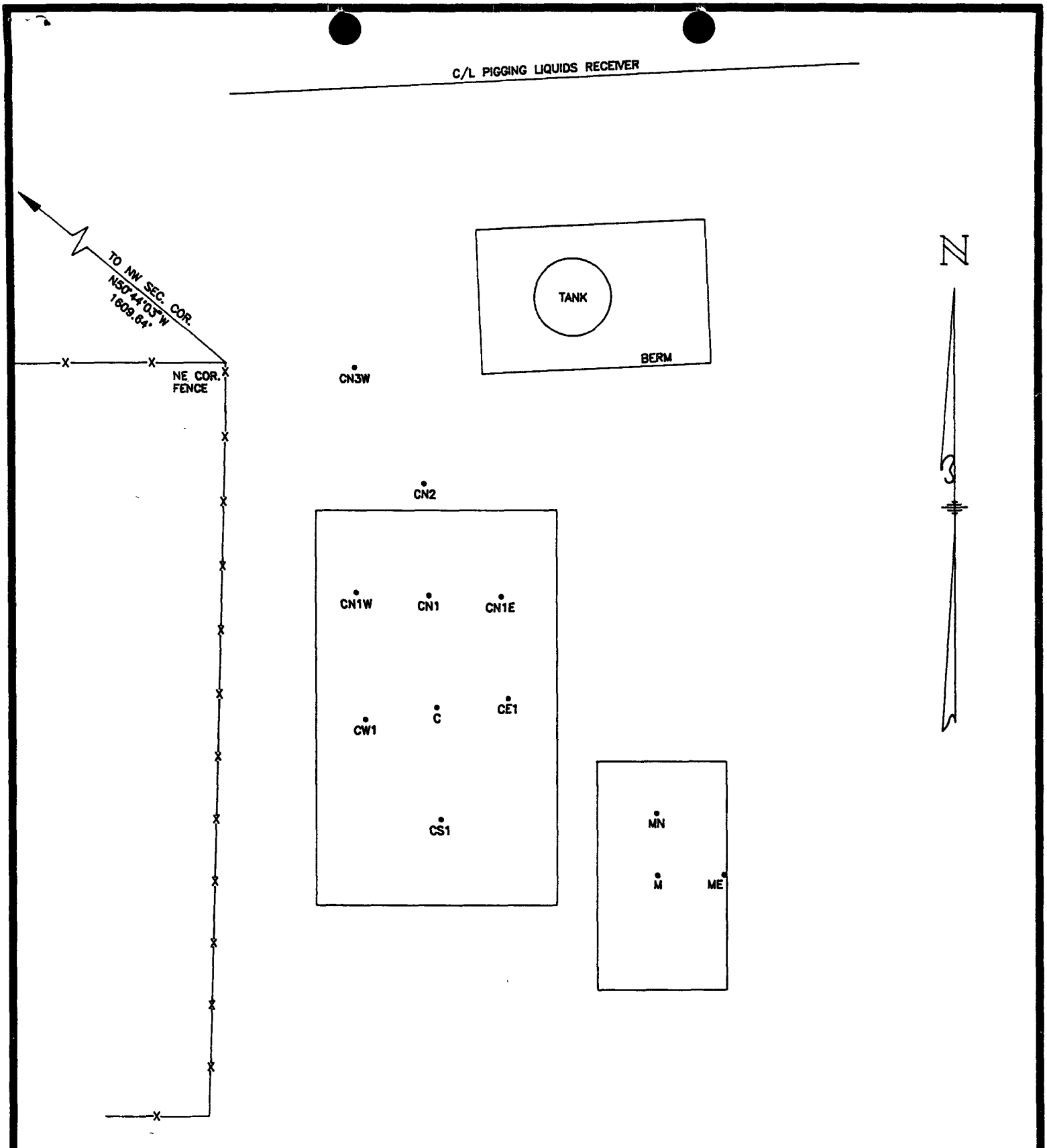
Anu Pundari
Sr. Compliance Engineer

cc: Mr. Denny Foust (NMOCD)
Mr. David Hall (EPNG)

BLANCO PLANT: OLD PIGGING LIQUIDS OVERFLOW PONDS : APRIL 12, 1993

SAMPLE LOCATION	PROBE HOLE	DEPTH (FEET)	BENZENE (MG/KG)	TOLUENE (MG/KG)	ETHYLBENZENE (MG/KG)	TOTAL XYLENES (MG/KG)	TPH BY MOD 8015 (MG/KG)	TPH BY MOD 418.1 (MG/KG)	NOTES
CENTER OF PIT (C)	1	6 TO 7	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	NO VISIBLE HC ; NO HC ODOR
AUGER REFUSAL(C)	1	8							
WESTSIDE OF PIT(CW1)	2	9 TO 10	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	BLACK SOIL BUT WITH NO HC ODOR
WESTSIDE OF PIT (CW1)	2	10 TO 11	0.014	0.064	0.005	0.065	NOT RUN	<10	BLACK SOIL ; NO HC ODOR ; SEWAGE ODOR
AUGER REFUSAL(CW1)	2	14							
NORTH SIDE OF PIT (CN1)	3	2 TO 3	**<0.025**	**0.042**	**0.28**	**3.6**	NOT RUN	67	BLACK/GRAY SOIL ; HAD HC ODOR
AUGER REFUSAL (CN1)	3	3							
EASTSIDE OF PIT (CE1)	4	4 TO 6	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	SANDY/CALICHE WITH WHITE CRYSTALS ; NO HC ODOR
EASTSIDE OF PIT (CE1)	4	10.5 TO 11	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	SANDY/CALICHE WITH WHITE CRYSTALS ; NO HC ODOR
AUGER REFUSAL(CE1)	4	11							
SOUTHSIDE OF PIT (CS1)	5	6 TO 7	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	SANDY/LIGHT BROWN ; NO HC ODOR
SOUTHSIDE OF PIT (CS1)	5	7 TO 8	0.016	0.013	0.005	0.037	NOT RUN	<10	BLACK SOIL ; NO HC ODOR ; SEWAGE ODOR
SOUTHSIDE OF PIT (CS1)	5	15 TO 17	0.205	0.178	0.023	0.186	NOT RUN	<10	BLACK SOIL ; NO HC ODOR ; SEWAGE ODOR
AUGER REFUSAL(CS1)	5	18							
MIDDLE OF SMALL PIT(M)	6	6 TO 8	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	LIGHT BROWN CLAY ; NO HC ODOR ; NO SEWAGE ODOR
MIDDLE OF SMALL PIT(M)	6	10.5 TO 11.5	ND	ND	ND	ND	NOT RUN	<10	SANDSTONE ; LIGHT GRAY ; NO HC ODOR
AUGER REFUSAL(M)	6	11.5							
EASTSIDE OF SMALL PIT (ME)	7	8.5 TO 9	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	SANDSTONE/LIGHT GRAY SOIL ; NO HC ODOR
AUGER REFUSAL (ME)	7	9							
NORTHSIDE OF SMALL PIT (MN)	8	9 TO 11	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	<10	LIGHT BROWN SOIL ; NO HC ODOR
AUGER REFUSAL (MN)	8	11							
NORTHSIDE OF PIT (CN2)	9	3 TO 4	1.149	2.149	0.064	0.511	NOT RUN	NOT RUN	BLACK/GRAY SOIL ; NO HC ODOR
NORTHSIDE OF PIT (CN2)	9	3 TO 4	**<0.025**	**0.77**	**0.66**	**9.3**	**190**	297	BLACK/GRAY SOIL ; NO HC ODOR
AUGER REFUSAL(CN2)	9	4							
NORTHEAST SIDE OF PIT (CN1E)	10	5 TO 6	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	NOT RUN	REDDISH/LIGHT BROWN SOIL ; NO HC ODOR
NORTHEAST SIDE OF PIT (CN1E)	10	6 TO 7	0.149	0.384	0.044	0.899	NOT RUN	<10	GRAY CLAY ; SLIGHT HC ODOR
AUGER REFUSAL(CN1E)	10	7							
NORTHWEST SIDE OF PIT(CN1W)	11	2 TO 2.5	0.001	ND	ND	ND	NOT RUN	<10	LIGHT GRAY SOIL ; HAD HC ODOR
AUGER REFUSAL(CN1W)	11	2.5							
NORTHWEST SIDE OF PIT (CN3W)	12	3 TO 5	**1.5**	**13**	**3.8**	**20**	**700**	1104	LIGHT GRAY SOIL ; HAD HC ODOR
AUGER REFUSAL(CN3W)	12	5							

(BOLD FACE INDICATES ANALYSIS BY ANALYTICAL TECHNOLOGIES)



PRT.	SEP.	DATE	TO	W.O.

PRINT RECORD

ENG. RECORD		DATE
DRAFTING DESIGN	RAF	8/13/93
COMPUTER GRAPHICS	RAF	8/13/93
CHECKED		
PROJECT APPROVAL		
DESIGN APPROVAL		
COMPUTER SAVE NAME	SAMP-LOC	

El Paso NATURAL GAS COMPANY

BLANCO PLANT

OLD PIGGING LIQUIDS OVERFLOW PONDS

SECTION 14, T-29-N, R-11-W, SAN JUAN COUNTY, NEW MEXICO

SCALE:	1"=50'	DWG. NO.	REV.
W.O.:	52599		

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

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

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

June 30, 1993

CERTIFIED MAIL
RETURN RECEIPT NO. P- 667-242-350

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: NORTH FLARE PIT GROUND WATER RECOVERY SYSTEM
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) is in receipt of El Paso Natural Gas Company's (EPNG) May 11, 1993 request for a four month extension of the deadline for submission of a Fluid Recovery Report for ground water contamination surrounding the Blanco Plant North Flare Pit.

The proposed extension of the submission date from June 21, 1993 to October 21, 1993 is approved.

If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: OCD Aztec District Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

May 11, 1993

Mr. William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Re: Blanco North Flare Pit - Groundwater Recovery System

El Paso Natural Gas Company (EPNG) plans to install a total fluids pumping system from either MW-19 or MW-26 for a period of time and evaluate the rate of fluid recovery and reductions of product thickness. A report evaluating the effectiveness of the fluid recovery system was requested by June 21, 1993.

EPNG is requesting an extension for submittal of the report. Due to the relatively low transmissivity, storage coefficient, and low hydraulic conductivity, aquifer conditions appear to be steady state and meaningful data will require an extended timeframe to develop. The following is an estimated timetable for the project.

April 1993 - Received New Mexico State Engineer Approval for Pumping Wells

May/June 1993 - Select and Order Materials

July 1993 - Receive and Install Pumping System

August/September 1993 - Monitor Effectiveness of System

October 21, 1993 - Submit report evaluating the effectiveness of the system and include recommendations for remediation of contaminated groundwater.

During the extended timeframe, EPNG expects minor aquifer changes . Therefore, EPNG requests a four month extension of the previously set deadline of June 21st for the Fluid Recovery Report.

If you have any questions, please contact me at 599-2176 or Mr. David Hall at (915) 541-3531.

Sincerely,

A. N. Pundari

A.N. Pundari
Senior Compliance Engineer

cc: Mr. David Hall(EPNG)
Mr. Denny Foust (NMOCD - Aztec Office)

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

March 31, 1993

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

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-331

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: SOUTH FLARE PIT CLOSURE REPORT
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) has completed a review of El Paso Natural Gas Company's (EPNG) February 26, 1993 "BLANCO SOUTH FLARE PIT CLOSURE REPORT". The closure report describes the results of EPNG's remediation of contaminated soils at the EPNG Blanco south flare pit and contains a "HYDROCARBON RECOVERY WORKPLAN" to investigate and remediate contaminated ground water downgradient of the former pit location.

The above referenced closure report is hereby approved with the following conditions:

1. The monitor wells will be constructed with a minimum of five feet of well screen above the water table and 10 feet of well screen below the water table.

2. The initial ground water quality sampling will include laboratory analysis of concentrations of aromatic and halogenated volatile organics, major cations and anions, polynuclear aromatic hydrocarbons (PAH's) and heavy metals using EPA approved methods.

3. The OCD will be notified of all investigation and sampling activities at least 48 hours prior to commencement such that OCD has the opportunity to witness work elements and/or split samples.

Please be advised that OCD approval does not limit EPNG to the work proposed should the investigation activities fail to fully define the extent of contaminants which have migrated from the flare pit. In addition, OCD approval does not relieve EPNG of liability for compliance with any other laws and/or regulations.

If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: Denny Foust, OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

February 26, 1993

Mr. William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Re: Blanco South Flare Pit Closure Report

Attached is a summary report of El Paso Natural Gas Company's(EPNG) activities relating to the closure of the south flare pit near Blanco Plant. Excavation activities began in early November 1992 and were completed in late December 1992. I appreciate the assistance you and Mr. Denny Foust provided on this project. The attached report summarizes our activities during the project and plans for further investigation at the site.

Please contact us about your comments on the additional investigation workplan. Upon your approval, we plan to install monitor wells in April 1993. If you have any questions, please contact me at 599-2176 or Mr. David Hall at (915) 541-3531.

Sincerely,

A.N. Pundari

A.N. Pundari
Senior Compliance Engineer

cc: Mr. David Hall(EPNG)
Mr. Denny Foust (NMOCD - Aztec Office)

BLANCO SOUTH FLARE PIT CLOSURE REPORT

I. Introduction and Background Information

The project involved the closure of an inactive flare pit located in the southeast corner of the Blanco Plant property located in Section 14,Township 29-N, Range 11-W, San Juan County. The pit was historically used for flaring of plant liquids during upset conditions or for the disposal of liquids from plant vessels during operations and maintenance type activities. A smokeless flare was installed in 1992 to replace the pit. The original pit was approximately 100 feet long, sixty feet wide and 10 feet deep.

II. Excavation Activities

Burlington Environmental Inc. was the project contractor. The contractor excavated approximately 35,000 cubic yards of contaminated soil from the flare pit area. The extent of contamination extended beyond the original pit boundaries on all sides. First, a thirteen to fifteen foot lift was excavated over the entire pit area. Excavation was based on visible contamination and EPNG laboratory analysis. A clay layer was encountered at twelve to fourteen feet below pit bottom. The clay layer was not uniform and was intermixed with sandy soil. In general, the sandy soil TPH was higher than the clay layer TPH. Along a thirty foot wide strip at the southern edge of the pit, approximately thirteen to fourteen feet of clean overburden was removed, set aside, and reinstalled in the pit after removal of the hydrocarbon contaminated soil.

III. Test Trenches at Pit Bottom After First Lift

After the first lift of approximately thirteen to fifteen foot depth below the original pit bottom, test trenches were dug with the backhoe. All references to "pit bottom" in this section indicates the new pit bottom after digging the first lift. Tab 1 contains the analytical results from the test pits dug below the pit bottom. A sandstone bench was encountered at the northeast corner of the pit and along the eastern edge of the pit. The southeast corner of the pit was the most highly contaminated with 11,334 TPH at a depth of ten feet below the pit bottom. The soil in the southeast corner of the pit was mostly sand and groundwater was encountered at a depth of six feet below pit bottom.

The test trenches in the middle and west side of the pit showed that TPH levels below 100 ppm were encountered at a depth of approximately six to eight feet below the pit bottom. Groundwater was encountered at a depth of approximately ten feet below the pit bottom in the middle of the pit. On the west side of the pit, groundwater was encountered at a depth of approximately twelve to fifteen feet below the pit bottom. EPNG did not obtain any groundwater samples during the excavation activities.

Since the test trenches in the middle and west side of the pit showed that TPH levels below 100 ppm were encountered at a depth of approximately six to eight feet below the first lift, EPNG dug an additional six to eight feet below the first lift depth. On the east side of the pit, EPNG was careful to not dig below the groundwater table. After the additional excavation, EPNG obtained verification samples at the pit bottom and pit sides.

IV. Test Trenches "A" through "G" along the Outer Boundary of the Pit

To determine the lateral extent of contamination , Test Trenches "A" through "G" were dug beyond the excavated area to a depth of twenty one to twenty three feet below grade. The EPNG laboratory took soil samples at various depths in the Test Trenches. Map #1 under Tab 2 is a diagram with the locations and analytical results from the Test Trenches.

In the trenches located south of the excavated area, Trench "A", "B" and "C", an approximately three foot clay layer at the bottom of the test trenches was overlain with approximately seven feet of gray, contaminated soil and approximately thirteen feet of clean, sandy overburden. Trench "D" had fifteen feet of clean overburden over four feet of contaminated soil. Trench "E" had four feet of clean overburden, thirteen feet of contaminated soil and six feet of clean soil beneath the contaminated strata. The TPH analysis of all samples from Trench "F"and Trench "G" were below 100 ppm. A hard sandstone strata was encountered at a depth of twenty one feet below grade at Trench "G".

Since the contaminated strata was below twelve to fifteen feet of clean overburden along the southern and western edge of the excavated area, the NMOCD field inspector approved our plan to discontinue excavation due to inaccessibility of the contaminated strata. Along the area near Trench "E", EPNG excavated the contaminated strata to a depth of approximately seventeen feet below grade.

V. Verification Samples

Verification samples were obtained along the pit bottom and pit sides. The pit bottom and pit side samples were analyzed for Total Petroleum Hydrocarbons by the EPA Modified 8015 Method and Purgeable Organic Contaminants by EPA Method 8020. The pit side samples were taken at three different depths below grade. Verification sample results with sample locations are shown on Map #1 under Tab 2. The location and depths of the verification samples are approximate. After the bottom of the pit was excavated, three trenches were dug along each pit wall. As a reference point, the depths noted on the table in Map #1 are relative to the elevation at Monitor Well #6.

Benzene soil concentrations were less that 10 ppm and the sum of BETX concentrations were less than 50 ppm for all pit bottom and pit side samples. During the sampling of the west wall, no visibly stained soil was encountered, however, one pit west wall sample exceeded 100 ppm TPH. All of the soil TPH results along the pit north wall exceeded 100 ppm except on the northwest corner. The contaminated soil in the northwest corner was excavated due to the TPH analysis at Trench "E". Along the east edge of the pit, approximately fourteen to fifteen feet of clean overburden was excavated and set aside prior to excavation of the contaminated strata. The highest levels of soil contaminants remaining in the pit are on the eastern, northeastern, and southeastern sides of the excavated area. At the southeast corner of the excavated area, sandstone was encountered at a depth of approximately twenty six feet below grade. Along the south wall, approximately thirteen to fourteen feet of clean overburden was excavated, set aside and reinstalled.

Five out of the twelve pit bottom TPH values are below the 100 ppm TPH limit. We expected the middle and western side of the pit bottom to be below 100 ppm TPH at the final excavation depth due to our trench data after the first lift. Due to the variability of the sand and clay layer within the pit, we did not obtain TPH results below 100 ppm from the middle and western side of the pit bottom. Due to the proximity to groundwater at the bottom of the pit, EPNG did not excavate any further. Prior to backfilling the pit, EPNG obtained approval from the NMOCD field inspector.

VI. Contaminated Soil Disposal and Clean Backfill

The contaminated soil was hauled to Envirotech's landfarm facility located off Highway 44. Envirotech stated that a specific area was set aside for EPNG soil. Envirotech will be responsible for spreading, disking, and analyzing the soil at the landfarm according to NMOCD requirements.

Clean backfill was obtained from Envirotech and from Arco Sand and Gravel. In addition to the clean backfill, the entire excavated area and areas beyond the excavated area was covered with approximately three to four feet of grey siltstone with high clay content. This will act as a barrier to water infiltration over the excavated area. The grey siltstone was obtained from a nearby landowner. After placement of the grey siltstone layer, the contractor contoured the area to avoid ponding, control runoff and erosion. In addition, drainage channels were bladed around the pit so that runoff would be diverted away from the pit area. A diagram of the area covered with grey siltstone cap is shown on Map #2 under Tab 3.

VII. Rationale to Discontinue Excavation

Due to the following, EPNG does not plan any further excavation in the immediate vicinity of the south flare pit.

1) EPNG excavated to a depth of approximately twenty four feet below grade. Excavation ceased after removal of approximately 35,000 cubic yards of contaminated soil.

2) The area of the flare pit is covered with approximately twenty four feet of clean backfill and three to four feet of a low permeability grey siltstone cap.

3) The dissolved BETX concentrations in the downgradient monitor wells MW-5, MW-7, MW-8, and MW-10, does not exceed WQCC limits. A table with 1992 and 1993 groundwater BETX concentrations is under Tab 4. EPNG will address the floating hydrocarbons in MW-6.

4)The pit bottom and pit sides total petroleum hydrocarbons(TPH) and aromatic hydrocarbons (BETX) results are significantly less than contaminated soil TPH and BETX results.

5) All the pit sample benzene concentrations are below 10 ppm. All the pit sample sum of BETX concentrations are below 50 ppm.

6) The addition of approximately three feet of low permeability grey siltstone cap over the entire excavated area and drainage diversions around the pit, help to reduce the likelihood of water infiltrating the soil and contacting with the pit bottom.

7)Although there is contaminated soil south of the excavated area, the contaminated strata is overlain with approximately twelve feet to fourteen feet of clean overburden and underlain with approximately three or more feet of clay. The area with contaminated soil was covered with approximately three feet of grey siltstone covering an area eighty feet south of the entire excavated area. This will help to reduce the likelihood of water infiltrating the soil and contacting the contaminated strata.

8)Although there is contaminated soil in the northeast edge of the excavated area, the drainage channels will assist to avoid ponding and erosion along the northeast area. Due to the natural topographic gradient and drainage channels, runoff will be not accumulate and pond in the northeast area. In addition, the upgradient trench, Trench "F", was dug to a depth of twenty one feet below grade and all soil TPH values were less than 100 ppm.

9) Although there is contaminated soil along the east edge of the excavated area, there is approximately seventeen feet of clean overburden and three feet of low permeability grey siltstone cap. This will help to reduce the likelihood of water infiltrating the soil and contacting the contaminated strata.

VIII. Planned Additional Investigation at Site

Although EPNG does not plan any further excavation in the immediate vicinity of the flare pit, EPNG does plan to address the groundwater contamination in Monitor Well #6. A copy of the hydrocarbon recovery workplan is under Tab 5. The proposed monitor well locations are noted on Map #2 under Tab 3.

Potential remediation methods which will be evaluated after review of the data include a dual-pump system, total fluids system and a phased approach of skimming followed by total fluids pumping. The data will be evaluated from the aquifer tests and a specific remediation method will be selected based on discussions with NMOCD.

IV. Proposed Schedule

Upon your approval, EPNG plans to install the additional monitor wells by May 1, 1993. A groundwater investigation report with a proposed remediation method will be submitted to NMOCD by July 15, 1993.

BLANCO PLANT - SOUTH FLARE PIT
FIELD SERVICES LABORATORY
ANALYTICAL RESULTS OF
TEST PITS AFTER FIRST LIFT

Sample Number	Sample Location	Sample Description	Time	Date	IR TPH Mod. 418.1 (MG/KG)
N22895	North Floor East End - 2 Foot	Sand	1055	11/25/	5,696
N22896	North Floor East End - 4 Foot	Sand	1057	11/25/	6,933
N22897	North Floor East End - 6 Foot	Sand	1059	11/25/	2,336
N22898	North Floor East End - 8 Foot	Sand	1101	11/25/	9,733
N22899	North Floor East End - 10 Foot	Clay	1104	11/25/	1,136
N22900	North Floor East End - 12 Foot	Sand	1108	11/25/	4,402
N22901	North Floor Center - 2 Foot	Clay	1114	11/25/	<1
N22902	North Floor Center - 4 Foot	Clay	1116	11/25/	49
N22903	North Floor Center - 6 Foot	Clay	1118	11/25/	55
N22904	North Floor Center - 8 Foot	Sand	1120	11/25/	45
N22905	North Floor Center - 10 Foot	Clay	1122	11/25/	76
N22906	North Floor Center - 12 Foot	Clay	1124	11/25/	<1
N22907	North Floor West End - 2 Foot	Clay	1133	11/25/	11,715
N22908	North Floor West End - 4 Foot	Clay	1135	11/25/	2,618
N22909	North Floor West End - 6 Foot	Clay	1137	11/25/	3,809
N22910	North Floor West End - 8 Foot	Sand	1139	11/25/	24
N22911	North Floor West End - 10 Foot	Clay	1141	11/25/	104
N22912	North Floor West End - 12 Foot	Clay	1143	11/25/	<1
N22913	Center Floor West End - 2 Foot	Clay	1148	11/25/	3,521
N22914	Center Floor West End - 4 Foot	Clay	1150	11/25/	293
N22915	Center Floor West End - 6 Foot	Clay	1152	11/25/	<1
N22916	Center Floor West End - 8 Foot	Sand	1154	11/25/	30
N22917	Center Floor West End - 10 Foot	Clay	1156	11/25/	<1
N22918	Center Floor West End - 12 Foot	Clay	1158	11/25/	<1
N22919	Center Floor East End - 2 Foot	Clay	1313	11/25/	10,604
N22920	Center Floor East End - 4 Foot	Clay	1315	11/25/	128
N22921	Center Floor East End - 6 Foot	Clay	1318	11/25/	1,772
N22922	Center Floor East End - 8 Foot	Sand	1319	11/25/	167
N22923	Center Floor East End - 10 Foot	Clay	1321	11/25/	43
N22924	Center Floor East End - 12 Foot	Clay	1324	11/25/	12

BLANCO PLANT - SOUTH FLARE PIT
FIELD SERVICES LABORATORY
ANALYTICAL RESULTS OF
TEST PITS AFTER FIRST LIFT

Sample Number	Sample Location	Sample Description	Time	Date	IR TPH Mod. 418.1 (MG/KG)
N22925	South Floor East End - 2 Foot	Sand	1332	11/25/	8,318
N22926	South Floor East End - 4 Foot	Sand	1334	11/25/	9,952
N22927	South Floor East End - 6 Foot	Clay	1337	11/25/	10,725
N22928	South Floor East End - 8 Foot	Clay	1339	11/25/	8,282
N22929	South Floor East End - 10 Foot	Clay	1342	11/25/	11,334
N22930	South Side Center Floor - 2 Foot	Sand	1353	11/25/	11,729
N22931	South Side Center Floor - 4 Foot	Clay	1355	11/25/	1,691
N22932	South Side Center Floor - 6 Foot	Clay	1357	11/25/	101
N22933	South Side Center Floor - 8 Foot	Clay	1400	11/25/	<1
N22934	South Side Center Floor - 10 Foot	Clay	1402	11/25/	<1
N22935	South Side Center Floor - 12 Foot	Clay	1404	11/25/	<1
N22936	South Floor West End - 2 Foot	Sand	1410	11/25/	11,681
N22937	South Floor West End - 4 Foot	Clay	1412	11/25/	247
N22938	South Floor West End - 6 Foot	Clay	1416	11/25/	262
N22939	South Floor West End - 8 Foot	Clay	1417	11/25/	96
N22940	South Floor West End - 10 Foot	Sand	1420	11/25/	18

BLANCO PLANT MONITOR WELLS

JANUARY 1992

COMPONENT	MW-5	MW-7	MW-8	MW-10
	(UG/L)	(UG/L)	(UG/L)	(UG/L)
BENZENE	<0.50	<0.50	<0.50	<0.50
ETHYLBENZENE	<0.50	<0.50	<0.50	<0.50
TOLUENE	<0.50	<0.50	<0.50	<0.50
XYLENES	<0.50	0.80	0.80	2.50

FEBRUARY 1993

COMPONENT	MW-5	MW-7**	MW-8	MW-10
	(UG/L)	(UG/L)	(UG/L)	(UG/L)
BENZENE	<0.50	AWAITING RESULTS	<0.50	<0.50
ETHYLBENZENE	<0.50	AWAITING RESULTS	<0.50	<0.50
TOLUENE	<0.50	AWAITING RESULTS	<0.50	<0.50
XYLENES	<0.50	AWAITING RESULTS	<0.50	<0.50

** RESULTS FROM MW-7 WERE NOT RECEIVED IN TIME FOR THIS REPORT

HYDROCARBON RECOVERY
NEAR EL PASO NATURAL GAS COMPANY'S
BLANCO PLANT SOUTH FLARE PIT

WORK PLAN
FEBRUARY , 1993

EXECUTIVE SUMMARY

Hydrocarbon recovery is proposed at a location near the south flare pit at EPNG's Blanco plant. Three new monitoring wells are proposed near the flare pit area. One well will be located downgradient of MW-6.

One well will be located approximately 60 feet southwest of the Southeast Corner of the excavated area. The third monitor well will be chosen based on field observations. The third well will be placed near the well with the greatest free product thickness. This well be used as a observation well during the pump test.

The three 4-inch diameter wells will be screened so as to intercept any hydrocarbon layer encountered at the top of the unconfined alluvial aquifer.Pump size, type and pumping rates will be determined after completion of aquifer tests. Either a skimmer pump, total fluids pump, or a dual pump system may be installed in the recovery well. The liquids removed from the aquifer may be pumped separately as hydrocarbons and water, or pumped together and separated at the surface.

HYDROCARBON RECOVERY WORKPLAN
Blanco Plant South Flare Pit

I. BACKGROUND

Floating hydrocarbons have been identified in a monitoring well, MW-6, southwest of the South Flare Pit at the Blanco Plant site. This plan consists of recovery well installation, and pumping and disposal of the hydrocarbons. Further studies will be conducted to assess site hydrogeology and the source and extent of hydrocarbons.

The actions recommended are based on hydrogeologic information obtained during the studies by McBride-Ratcliff and Associates, Inc., (1988) , Bechtel (1988) , on preliminary results of the soil gas and groundwater survey performed by John Mathes and Associates (April 1991) , and on groundwater quality information obtained by EPNG personnel.

A broad, shallow paleochannel appears to exist in the south end of the site. The south flare pit and MW-6 appear to be near the eastern edge of this channel. Groundwater flow is to the southwest near the flare pit. It appears that although MW-6 is slightly cross-gradient to the flare pit, no other potential sources exist in the area. In addition, the soil gas survey conducted by John Mathis and Associates indicates that hydrocarbon contamination attenuates rapidly away from this pit in the downgradient direction.

MW-6 was installed by Bechtel on September 21, 1988. At that time, noticeably stained soil was encountered between depths of approximately 12 and 23 feet. Soils analyzed from these intervals did not contain detectable levels of organic compounds. The well was screened between 19 and 29 feet below the surface. The groundwater was sampled for Volatile Aromatics (EPA Method 602). Benzene, ethylbenzene and xylenes were not detected and toluene was detected at <0.2 ug/l.

In January 1990, K.W. Brown took depth to water level (D-T-W) measurements in MW-6. A distinct hydrocarbon odor and oily sheen was discovered on the D-T-W probe. In January 1992, EPNG found a three inches of floating hydrocarbon product in MW-6.

II. MONITORING WELLS

Three 4-inch diameter wells are proposed downgradient of the abandoned flare pit. One well will be located downgradient of MW-6. The well will assist us in determining the southern extent of freephase and/or dissolved hydrocarbons in the groundwater.

One well will be located approximately 60 feet southwest of the Southeast Corner of the excavated area. The proposed location was chosen since the southeast corner of the excavated area had the highest TPH levels.

During the field investigation the decision will be made about which well to use for a pumping test. The third monitor well will be chosen based on field observations. The third well will be placed near the well with the greatest free product thickness. This well be used as a observation well during the pump test.

All three monitoring wells will be four inches in diameter. The decision will be made in the field about which to use as recovery wells based upon location relative to the plume of floating hydrocarbons. The strategy will be to maximize recovery by identifying the wells with the greatest contamination and the most efficient capture zone based upon observed groundwater flow direction. It is anticipated that the water table will be encountered at approximately twenty five feet below the surface.

III. SPECIFICATIONS

Specifications will be prepared for a contract driller and for in-house support from the conceptual outline which follows.

Well Drilling: The preferred drilling method is hollow stem auger, but air rotary equipment may be considered. Split spoon samples should be collected every 5 feet in any contaminated soil strata. These samples will be for chemical analysis and lithologic logging purposes.

Well Construction: The wells will be constructed of four-inch PVC with PVC screen. In all wells the screen will be placed with at least two feet of screen above the water level and at least 10 feet of screen below the water surface to produce sufficient volume of pumping and to accommodate seasonal water level fluctuations. At least a 15 foot , .010 screen will be used as it is anticipated that the saturated interval is only 10 feet thick and that only the product layer will be pumped. A gravel pack consisting of silica sand, size #30, a bentonite seal, cement - bentonite grout to surface, and galvanized surface casing will also be installed.

Well Development: The wells will be developed by surging and pumping with air or water to remove fine material introduced during drilling prior to sampling.

Aquifer Tests: Aquifer tests will be conducted on both hydrocarbons and groundwater in one of the new monitoring wells.

Sampling and Analysis: Physical tests (grain size analysis, porosity, bulk density) may be performed on soils from the screened intervals in one well. Physical tests (viscosity, specific gravity) may be performed on hydrocarbons and on water samples.

PID readings will be taken on soil samples collected above the water table. TPH and BTEX analysis will be performed on any hydrocarbon impacted soil samples. Chemical analysis will be performed on water obtained from new wells . BTEX and TPH analyses will not be performed where floating product is present.

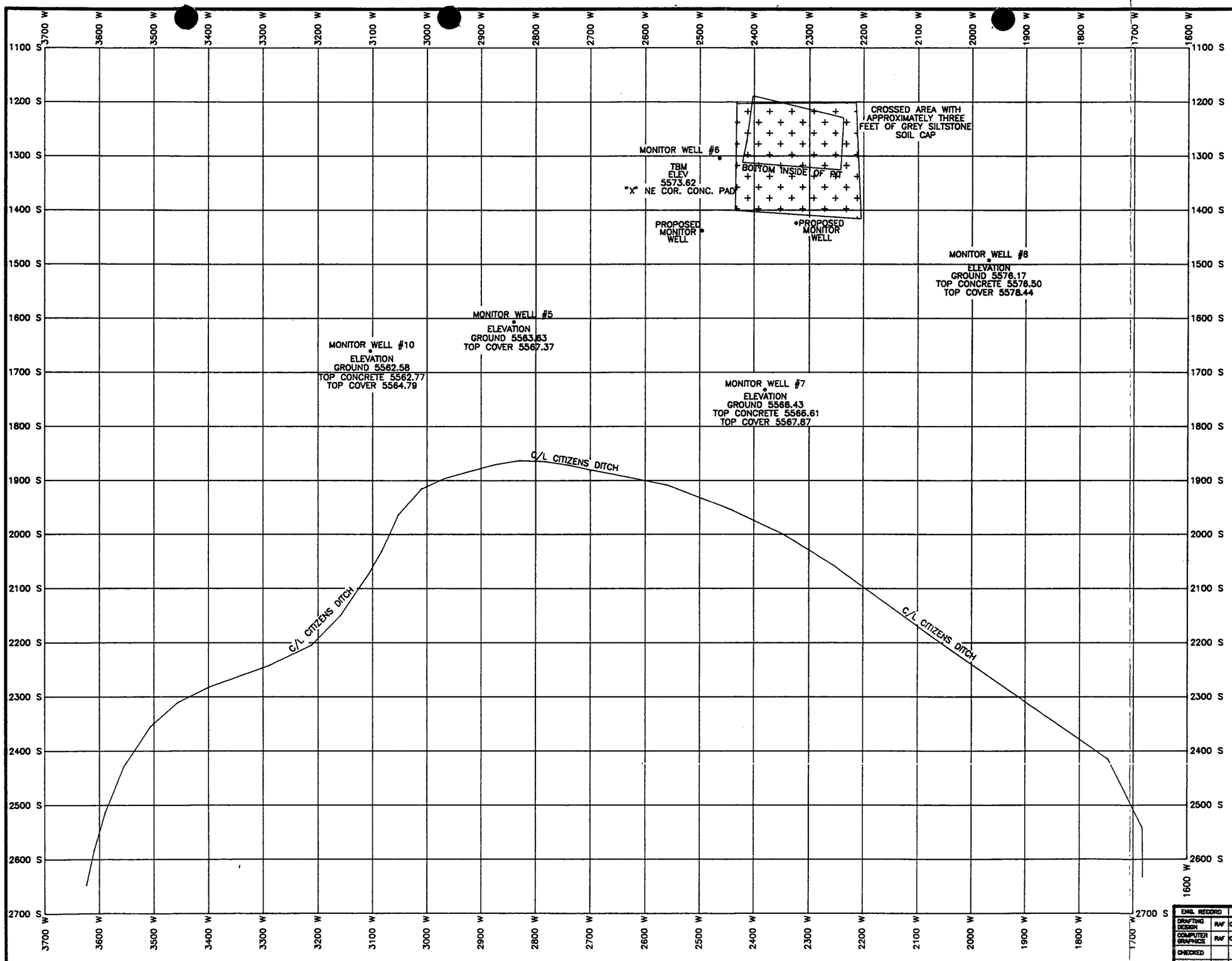
Surveying: Location, surface level, top of casing will be surveyed.

Pumping: The pump size, type, and pumping rate will be determined after completion of aquifer tests and analysis of the fluids to be pumped.

Either a skimming device for removal of hydrocarbons only, a pump for recovering total fluids, or a dual pump system will be installed. In the dual pump system one pump would be equipped with a sensor which allows collection of floating hydrocarbons only and the other pump would be placed lower in the well to create sufficient drawdown to recover the floating product.

Disposal:

All hydrocarbons will be recycled. The water phase will be disposed of appropriately. If both water and hydrocarbons are removed together, the liquids will be separated at the surface and recycled or disposed of appropriately.



NOTE
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COMPUTER GRAPHICS	RAF	01/14/93
CHECKED		
PROJECT APPROVAL		
DESIGN APPROVAL		
COMPUTER SAVE NAME	PIT-ONE	

El Paso
NATURAL GAS COMPANY

BLANCO PLANT
SOUTH FLARE PIT AREA
MAP NUMBER TWO

SCALE: 1"=60'
W.O.: 50948
DWG. NO.
REV.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

March 15, 1993

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

CERTIFIED MAIL
RETURN RECEIPT NO. P- 667-242-327

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: DISCHARGE PLAN MODIFICATION
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) has reviewed the El Paso Natural Gas Company's (EPNG) January 26, 1993 "HISTORICAL SUMMARY OF CHROMIUM INVESTIGATION AT BLANCO PLANT". This document describes the history of EPNG's investigation and remediation of chromium contaminated soils at the EPNG Blanco Plant from 1987 through 1992. According to this document, soils contaminated with trace levels of chromium are being remediated onsite using a landfarming process. This activity was not included in the current discharge plan (GW-49) for the Blanco Plant.

Therefore, pursuant to Section 3-109.E.1. of the New Mexico Water Quality Control Commission Regulations, the OCD requires that EPNG modify discharge plan GW-49 for the EPNG Blanco Plant to include the landfarming of low level chromium contaminated soils.

Elements of the discharge plan modification will include, but are not limited to, the following items:

1. Copies of all investigation reports prepared and soil analyses conducted since 1989.

2. Plats showing areas currently being used for landfarming of low level chromium contaminated soils in relation to other significant plant and local features.

3. Methods employed in the landfarming process.

4. Proposed final remediation levels and disposition of remediated soils.

If you have any questions, please call William Olson of my staff at (505) 827-5885.

Sincerely,

William J. LeMay
Director

cc: Frank Chavez, OCD Aztec District Supervisor

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:
Ms. A.N. Pundari
El Paso Natural Gas Co.
P.O. Box 4990
Farmington, NM 87499

4a. Article Number
P-667-242-327

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

7. Date of Delivery
3-18-93

5. Signature (Addressee)

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

6. Signature (Agent)
Dan Pearson

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

El Paso
Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

January 26, 1993

Mr.William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Subject : Historical Summary of Chromium Investigation at Blanco Plant

Dear Mr. Olson:

At the request of NMOCD, David Hall and I met with Mr. Denny Foust, Mr. Frank Chavez, and Ms. Kathy Brown at the NMOCD Aztec Office on December 8th. We discussed a general history of the investigation activities at Blanco Plant. Attached is a brief historical overview of the project. Information on the treatment process for chromium contaminated soils is under Tab 1. Results from the analysis of drummed soil and a small soil pile currently stored at the Blanco Plant Scrap Storage Area is under Tab 2.

EPNG plans to conduct quarterly sampling for chromium from the monitor wells located near Citizen's Ditch and south of the Scrap Storage Area. Upon your request, a copy of the results will be sent to NMOCD. Upon your approval, we will treat onsite the chromium contaminated soils currently stored at the Blanco Plant Scrap Storage Area. If you have any questions, please call me at 599-2176 or Mr. David Hall at (915) 541-3531.

Sincerely,

Anu N. Pundari

Anu N. Pundari
Sr. Compliance Engineer

cc: Mr. David Hall(EPNG)
Mr. Denny Foust (NMOCD - Aztec)
Mr. Frank Chavez(NMOCD - Aztec)
Ms. Kathy Brown(NMOCD - Santa Fe)

BLANCO PLANT
CHROMIUM INVESTIGATION

PRIOR TO 1987

New Mexico Environment Department(NMED) walked along Citizen's Ditch, located south of Blanco Plant, and noticed "yellow spots" along the ditch bank. EPNG does not know what prompted the investigation along the ditch. The inspector did not take any samples but believed the "yellow spots" contained chromium. The inspector prepared field notes documenting this observation and filed them in NMED's files.

YEAR 1987

The NMED reviewed their files to determine target companies for future investigation. During a review, the inspector's notes were found. Therefore, NMED inquired about the "yellow spots" and potential chromium impact on groundwater. EPNG, Roger Anderson and David Boyer conducted a visual survey of Citizen's Ditch and surrounding plant area and they did not find any evidence of chromium contaminated soil.

Later, NMED contacted EPNG and requested an inspection of Blanco Plant be conducted. NMED and EPNG personnel walked along the ditch but did not notice any "yellow spots" anywhere. During the plant inspection, EPNG and NMED obtained soil samples at various locations along the ditch and near a previously used unlined pond. All the samples were below EP Toxicity limits. The results were also submitted to NMOCD.

YEAR 1988

NMED requested EPNG conduct a groundwater investigation. EPNG contracted with Bechtel Environmental to install groundwater monitoring wells near the old unlined pond, south flare pit and areas upgradient of the unlined pond. The investigation did not show any signs of groundwater contamination or soil contamination due to chromium. A copy of the investigation report was sent to NMED and NMOCD. NMED stated "Chromium -- total, dissolved, and hexavalent -- did not exceed NM and EPA levels even when detected." NMED also stated "The soil and other sediment analytical results indicate that further organic or heavy metal analyses on sediments is not warranted." NMED " closed the book" on the site.

After the investigation was complete, while reviewing photos from the site, Bechtel Environmental discovered an area south of the old steam cleaning pad with "yellow" soil.

YEAR 1989 and YEAR 1990

EPNG took samples of the "yellow" soil near the old steam cleaning pad. The steam cleaning pad is located west of Blanco Plant and south of Meridian's F1 Field Liquids Storage Tank. Some results were above and others below EP Toxicity limits. EPNG excavated the soil based on

visible contamination and placed the soil in drums. The drums were disposed at U.S. Pollution Control Inc.'s (USPCI) hazardous waste landfill located near Clive, Utah. EPNG did not obtain a composite sample of the drums prior to disposal.

NOVEMBER 1990

EPNG hired a consultant, K.W. Brown, in November 1990 to conduct a site assessment and to find the extent of chromium contaminated soils. K.W. Brown took soil core samples and prepared a report of their analysis indicating a limited area of contamination.

YEAR 1991

In February 1991, K.W. Brown finalized the report detailing the extent of contamination. They recommended a special onsite soil treatment process. A description of the treatment process is under Tab 1. This process was utilized to treat soil at EPNG's Guadalupe Station in Texas and was approved by the Texas Railroad Commission.

In March 1991, Tom Hutchins and Anu Pundari met with Mr. David Boyer and Mr. Bill Olson about another project. At the meeting, Tom Hutchins and Anu Pundari mentioned to Mr. David Boyer that EPNG found chromium contaminated soils at Blanco Plant. Mr. David Boyer recommended that EPNG promptly excavate and properly dispose the contaminated soils. Mr. Boyer did not indicate that further notification or updates should be made to NMOCD.

In May 1991, EPNG hired Waste Processors, Inc. to excavate chromium contaminated soils at the site. Excavation was based on removing visibly contaminated soils. The soil was disposed at USPCI's hazardous waste landfill. Some soil exceeded the hazardous waste criteria and some soil was below the hazardous waste criteria. EPNG did not obtain a composite sample of the trucked material prior to disposal.

YEAR 1992

SOUTH OF STEAM CLEANING PAD

EPNG hired Burlington Environmental Inc. to excavate chromium contaminated soil south of the old steam cleaning pad since there was visibly contaminated soil after WPI's excavation in 1991. We encountered a hard sandstone layer at the bottom of the excavation area.

The excavated soil was split into three separate piles. The piles were designated "clean overburden", "intermediate" , and "contaminated". The "clean overburden" was soil that did not contain visible chromium contamination. The "contaminated" soil was visibly stained soil. An area of approximately one foot above the visibly contaminated soil was considered "intermediate". The "intermediate" soil was a mixture of the clean overburden strata and the

visibly contaminated strata. The separate piles of "intermediate" and "contaminated" soil were placed on plastic and covered with plastic during the project.

The "contaminated" soil was in layers. There were layers of contaminated strata between clean soil. It was physically impossible to only excavate the "yellow" soil since clean soil was around it. After excavation of visibly contaminated soil, EPNG took verification samples and all verification samples were below the TCLP chromium limit for hazardous waste.

All the soil piles, i.e. "clean overburden", "intermediate" and "contaminated", were sampled according to EPA SW-846 guidelines. All of the sample results from the soil piles were below regulatory limit for TCLP chromium. Although no sample from the " contaminated" soil pile exceeded the regulatory limit for TCLP chromium, EPNG disposed the "contaminated" soil at USPCI's industrial waste landfill in Utah as an added precautionary measure. The "intermediate" soil pile with traces of chromium was treated at an onsite landfarm, located immediately west of the excavation area. The soil was spread in a one foot lift and bermed. EPNG followed the K.W. Brown method. The "clean" overburden was reinstalled back in the excavation.

SCRAP STORAGE AREA

Later in 1992, EPNG conducted a "walkthrough" of the Scrap Storage Area prior to determining the best method for disposing drums stored at the site. The Scrap Storage Area is used as a storage area for scrap metal, used parts, used drums, and scrap wood prior to proper disposal. As before, EPNG noticed a small "yellow" spot on the ground. EPNG hired BEI to excavate visibly contaminated soils. We encountered a hard sandstone layer at the bottom of the excavation area.

The excavated soil was split into two separate piles. The piles were designated "clean overburden" and "contaminated". The "clean overburden" was soil that did not contain visible chromium contamination. The "contaminated" soil was visibly stained soil and an area of approximately one foot above the visibly contaminated soil. The "contaminated" soil was placed on plastic and covered with plastic during the project.

Approximately two feet of clay was placed on the bottom of the excavation and the "clean" overburden was reinstalled back in the excavated area after EPNG verified that the soil at the bottom of the excavation area was below the TCLP chromium regulatory limit.

All soil piles were sampled according to EPA SW-846 guidelines. All sample results were below the regulatory limit for TCLP chromium. After confirmation that the soil was below the regulatory limit, the soil was spread in a one foot thick layer and covered with plastic in preparation for treatment. The entire treatment area located south of Meridian's F1 tank was bermed.

After excavation, EPNG took verification samples from the excavated area. All samples were below the TCLP chromium regulatory limit, except two samples ("hot spots"). BEI excavated the

area with the two "hot spots". After removal of the "hot spots" , all verification samples of the excavated area were below the hazardous waste criteria. Then, BEI manually inspected the soil pile for visibly contaminated chunks of soil. The visibly contaminated chunks of soil were placed into four drums.

Currently at the Scrap Storage Area, there are four drums of soil and a small soil pile.The small soil pile is the soil excavated after we found two "hot spots". Attached under Tab 2 is the analysis of the drummed soil and the small soil pile. The results are below the regulatory limit for TCLP chromium.

6.0 REMEDIAL MEASURES

Based on the migration potential (which accounts for chromium concentration in the soil, environmental conditions, and soil characteristics), it is possible to formulate remedial measures which will address the intent of the State law (Railroad Commission of Texas, 1987). The applicable law prohibits "...pollution of surface or subsurface water..." [Rule 8 (b)] and "...improper disposal of oil and gas wastes..." [Rule 8 (d)(5)(B]. Although the release has occurred, the recommended remedial measures proposed will address both pollution and improper disposal concerns.

Information presented in the text of this report presents the argument that EP Tox chromium concentrations in soil samples collected near the release are relatively low, and that the potential for migration to groundwater is remote. It appears, however, that what soluble chromium is present in the soil could migrate to the soil surface due to the gradient induced by evaporation. To address concerns of upward migration, and to add a measure of security for preventing future downward migration, limited inplace remedial activities are deemed appropriate.

The concept of the remedial measures which follow are to provide a source of electrons, via soil amendments, to encourage the shift of hexavalent chromium to very insoluble chromium hydroxides. The rate at which the shift occurs will be controlled by environmental factors (i.e., native soil pH, climatic wet-dry cycles) rather than inducing optimum soil conditions (i.e., soil pH of 4). Allowing native conditions to control the reaction will mean that the rate at which hexavalent chromium is converted to Cr III will be considerably slower than under optimum conditions. However, in light of the environmental setting, the reaction

rate is not as critical as insuring that the shift to insoluble chromium species occurs.

6.1 RECOMMENDED TREATMENT

The most expedient, cost-effective remedial effort, and the one which would yield the most desirable results, is the addition of ferrous sulfate to the soil in the form of a 0.02% ($FeSO_2.7H_2O$) solution applied in enough quantity to wet the area where the release occurred. The ferrous sulfate may be in the form of fertilizer grade material obtained from a commercial fertilizer supplier. This procedure need only be performed once and, when applied, the area of application need not be completely saturated. Following the application, at least two wet-dry cycles will be required to encourage the shift of Cr VI to Cr III. These wet-dry cycles can either be natural (rainfall) or may be induced with some localized irrigation.

Composted organic matter could be added in addition to the ferrous sulfate to provide an additional source of electrons to aid the shift of Cr VI to Cr III. Furthermore, the addition of organic matter would promote moisture retention of the surface soil, thereby accentuating the effect of the wet-dry cycles. If organic material is added, the application rate should be made at the rate of 5 to 10 tons/acre-furrow (furrow = 6 inches). Once applied, the organic matter should be worked into the soil along with the ferrous sulfate.

This remedial approach should prove very effective in treating migrating chromium on two fronts. First, since the treatment is applied at the surface, any chromium migrating upwards under the influence of evaporation will encounter an environment which encourages Cr VI to shift to Cr III. Second, any infiltrating moisture will pass through the treated surface soil, thereby offering the opportunity for the water chemistry to

be altered such that the leaching fraction can react with the Cr VI.

Another desirable treatment would be to adjust the soil to an acidic pH using sulfuric acid. If the soil were adjusted to a pH of 4, the reduction Cr VI to Cr III would occur quickly. However, given the native buffering capacity of the pH 9 soils, this approach would not be practical.

6.2 MONITORING

To verify the effectiveness of the implemented remedial measures, it is recommended that 3 soil samples be collected 6 months following the addition of all soil amendments. The locations where samples are collected should be limited to the treated area and should be relatively close to the samples which indicated the presence of EP Tox chromium. Samples should be collected on 2-foot intervals to a depth of 6 feet and analyzed for EP Tox chromium.

If the analytical results for these samples indicate that EP Tox chromium is still present, then the soil should be allowed to undergo two more wet-dry cycles. Following the completion of these wet-dry cycles, preferably over a 6 month period, a second set of soil samples should be collected as described above. Results of the analysis should be plotted for comparison with initial EP Tox concentrations to illustrate relative changes in chromium concentrations.

Given the extreme depth to groundwater and the evidence to suggest that groundwater is not threatened by the release, groundwater monitoring is not warranted.

Payne

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

General

1701 N. CONGRESS | CAPITOL STATION — P. O. DRAWER 12967 | AUSTIN, TEXAS 78711-2967

June 8, 1989

Mr. John Bridges
El Paso Natural Gas Company
P. O. Box 1492
El Paso, TX 79978

Re: Chromium Remediation Proposal
Guadalupe Compressor Station
Culberson County, Texas

Dear Mr. Bridges:

Your proposal for in-place stabilization of the chromium contamination resulting from a release at the referenced facility has been reviewed and found acceptable. Stabilization and monitoring may proceed in accordance with the proposal submitted in March of 1989. A monthly progress report must be submitted to this office.

You may contact Leslie Savage or Windle Taylor at (512)463-6789 if you have any questions.

Sincerely yours,

Jerry Mullican, Director
Underground Injection Control

JWM/ls

cc: RRC - Midland

Paul Stagg, Assistant Director
Field Operations

El Paso Natural Gas Company

MEMORANDUM

TO: Anu Pundari

DATE: 12/07/92

FROM: John Lambdin

PLACE: Field Services Engineering Lab

Project: Blanco Plant - Boneyard Chromium Pit

On November 24, 1992, the Farmington Field Services Engineering Laboratory collected seven (7) soil samples for chromium analysis. The samples were assigned the Lab Numbers N22887 to N22893. The samples were extracted in accordance with EPA Method 1311, TCLP, and analyzed for Chromium in accordance with EPA method 7190 (Atomic Absorption, Direct Aspiration Method). The Chromium in TCLP results shown have not been matrix spike adjusted. The TCLP results are reported on an "as received" rather than a dry weight basis.

The results of all these analyses, their associated quality control, and C.O.C. information data are enclosed. Please let me know, if you have any questions.

John Lambdin

cc: File
David Hall
Results Log Book

Attachments:

FIELD SERVICES LABORATORY ANALYTICAL RESULTS SUMMARY
BLANCO PLANT - BONEYARD CHROMIUM PIT REMEDIATION

Sample Number	Sample Location	Time (Hrs.)	Sample Date (MM/DD/YY)	Data Qualifier	TCLP Chromium (mg/L)
					EPA RCRA Limit 5.0 mg/L
N22887	USPCI - 4 Drum Composite	1310	11/24/92		0.3
N22888	Sample 1	1230	11/24/92		0.5
N22889	Sample 2	1240	11/24/92		0.4
N22890	Sample 3	1250	11/24/92		0.3
N22891	Sample 4	1255	11/24/92		0.3
N22892	Sample 5	1300	11/24/92		0.2
N22893	Sample 6	1305	11/24/92		0.1

NOTES: No Data Qualifiers were necessary. All TCLP results shown are Non-Matrix Spike Adjusted. Matrix Spike recovery information is provided on the associated QC report.

Reviewed and Approved By: _____ 12-7-92
Date

QUALITY CONTROL REPORT
EPA Method 1311 (TCLP)
Chromium Analysis
Samples N22887 to N22893

LABORATORY CONTROL SAMPLES: CALIBRATION CHECKS

SAMPLE ID	SOURCE	TRUE VALUE (PPM)	FOUND (PPM)	%R	ACCEPTABLE RANGE 80–120 %R YES	NO
INITIAL CALIBRATION VERIFICATION	RICCA	0.5	0.5	100.0	X	
CONTINUING CALIBRATION VERIF.	1000 PPM LOT F024	1.00	0.9	90.0	X	

LABORATORY AND FIELD DUPLICATES:

SAMPLE NUMBER	TYPE	SAMPLE RESULT (S)PPM	DUPLICATE RESULT (D)PPM	RPD	ACCEPTABLE RANGE + / – 35% YES	NO
N22892/N22892D	2nd Extract 2nd Extract	0.2	0.2	0.0	X	

LABORATORY SPIKES:

SAMPLE NUMBER	SPIKE ADDED (SA)PPM	SAMPLE RESULT (S)PPM	SPIKE SAMPLE RESULT (SR)PPM	%R	ACCEPTABLE RANGE 80–120 %R YES	NO
N22892/N22892S	2.5	0.2	2.5	92	X	

LABORATORY REAGENT BLANK:

SAMPLE ID	SOURCE	Chromium Level (PPM)	STATUS
Extraction Fluid #1 Blank	EPNG Lab	<0.1	ACCEPTABLE
TCLP Bottle Blank	EPNG Lab	<0.1	ACCEPTABLE

Approved By: John Faldi 12-7-92
Date

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Samplers: (Signature)	Date	Receiving Temp. (°F)
	Blanco Plt Bone Yard Chromium Pit	Richard Dawson	11/24/92	

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Composite or Grab	See Attached	TCLP			Remarks
										Requested Analysis			Contract Laboratory: EPNG
	11.24.92	1230	SOIL	N22888						X			Sample 1
	11.24.92	1240	SOIL	N22889						X			11 2
	11.24.92	1250	SOIL	N22890						X			11 3
	11.24.92	1255	SOIL	N22891						X			11 4
	11.24.92	1300	SOIL	N22892						X			11 5
	11.24.92	1305	SOIL	N22893						X			11 6

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Richard Dawson	11/24/92 1600				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
Results & Invoices to::		Charge Code	Date Results Reported / by: (Signature)		

WHITE-Testing Laboratory YELLOW-EPNG Lab PINK-Field Sampler

san juan repro Form 71-65

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Contract Laboratory
	Bloomfield Plant Bone Yard Chromium Pit	EPNG

Samplers: (Signature)	Date	Receiving Temp. (°F)
Richard Benson	11-24-92	

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Requested Analysis: Composite or Grab	Requested Analysis: See Attached	Requested Analysis: TCLP-CR	Requested Analysis:	Requested Analysis:	Remarks
	11-24-92	1310	SOIL	N22887	1					X			4 Drums Composite

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Richard Benson	11/24/92 1530				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:

Results & Invoices to::	Charge Code	Date Results Reported / by: (Signature)

WHITE-Testing Laboratory YELLOW-EPNG Lab PINK-Field Sampler

san juan repro Form 71-65

El Paso Natural Gas Company

MEMORANDUM

To: John Lambdin

Date: December 1, 1992

From: Dennis P. Bird

Place: Field Services Engineering-Lab

Project: Boneyard Chromium Dirt Pile

On Tuesday, November 24, 1992, Richard Benson and I went to Blanco Plant to collect soil samples. The samples were collected from the dirt pile from the boneyard chromium pit. The soil was jackhammered out from the boneyard chromium pit. Attached is a drawing where the samples were collected.

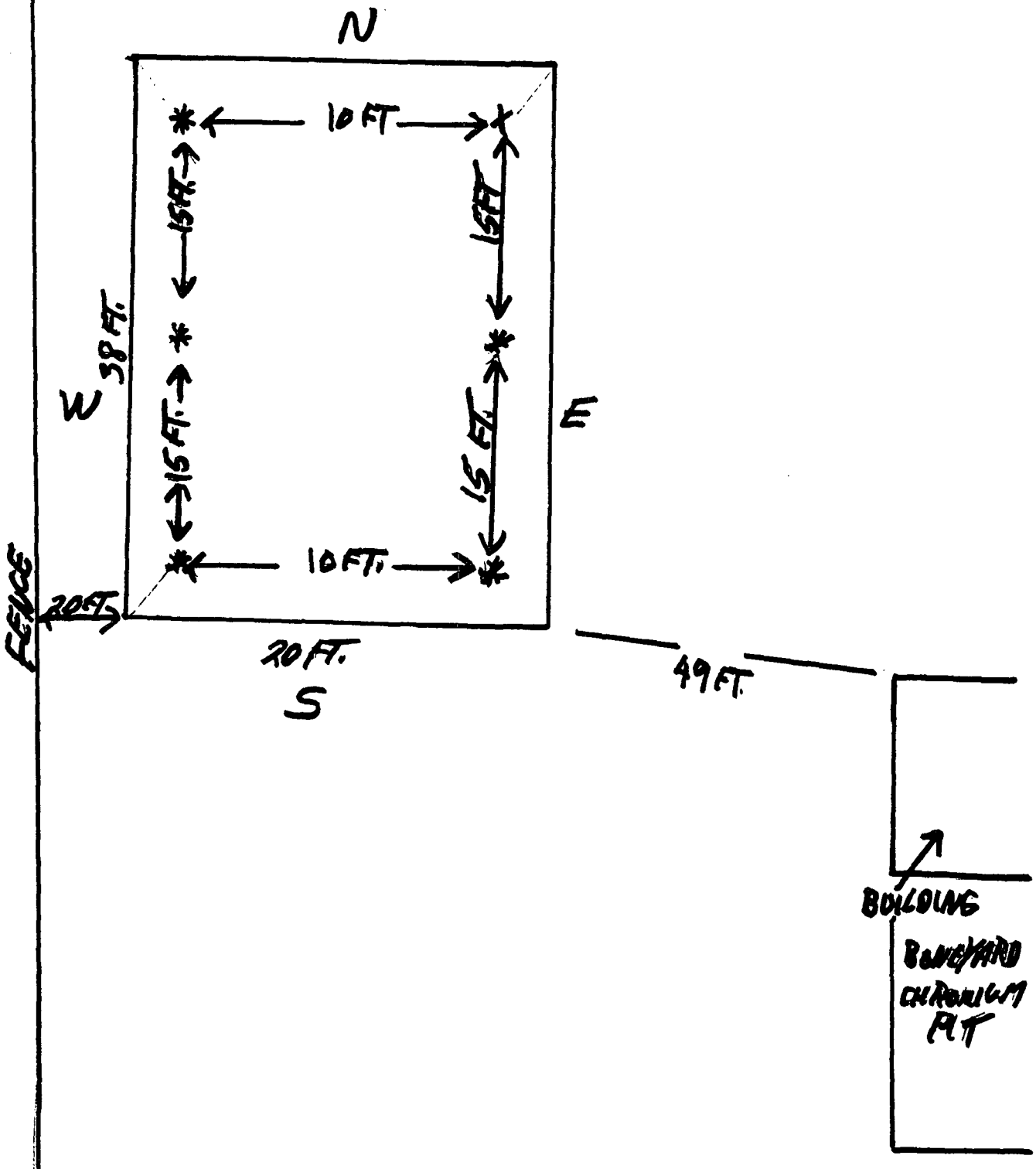
The soil was to be analyzed for TCLP. The samples were assigned the lab numbers N22888 to N22893. The field services laboratory will be analyzing the soil. The soil was sampled using a auger, sampling depth was about 10 to 12 inches deep.

Should you have any question or comments please let me know.

Dennis Bird
Dennis P. Bird

cc. David Hall
Anu Pundari

BLANCO PLANT
11-24-92
CHROMIUM DIRT PILE



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

January 21, 1993

CERTIFIED MAIL
RETURN RECEIPT NO. P- 667-242-319

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: NORTH FLARE PIT GROUND WATER INVESTIGATION REPORT
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) has completed a review of El Paso Natural Gas Company's (EPNG) December 11, 1992 "GROUNDWATER INVESTIGATION REPORT FOR BLANCO PLANT NORTH FLARE PIT AREA". The report describes the results of EPNG's investigation of ground water quality in the vicinity of the former north flare pit at the EPNG Blanco Plant.

The recommendations for conducting a long term pump test to evaluate the rate of fluid recovery and reduction of product thickness from either monitor wells MW-19 or MW-26 are hereby approved with the following conditions:

1. EPNG will notify OCD of the disposition of all fluids prior to operation of the system.

2. EPNG will submit a report evaluating the effectiveness of the fluid recovery from the monitor wells by June 21, 1993. The report will also contain recommendations for remediation of contaminated ground water.

Please be advised that OCD approval does not relieve EPNG of liability for compliance with any other laws and/or regulations.

If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: Denny Foust, OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

RECEIVED
DEC 14 1992
OIL CONSERVATION DIV.
SANTA FE

December 11, 1992

Mr.William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Subject : Groundwater Investigation Report for Blanco Plant North Flare Pit Area

Dear Mr. Olson:

El Paso Natural Gas Company(EPNG) recently completed a groundwater investigation near the Blanco Plant North Flare Pit. Enclosed is the report which details the installation of four monitoring wells and three borings, soil sampling, groundwater sampling and evaluation of groundwater pump tests.

Three out of the four monitor wells contained floating hydrocarbons. One well, MW-24, did not contain floating hydrocarbons but did contain dissolved hydrocarbons in excess of New Mexico WQCC limits. The most furthest downgradient well in the immediate area, MW-2, contained BETX below the laboratory detection limit of 5 ppb. Due to the unique geology of the area, it was difficult to predict the location of groundwater. Three proposed locations for monitor wells were dry and the borings were plugged with cement.

Upon completion of the monitor wells, a product skimming, short duration pump and radius of influence test was conducted. The results of the product skimming test indicated very slow product thickness recovery. The short duration pump test indicated very low flow rates, less than 0.25 gallons per minute, from the wells. The radius of influence test indicated a radius of influence at a distance between 30 feet to 65 feet from the pumping well. In addition, a lack of recharge to the pumping well indicated that only a small amount of fluid is present in the formation in the vicinity of the pumping well.

The results of the investigation indicate that a skimmer system or a dual pump system is not applicable for recovery of freephase hydrocarbons since both the product and groundwater recovery rates very low. In addition, the recovery of product and groundwater will be very slow due to the thin saturated zone and relatively low transmissivity and storage coefficient of the formation. The best method to recover hydrocarbons is a total fluids pumping system.

Upon your approval, EPNG proposes to pump from either MW-19 or MW-26 for a period of time and evaluate the rate of fluid recovery and reduction of product thickness. Upon evaluation of the effectiveness of the system, installation of an additional recovery well will be evaluated.

If you have any questions, please call me at 599-2176 or Mr. David Hall at (915) 541-3531.

Sincerely,

Anu N. Pundari

Anu N. Pundari
Sr. Compliance Engineer

cc: Mr. David Hall(EPNG)
Mr. Denny Foust (NMOCD - Aztec)

bc: Nancy Prince
S.Miller/Kris Sinclair/File 5200 -Closure Plan

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 0815	Date 11/9/92
Originating Party		**Other Parties**
Ann Pandari - EPNG		Bill Olson

Subject

Blanco North Flare Pit Report

Discussion

EPNG sent letter (11/3/92) requesting extension of the schedule for report submission from Nov 15, 1992 to Dec 15th, 1992

Conclusions or Agreements

I gave verbal approval

Distribution file

Signed Bill Olson

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

November 3, 1992

Mr. William C. Olson
New Mexico Oil Conservation Division
310 Old Santa Fe Trail
Santa Fe, NM 87504

Subject : Project Report - Blanco North Flare Pit Area

El Paso Natural Gas Company recently installed monitor wells near the Blanco north flare pit area. In addition, we conducted tests to determine the aquifer characteristics. We planned to send a report of the field study by November 15th.

Due to an extended drilling schedule and difficulties in conducting the aquifer tests, the field portion of the project was longer than planned. Therefore, EPNG respectfully requests an extension for submittal of the project report.

Please give us permission to send the report to you by December 15th. The report will contain well construction details, soil and groundwater sample results ,aquifer testing data and a recommended remedial action plan for the site.

Please leave me a voice mail message of your decision on the requested extension. If you have any questions, please call me at 599-2176.

Anu Pundari

Anu Pundari

cc: Mr. David Hall

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

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

October 16, 1992

CERTIFIED MAIL
RETURN RECEIPT NO. P- 667-242-304

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: SOUTH FLARE PIT CLOSURE PLAN
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) has completed a review of El Paso Natural Gas Company's (EPNG) October 2, 1992 "CLOSURE PLAN FOR BLANCO SOUTH FLARE PIT". The closure plan describes EPNG's proposed method for remediation of contaminated soils during closure of the south flare pit at the EPNG Blanco Plant.

The above referenced closure plan is hereby approved with the following conditions:

1. Composite soil samples will be obtained from the side walls of the excavation prior to backfilling and be analyzed for Benzene, Toluene, Ethylbenzene, Xylene and Total Petroleum Hydrocarbons.

2. The OCD will be notified of excavation and sampling activities at least 48 hours prior to commencement such that OCD has the opportunity to witness the operation and/or split samples.

Please be advised that OCD approval does not limit EPNG to the work proposed should the closure activities fail to remediate contaminants which have migrated from the flare pit. In addition, OCD approval does not relieve EPNG of liability for compliance with any other laws and/or regulations.

If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: Denny Foust, OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

October 2, 1992

Mr.William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Subject : Closure Plan for Blanco South Flare Pit

Dear Mr. Olson:

El Paso Natural Gas Company(EPNG) plans to close an inactive flare pit located in the southeast corner of the Blanco Plant property located in Section 14, T-29N, R-11W, San Juan County.The flare pit will be closed since a smokeless flare was recently installed to replace the flare pit. Burlington Environmental, Inc (BEI) will provide remediation services for the closure project. BEI plans to begin the project in mid to late October.

The existing pit is approximately 100 feet long, 60 feet wide and 10 feet deep. The assessment to determine the lateral and vertical extent of contamination will be performed pursuant to NMOCD " Guidelines for Surface Impoundment Closure". The visually contaminated soil will be excavated to a maximum depth and horizontal extent practicable.

In September 1988, EPNG installed Monitor Well #6 near the southwest corner of the flare pit. Groundwater was encountered at a depth of approximately twenty feet below grade at Monitor Well #6.Since the flare pit bottom elevation is close to ground elevation at Monitor Well #6, EPNG may have to excavate twenty feet below pit bottom to groundwater. Since excavation will occur during a period of low water table, EPNG plans to excavate visibly contaminated soils until we encounter groundwater or further excavation is deemed impractical.

BEI will transport contaminated soil to Envirotech's landfarm facility located off Highway 44. A specific area will be set aside at Envirotech's facility for EPNG soil. Envirotech will be responsible for spreading, disking and analyzing the soil at the landfarm according to NMOCD requirements.

Pit bottom samples will be analyzed for Total Petroleum Hydrocarbons by the EPA Modified 8015 Method and Purgeable Organic Contaminants by EPA Method 8020. Prior to backfilling the pit, EPNG will contact NMOCD for a field inspection. EPNG will obtain clean sandy backfill from Envirotech and from Arco Sand and Gravel.

As a final step in the closure of the flare pit, the contractor will contour the backfilled area to avoid ponding, control runoff and erosion. A report containing the results of the closure will be submitted NMOCD within 60 days of completion of the closure activities. The closure report will also detail planned additional investigation at the site.

Upon your approval, EPNG plans to begin flare pit closure in mid to late October. If you have any questions, please call me at (505) 599-2176.

Sincerely,

Anu N. Pundari

Anu N. Pundari
Sr. Compliance Engineer

cc: Mr. David Hall(EPNG)
Mr. Denny Foust (NMOCD - Aztec)

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

August 12, 1992

Mr. William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Subject : Additional Investigation near the Blanco North Flare Pit

As discussed with you on August 5, 1992, El Paso Natural Gas Company (EPNG) plans to conduct additional investigation near the Blanco north flare pit area. This letter is in response to your letter dated June 29, 1992 requesting additional information about the project.

Question #1 : The location of the soil samples were not identified in the report. Please supply a map showing the locations of the soil samples.

Answer #1: A summary of the soil sample results is under Tab A. A map with the locations of the soil samples is under Tab C. The soil sample locations are approximate since they were not surveyed.

Question #2 : Please identify the areas around the north flare pit where soil contaminants remain.

Answer #2 : The map under Tab C delineates the two areas where soil contaminants remain. The first area is the pit bottom. The pit bottom area with TPH greater than 100 ppm and sum of BETX below 10 ppm is covered with over forty feet of clean backfill. EPNG excavated to a maximum extent possible with a backhoe. Excavation ceased after encountering a hard siltstone/fine grained sandstone strata at the bottom of the pit. The addition of approximately two feet of overburden over the pit area and drainage diversions around the pit, help to reduce the likelihood of water infiltrating the soil and contacting with the pit bottom.

The second area is the area which could not be practically excavated. The area is approximately twenty feet wide with over twenty feet of clean overburden covering an approximate two foot contaminated strata. EPNG discontinued excavation due to the inaccessibility of the contaminated strata. When EPNG discontinued excavation the contaminated strata was approximately twenty feet wide. Since we do not know whether the contaminated strata widens or narrows near the arroyo, we assumed that the strata remains at a twenty foot width to the arroyo (As shown on map under Tab C)

Question #3: The OCD requires that all monitor wells be a minimum of four inches in diameter in case future fluid recovery is required if high levels of ground water contaminants are discovered during investigation.

Answer #3 : As discussed with you on August 5, EPNG will construct four inch diameter wells at all locations except the background monitoring well which will be two inch diameter.

Question #4: Please provide well construction information for the proposed monitor wells and pump test observation wells.

Answer #4: A hydrocarbon recovery work plan with well construction information is under Tab B.

Question #5: How will the location of the proposed 8 inch recovery well near the north flare pit be determined and where will the observation wells adjacent to the recovery well be located ?

Answer #5: EPNG will install three 4 inch diameter monitor wells downgradient of the north flare pit and one 2 inch diameter background monitor well northeast of the north flare pit. At least one of the three 4 inch monitor wells will be selected as a recovery well based on field evidence of floating, free phase hydrocarbons. EPNG will not drill a 8 inch recovery well. The strategy will be to maximize recovery be identifying the well with the greatest contamination and the most efficient capture zone. One well will be selected for the pump test and three 2 inch piezometers will be installed radially around the well. EPNG will contact NMOCD prior to selection of the pump test well and installation of piezometers.

Question #6: Please provide a schedule for implementation of all work elements in Section IV (Planned Additional Investigation at the Site)

Answer #6 : By mid-September, EPNG plans to install monitoring wells and piezometers at the site and conduct a pump test. A report of the field study will be sent to NMOCD on November 15, 1992. The report will contain well construction and piezometer construction details, evaluation of the necessity for an additional recovery well , assessment of the applicability of a skimmer system , total fluids system or a dual pump system, pump test results and field notes.

We appreciate your assistance on this project. As mentioned earlier, a specific recovery well location will be based on NMOCD guidance. In addition, prior to selecting a specific remediation method, the remediation options will be discussed with NMOCD. If you have any questions, please call me at 599-2176.

Sincerely,

Anu Pundari

Anu Pundari
Sr. Compliance Engineer

cc: Mr. David Hall(EPNG)
Ms. Nancy Prince(EPNG)

BLANCO PLANT – NORTH FLARE PIT

BLANFP.WK3 01-27-92

Analytical Data Summary – Total Petroleum Hydrocarbon, BTEX

John Lambdin

Field ID	Sample Number	Sample Location	Time	Date (MMDDYY)	Matrix	TPH Modified 8015 (MG/KG)	Carbon Range	FIELD TPH by IR Mod. 418.1 (MG/KG)	Aromatic Hydrocarbons EPA 602/8020 BETX (mg/kg) Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
1	N20073	3S, 8E, 10' FROM PIT BOTT.	1245	01/15/92	Soil	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	N20074	4S, 8E, 10' FROM PIT BOTT.	1300	01/15/92	Soil	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	N20075	4S, 8E, 12' FROM PIT BOTT.	1315	01/15/92	Soil	6900	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
4	N20076	4S, 7E, 20' FROM PIT BOTT.	1530	01/15/92	Soil	2200	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
5	N20077	4S, 8E, 20' FROM PIT BOTT.	915	01/16/92	Soil	220	(C5-C32)	N/A	<0.025	0.045	<0.025	0.19	<0.12
6	N20078	2S, 7E, 20' FROM PIT BOTT.	1145	01/16/92	Soil	1200	(C5-C28)	N/A	N/A	N/A	N/A	N/A	N/A
7	N20079	6S, 7E, 20' FROM PIT BOTT.	1300	01/16/92	Soil	<5	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
8	N20100	3S, 8E, 25' DEPTH	1043	01/17/92	Soil	2900	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
9	N20101	2S, 8E, 23' DEPTH	1010	01/17/92	Soil	4500	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
10	N20102	4S, 8E, 23' DEPTH	1210	01/17/92	Soil	920	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
11	N20103	3S, 9E, 24' DEPTH	1440	01/17/92	Soil	2400	(C5-C36)	N/A	N/A	N/A	N/A	N/A	N/A
12	N20104	3.5S, 9E, 24' DEPTH	1453	01/17/92	Soil	1500	(C5-C36)	N/A	N/A	N/A	N/A	N/A	N/A
13	N20105	5S, 9E, 22' DEPTH	906	01/18/92	Soil	1300	(C5-C32)	N/A	1.1	4.3	0.40	2.6	<0.12
14	N20106	5S, 8E, 20' DEPTH	1115	01/18/92	Soil	1100	(C5-C36)	N/A	N/A	N/A	N/A	N/A	N/A

HYDROCARBON RECOVERY
at El Paso Natural Gas Company's
Blanco Plant North Flare Pit

WORK PLAN

AUGUST, 1992

EXECUTIVE SUMMARY

Hydrocarbon recovery is proposed at a location near the north flare pit at EPNG's Blanco plant. Three new monitoring wells are proposed near the flare pit and the existing monitoring well MW-19. These 4-inch diameter wells will be screened so as to intercept the hydrocarbon layer at the top of the unconfined alluvial aquifer. Three borings will be completed to investigate the previously unlined evaporation pond as a source, and to determine the presence and extent of the paleochannel under the bermed area south of MW-19. These borings may be completed as 4-inch monitoring wells if groundwater is encountered. A single 2-inch background monitoring well will be installed upgradient of the flare pit.

Pump size, type and pumping rates will be determined after completion of aquifer tests. Either a skimmer pump, total fluids pump, or a dual pump system may be installed in one or more recovery wells. The liquids removed from the aquifer may be pumped separately as hydrocarbons and water, or pumped together and separated at the surface.

HYDROCARBON RECOVERY
at El Paso Natural Gas Company's
Blanco Plant North Flare Pit

I. BACKGROUND

Floating hydrocarbons have been identified in a monitoring well south of the North Flare Pit at the Blanco Plant site. The New Mexico Oil Conservation Division has requested that El Paso Natural Gas (EPNG) prepare a work plan for removal of the hydrocarbons as part of the Closure Plan for the North Flare Pit. This plan shall consist of recovery well installation, and pumping and disposal of the hydrocarbons. Further studies will be conducted to assess site hydrogeology and the source and extent of hydrocarbons.

The actions recommended are based on hydrogeologic information obtained during the studies by McBride-Ratcliff and Associates, Inc., (1988), Bechtel (1988) and K. W. Brown (1990), on preliminary results of the soil gas and groundwater survey performed by John Mathes and Associates (April 15-17, 1991), and on groundwater quality information obtained by EPNG personnel in June, 1991.

Based on data from soil borings for monitor wells and geotechnical programs, MW-19 is located in a paleochannel (buried canyon) in the bedrock, which is now filled with alluvial sediment. The canyon appears to be relatively steep-walled, and probably is reflected in the location of the present arroyo. The canyon walls appear to act as a control on the local groundwater movement.

This well was installed on January 11, 1990. At that time, PID vapor readings were at 2,000 ppm from inside the PVC casing and a hydrocarbon odor and oily sheen were reported on the water level probe. Water samples collected indicated 29 mg/l of total petroleum hydrocarbons, 4200 ug/l benzene, <50 ug/l toluene, 340 ug/l ethylbenzene, and 3740 ug/l total xylenes. None of these analytes were detected in water samples collected at that time (January 1990) from MW-2, located approximately 500 feet downgradient of MW-19.

Water samples were collected on June 18, 1991. At that time approximately 4 inches of free phase hydrocarbons were observed in MW-19. No odor or free phase hydrocarbon was reported in MW-2 during that sampling event. Toluene was detected at .7 ug/l and total xylenes at .9 ug/l were detected in the samples from MW-2.

The soil gas survey performed by John Mathes and Associates (JMA) at the north flare pit, which is no longer in use, indicates that this pit is possibly the source of the hydrocarbons found in MW-19. Four borings were located at this pit, one upgradient and three downgradient. All four borings indicated the presence of hydrocarbons in soil gas samples collected. The evaporation pond which is presently lined, was previously unlined, and may also be a source for hydrocarbons in MW-19. JMA collected three soil gas samples at this area. The upgradient sample from location B-1 indicated the presence of hydrocarbons.

Groundwater was not encountered in the shallow probe holes at these locations and therefore no water samples were collected by JMA at either the flare pit or the pond.

II. MONITORING WELLS

A single 2-inch background well will be installed upgradient (northeast) of the abandoned flare pit in the arroyo.

Three 4-inch diameter wells are proposed downgradient of the abandoned flare pit.

Two additional borings are planned in the area between the old unlined pond and MW-19 to investigate the potential for this pond to be a source of hydrocarbon contamination. If groundwater is encountered and there is evidence of soil and/or groundwater contamination in these borings, one or both will be completed as 4-inch diameter monitoring wells.

A single boring will be completed to bedrock south of MW-19 to confirm the presence of a bedrock channel, and to delineate the extent. If groundwater is encountered and there is evidence of soil and/or groundwater contamination in this boring, it will be completed as a 4-inch diameter monitoring well.

During the field investigation the decision will be made about which well to use for a pumping test. Three 2-inch piezometers will be installed radially around this well and a pump test will be conducted.

All downgradient monitoring wells will be four inches in diameter. The decision will be made in the field about which to use as recovery wells based upon location relative to the plume of floating hydrocarbons. The strategy will be to maximize recovery by identifying the wells with the greatest contamination and the most efficient capture zone based upon observed groundwater flow direction.

III. SPECIFICATIONS

Specifications will be prepared for a contract driller and for in-house support from the conceptual outline which follows.

Well Drilling: The preferred drilling method is hollow stem auger, but air rotary equipment may be considered. Split spoon samples should be collected every 5 feet after a depth of 40 feet has been reached. These samples will be for chemical analysis and lithologic logging purposes.

Well Construction: The upgradient well will be constructed of two-inch PVC with PVC screen. The downgradient wells will be constructed of four-inch PVC riser pipe and stainless steel screen. In all wells the screen will be placed with at least two feet of screen above the water level and at least 10 feet of screen below the water surface to produce sufficient volume of pumping and to accommodate seasonal water level fluctuations. At least a 15 foot, .010 screen will be used as it is anticipated that the saturated interval is only 10 feet thick and that only the product layer will be pumped. A gravel pack consisting of silica sand, size #30, a bentonite seal, cement - bentonite grout to surface, and galvanized surface casing will also be installed.

Well Development: The wells will be developed by surging and pumping with air or water to remove fine material introduced during drilling prior to sampling.

Aquifer Tests: Aquifer tests will be conducted on both hydrocarbons and groundwater in one of the new monitoring wells.

Sampling and Analysis: Physical tests (grain size analysis, porosity, bulk density) may be performed on soils from the screened intervals in one well. Physical tests (viscosity, specific gravity) may be performed on hydrocarbons and on water samples.

PID readings will be taken on soil samples collected above the water table. TPH and BTEX analysis will be performed on any hydrocarbon impacted soil samples. Chemical analysis will be performed on water obtained from new wells and from MW-19 and MW-2. Analytes will include cations/anions, TDS and nitrogen (NO3, NO2 and TKN). BTEX and TPH analyses will not be performed where floating product is present.

Surveying: Location, surface level, top of casing will be surveyed.

Pumping: The pump size, type, and pumping rate will be determined after completion of aquifer tests and analysis of the fluids to be pumped.

Either a skimming device for removal of hydrocarbons only, a pump for recovering total fluids, or a dual pump system will be installed. In the dual pump system one pump would be equipped with a sensor which allows collection of floating hydrocarbons only and the other pump would be placed lower in the well to create sufficient drawdown to recover the floating product.

Disposal:

All hydrocarbons will be recycled. The water phase will be disposed of appropriately. If both water and hydrocarbons are removed together, the liquids will be separated at the surface and recycled or disposed of appropriately.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

June 29, 1992

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CERTIFIED MAIL
RETURN RECEIPT NO. P-690-155-067

Ms. A.N. Pundari
Senior Compliance Engineer
El Paso Natural Gas Company
P.O. Box 4990
Farmington, New Mexico 87499

RE: NORTH FLARE PIT CLOSURE REPORT
EPNG BLANCO PLANT
SAN JUAN COUNTY, NEW MEXICO

Dear Ms. Pundari:

The New Mexico Oil Conservation Division (OCD) has completed a review of El Paso Natural Gas Company's March 25, 1992 "BLANCO NORTH FLARE PIT CLOSURE REPORT".

The OCD has the following questions, comments and requests for information regarding the report:

1. The locations of the soil samples were not identified in the report. Please supply a map showing the locations of the soil samples.

2. Please identify the areas around the north flare pit where soil contaminants remain.

3. The OCD requires that all monitor wells be a minimum of 4 inches in diameter in case future fluid recovery is required if high levels of ground water contaminants are discovered during investigation.

4. Please provide well construction information for the proposed monitor wells and pump test observation wells.

5. How will the location of the proposed 8 inch recovery well near the north flare pit be determined and where will the observation wells adjacent to the recovery well be located?

6. Please provide a schedule for implementation of all work elements in Section IV ("Planned Additional Investigations At The Site")

The OCD looks forward to your response in this matter. If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

cc: Denny Foust, OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499

OIL CONSERVATION DIVISION
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'92 MAR 30 AM 9 50

March 25, 1992

Mr. William C. Olson
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Re: Blanco North Flare Pit Closure Report

Attached is a summary report of El Paso Natural Gas Company's activities relating to the closure of the north flare pit near Blanco Plant.

On January 14th and 21st,we discussed some aspects of excavation activities. I appreciate your assistance on this project. The attached report summarizes our plans for further investigation at the site.

Please contact us about your comments on the recovery well work-plan. Upon your approval, we plan to install monitor wells in April 1992. If you have any questions, please contact me at 599-2176 or Mr. David Hall at (915) 541-3531.

Sincerely,

A.N. Pundari

A.N. Pundari
Senior Compliance Engineer

cc: Mr. David Hall

BLANCO NORTH FLARE PIT CLOSURE REPORT

I. Introduction and Background Information

The project involved the closure of an inactive flare pit located north of El Paso Natural Gas Company's(EPNG) Blanco Plant. The flare pit is located in Section 11,Township 29-N, Range 11-W, San Juan County, approximately 1/4 mile north of Blanco Plant.

II. Excavation Activities

Burlington Environmental Inc. was the project contractor. A Caterpillar D-6H dozer, Caterpillar 300B trackhoe, Caterpillar 950E Loader and Caterpillar 1406 blade were utilized for the project.

Our original plan was to excavate to a depth of twenty feet below pit bottom, obtain soil samples and await NMOCD guidance prior to installation of backfill. On January 14, 1992, NMOCD approved a revision in the original plan and allowed installation of clean backfill after excavation to the maximum extent possible without awaiting further guidance from NMOCD.

The contractor excavated 3553 cubic yards of contaminated soil from the bottom of the flare pit. Excavation discontinued when the contractor reached a hard, gray siltstone/fine-grained sandstone strata at the bottom of the pit.

In the northwest area of the pit, the hard layer was approximately ten feet below pit bottom. In the middle and southeast portion of the pit, the hard layer was approximately twenty to twenty five feet below pit bottom. Soil samples were obtained at the bottom of the pit. A summary of the results is under Tab 1. A map of the area is under Tab 2.

At approximately forty feet beyond the original southeast edge of the pit, the contaminated strata was approximately twenty feet wide with over twenty feet of clean overburden. An approximately two foot contaminated strata was underneath twenty five feet to thirty feet of clean overburden. NMOCD approved our plan to discontinue excavation due to inaccessibility of the contaminated strata.

The contractor hauled the contaminated soil to El Paso Natural Gas Company's Angel Peak Plant and spread the soil at the site. Angel Peak plant is located at NE/4, Section 8, Township 27-N, Range 10-W, San Juan County. A two foot high earthen berm and "hogwire" wire fence was installed around the soil remediation area.

III. Closure of Flare Pit

EPNG provided a borrow site near Angel Peak plant for clean backfill. The contractor hauled 5661 cubic yards of gray siltstone for use as clean backfill.

As a final step in the closure of the flare pit, the contractor mounded approximately two feet of additional clean overburden over the pit area to avoid ponding. In addition, drainage channels were bladed around the pit so that runoff would be diverted away from the pit area.

IV. Additional Investigation in the Immediate Vicinity of the Flare Pit

Due to the following, EPNG does not plan any further action in the immediate vicinity of the north flare pit.

1) EPNG excavated to a maximum extent possible by a backhoe. Excavation ceased after encountering a hard siltstone/fine-grained sandstone strata at the bottom of the pit.

2) The original pit bottom was twenty to twenty five feet below grade. Therefore, with the excavation of approximately twenty feet to twenty feet of contaminated soil, the area of the flare pit is covered with over forty feet of clean backfill.

3) All contaminated soil with the exception of that covered with excessive overburden was excavated.

4)The pit bottom total petroleum hydrocarbons(TPH) and aromatic hydrocarbons(BETX) results are significantly less than contaminated soil TPH and BETX results.

5) The sum of the pit bottom BETX results are below 10 ppm.The use of technology such as soil venting is not applicable since the pit bottom BETX values are very low.

6) The addition of approximately two feet of overburden over the pit area and drainage diversions around the pit, help to reduce the likelihood of water infiltrating the soil and contacting with the pit bottom.

IV. Planned Additional Investigation at Site

Although EPNG does not plan to any further action in the immediate vicinity of the flare pit, EPNG does plan to address the groundwater contamination in the nearby arroyo.

A copy of the hydrocarbon recovery proposal work plan,submitted in October 1991, is under Tab 3.

Upon approval from NMOCD, EPNG proposes to revise the original workplan. The following are proposed changes to the original work plan:

1) Install one 2" diameter monitor well upgradient of hydrocarbon contamination .

2) Install one or two, 2" diameter monitor wells within the hydrocarbon plume.

3) Install one eight inch diameter hydrocarbon recovery well instead of a six inch diameter recovery well. Evaluate the best location for the recovery well. The recovery well may be positioned near the north flare pit.

4) Evaluate the necessity for an additional recovery well near or downgradient from MW #19. If the recovery well radius of influence does not extend downgradient of MW #19, then an additional recovery well may be necessary near or downgradient of MW #19.

5) Assess the applicability of a dual pump system recovery well.

Although water table depression may enhance the rate of hydrocarbon recovery, hydrocarbons may be smeared over the vadose zone created by groundwater pumping. Therefore, the contractor will first evaluate the potential for recovering hydrocarbons with a skimmer system. If the skimmer system is not effective, then a system will be designed with water table depression.

6) After installation of observation wells near the proposed recovery well, a groundwater pump test and hydrocarbon pump test will be conducted to determine aquifer characteristics.

7)Potential remediation methods which will be evaluated after review of the data include a dual-pump system, total fluids system and a phased approach of skimming followed by total fluids pumping.

8)Evaluate data from aquifer tests, discuss remediation options with NMOCD and select a specific remediation method.

BLANCO PLANT – NORTH FLARE PIT BLANFP.WK3 01-27-92

Analytical Data Summary – Total Petroleum Hydrocarbon, BTEX John Lambdin

Field ID	Sample Number	Sample Location	Time	Date (MMDDYY)	Matrix	TPH Modified 8015 (MG/KG)	Carbon Range	FIELD TPH by IR Mod. 418.1 (MG/KG)	Aromatic Hydrocarbons EPA 602/8020 BETX (mg/kg) Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
1	N20073	3S, 6E, 10' FROM PIT BOTT.	1245	01/15/92	Soil	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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8	N20100	3S, 8E, 25' DEPTH	1043	01/17/92	Soil	2900	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
9	N20101	2S, 8E, 23' DEPTH	1010	01/17/92	Soil	4500	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
10	N20102	4S, 8E, 23' DEPTH	1210	01/17/92	Soil	920	(C5-C32)	N/A	N/A	N/A	N/A	N/A	N/A
11	N20103	3S, 9E, 24' DEPTH	1440	01/17/92	Soil	2400	(C5-C36)	N/A	N/A	N/A	N/A	N/A	N/A
12	N20104	3.5S, 9E, 24' DEPTH	1453	01/17/92	Soil	1500	(C5-C36)	N/A	N/A	N/A	N/A	N/A	N/A
13	N20105	5S, 9E, 22' DEPTH	908	01/18/92	Soil	1300	(C5-C32)	N/A	1.1	4.3	0.40	2.6	<0.12
14	N20106	5S, 9E, 20' DEPTH	1115	01/18/92	Soil	1100	(C5-C36)	N/A	N/A	N/A	N/A	N/A	N/A

HYDROCARBON RECOVERY
at El Paso Natural Gas Company's
Blanco Plant

WORK PLAN

OCTOBER, 1991

EXECUTIVE SUMMARY

Hydrocarbon recovery is proposed at two locations at EPNG's Blanco plant. In the north area a new 6-inch diameter well is proposed near the existing monitoring well MW-19 (referred to here as RW-19A). This well will be screened so as to intercept the hydrocarbon layer at the top of the unconfined alluvial aquifer. In the south area the existing 4-inch diameter monitoring well, MW-6 which is screened across the top of the aquifer, is proposed as a recovery well while investigations proceed at this facility.

It is proposed that a dual pump system be installed in well RW-19A. This system will consist of a small diameter hydrocarbon-selective pump and a watertable depression pump. The liquids removed from the aquifer will be pumped separately as hydrocarbons and water, and will be disposed of separately.

It is proposed that a single pump be installed in MW-6 to pump both water and floating hydrocarbons. The hydrocarbon phase will be separated from the water phase on site and both fluids disposed of separately.

Pump sizes and pumping rates for both wells will be determined after completion of aquifer tests and analysis of the physical properties of the fluids to be pumped.

CONTENTS

I. BACKGROUND

II. NORTH AREA

III. SOUTH AREA

IV. SPECIFICATIONS

FIGURES:

Figure 1. Top of Bedrock and Water Levels

Figure 2. Proposed Well Location, North Area

Figure 3. Proposed Well Location, South Area

TABLES:

Table 1. Hydrogeologic Conditions and Contaminants

Table 2. Water Levels at Blanco Plant

HYDROCARBON RECOVERY
at El Paso Natural Gas Company's
Blanco Plant

I. BACKGROUND

Floating hydrocarbons have been identified in two monitoring wells at the Blanco Plant site. The New Mexico Oil Conservation Division has requested that El Paso Natural Gas (EPNG) prepare a work plan for removal of the hydrocarbons. This plan shall consist of recovery well installation, and pumping and disposal of the hydrocarbons. Further studies will be conducted to assess site hydrogeology and the source and extent of hydrocarbons.

The actions recommended are based on hydrogeologic information obtained during the studies by McBride-Ratcliff and Associates, Inc., (1988), Bechtel (1988) and K. W. Brown (1990), on preliminary results of the soil gas and groundwater survey performed by John Mathes and Associates (April 15-17, 1991), and on groundwater quality information obtained by EPNG personnel in June, 1991. The information pertinent to this work plan is summarized in Tables 1 and 2.

II. NORTH AREA

Based on data from soil borings for monitor wells and geotechnical programs, Well 19 is located in a paleochannel (buried canyon) in the bedrock (Figure 1), which is now filled with alluvial sediment. The canyon appears to be relatively steep-walled, and probably is reflected in the location of the present arroyo. The canyon walls appear to act as a control on the local groundwater movement.

This well was installed on January 11, 1990. At that time, PID vapor readings were at 2,000 ppm from inside the PVC casing and a hydrocarbon odor and oily sheen were reported on the water level probe. Water samples collected indicated 29 mg/l of total petroleum hydrocarbons, 4200 ug/l benzene, <50 ug/l toluene, 340 ug/l ethylbenzene, and 3740 ug/l total xylenes. None of these analytes were detected in water samples collected at that time from Well 2, approximately 500 feet downgradient.

Water samples were collected on June 18, 1991. At that time approximately 4 inches of free hydrocarbons were observed in the well. No odor or visible contamination was reported in Well 2 during that sampling event. Toluene was detected at .7 ug/l and total xylenes at .9 ug/l were detected in the samples from Well 2. The analyses did not detect total petroleum hydrocarbons at a detection limit of 1 mg/l.

The soil gas survey performed by John Mathes and Associates (JMA) at the north flare pit (samples designated AFP), which is no longer in use, indicates that this pit is possibly the source of the hydrocarbons found in Well 19 (Figure 2). Four borings were located at this pit, one upgradient and three downgradient. All four borings indicated the presence of hydrocarbons in soil gas samples collected. The evaporation pond which is presently lined, was previously unlined

(samples designated EP), and may also be a source for hydrocarbons in Well 19. JMA collected three soil gas samples at this area. The upgradient sample (EP-1-20-SG) from location B-1 indicated the presence of hydrocarbons.

Groundwater was not encountered in probe holes at these locations and therefore no water samples were collected by JMA at either the flare pit or the pond.

A single recovery well is recommended just downgradient of Well 19. This location would recover hydrocarbons from both possible sources (the abandoned flare pit and the old unlined pond) and be near the leading edge of the plume of floating hydrocarbons. This proposed well is referred to as RW-19A in this work plan.

III. SOUTH AREA

The steep paleochannel identified in the north area appears to become more broad and shallow to the south end of the site (Figure 1), and filled with less alluvial material. The flare pit and Well 6 appear to be near the eastern edge of this channel. Groundwater flow is to the southwest near the flare pit. It appears that although Well 6 is slightly cross-gradient to the flare pit, no other potential sources exist in the area. In addition, the soil gas survey conducted by JMA (see below) indicates that hydrocarbon contamination attenuates rapidly away from this pit in the downgradient direction.

Well 6 was installed on September 21, 1988. Stained soil with hydrocarbon odor was detected between 12 and 23 feet below the surface. Soils analyzed from these intervals did not contain detectable levels of organic compounds. The well was screened between 19 and 29 feet below the surface. Water samples collected at that time were analyzed for benzene, toluene, ethylbenzene and total xylenes, and none of these compounds were detected. No samples were collected from this well in the January 1990 sampling round.

Water samples were collected on June 18, 1991. At this time 2 inches of free hydrocarbons were observed in this well.

Five soil gas samples were collected by JMA around the south flare pit (Figure 3). Sample FP-5-30-SG from the upgradient location (B-5) and samples FP-1-30-SG and FP-2-30-SG from downgradient locations (B-1 and B-2) indicated that hydrocarbons are present in the unsaturated zone. Only a trace of hydrocarbons (1 ug/l) were detected in upgradient location B-6 (sample FP-6-30-SG) and none in downgradient location B-4 (sample FP-4-30-SG). Water was encountered at the downgradient location B-3. No TPH or BTEX were detected in sample FP-3-30-WH collected at that location.

A single recovery well is indicated near the flare pit at this time. Existing Well 6 is located in such a position as to collect hydrocarbons, and is large enough to accommodate a pump. From the sampling history detailed above, it appears that hydrocarbons are migrating at a slow rate in this area. The best alternative therefore would be to pump this well with known contamination, while further studies are underway as to the configuration of the plume.

IV. SPECIFICATIONS

Specifications will be prepared for a contract driller and for in-house support from the conceptual outline which follows.

Well Drilling: The preferred drilling method is hollow stem auger, but air rotary equipment may be considered. Split spoon samples should be collected every 5 feet if hollow stem auger equipment is used. These samples will be for chemical analysis and lithologic logging purposes.

Well Construction: The well RW-19A will be constructed of six inch PVC. The screen will be either mild or stainless steel, placed with at least two feet of screen above the water level and at least 10 feet of screen below the water surface to produce sufficient volume of pumping and to accommodate seasonal water level fluctuations. At least a 15 foot, .010 screen will be used. A gravel pack consisting of silica sand, size #30, a bentonite seal, cement - bentonite grout to surface, and galvanized surface casing will also be installed.

Well Development: The well will be developed by surging and pumping with air or water to remove fine material introduced during drilling prior to sampling.

Aquifer Tests: Slug tests (either bail down or plug) will be conducted on both hydrocarbons and groundwater in the new recovery well RW-19A and in Well 6 prior to initiation of pumping.

Sampling and Analysis: Physical tests (grain size analysis, porosity, bulk density) will be performed on soils from screened intervals. Physical tests (viscosity, specific gravity) will be performed on hydrocarbons and on water samples. Chemical analysis will be performed on soil samples from the new well, and on floating hydrocarbons and water from both wells. Analytes will include cations/anions, TDS and nitrogen (NO3, NO2 and TKN). BTEX and TPH analyses will not be performed because floating product is present.

Surveying: Location, surface level, top of casing will be surveyed.

Pumping: Pump sizes and pumping rates for both wells will be determined after completion of aquifer tests and analysis of the physical properties of the fluids to be pumped.

RW-19A: The dual pump system should be of a small diameter in order to fit inside the 6 inch diameter well. One pump should be equipped with a sensor which allows collection of floating hydrocarbons only. The other pump shall be placed lower in the well in such a way as to create sufficient drawdown to recover the floating product.

MW-6: The pump should be of a small diameter in order to fit inside the 4 inch diamter well. The pump will be explosion proof and capable of pumping both hydrocarbons and water.

Disposal:

RW-19A: Assuming that the pumps collect the hydrocarbon phase and water phases separately, the limited volume of hydrocarbon liquid could possibly be disposed of through a used oil vendor. The water phase will be disposed of appropriately.

MW-6: Since both water and hydrocarbons are removed together, the liquids will be separated at the surface and disposed of appropriately.

TABLE 1

Hydrogeologic Conditions And Presence Of
Contaminants At Existing Monitor Wells

	MW-19	MW-6
Lithology of screened interval	gravel, sandstone	clay, fine to med. sand
Aquifer thickness	64'	35' (estimated)
Saturated thickness	10'	12' (estimated)
Seasonal fluctuations	June 91 1' > Jan 90	June 91 2' > Jan 90
Boundaries	Arroyo/paleo channel wall < 50' to SE	outcrop 600' to west
Amount of product	4" layer (6/18)	2" layer (6/19)
Sources	north flare pit/unlined evap. pond	south flare pit
Well diameter	2"	4"
Hydraulic conductivity	1×10^{-1} (estimate no bail test)	1.5×10^{-4} cm/sec from bail test
Gradient	.007	.006
Transmissivity	212 gpd/ft. (b = 10')	102 gpd (b = 32') 38 gpd/ft (b = 12')

Table 2. Blanco Plant Monitor Well Data

WELL NO.	GROUND ELEV.	TOP OF CASING	DEPTH TO BR	BED ROCK ELEV	DEPTH TO TD	TOTAL DEPTH ELEV.	SCREEN INTER-VAL	BASE SCREEN	DATE	DEPTH TO WATER	STATIC WATER LEVEL	DATE	DEPTH TO WATER	STATIC WATER LEVEL
1	5649	na	51	5598	52	5597	na							
2	5614	5615.97	57.5	5556.5	57.5	5556.5	10	5557.7	1/8/90	51.87	5564.1	6/18/91	53.75	5562.22
3	5590	na	6	5584	8	5582	na							
4	5582	na	7	5575	8	5574	na							
5	5565	5566.5	?	5565	20	5545	10	5546.5	1/8/90	14.05	5552.45	6/18/91	14.67	5551.83
6	5576	5577	?	5576	31	5545	10	5547	1/8/90	21.22	5555.78	6/18/91	23.25	5553.75
7	5568	5569	20.5	5547.5	21	5547	10	5549	1/8/90	17.65	5551.35	6/18/91	18	5551
8	5578	5580.3	32	5546	35	5543	10	5544.7	1/8/90	26.47	5553.83	6/18/91	28.83	5551.47
9	5567	na	10	5557	12.5	5554.5	na							0
10	5563	5564.2	14	5549	15	5548	5	5549.2	1/8/90	12.59	5551.61	6/18/91	13.5	5550.7
11	5598.1	na	5	5593.1	70	5528.1	na							0
12	5599.05	5601.44	5	5594.05	25	5574.05	5	5574.3	1/15/90	21.4	5580.04	6/18/91	18.58	5582.86
13	5597.38	5597.44	3	5594.38	23.8	5573.58	5	5573.83	1/15/90	17.7	5579.74	6/18/91	15.17	5582.27
14	5598.14	5598.07	4	5594.14	27.4	5570.74	5	5570.99	1/15/90	21.5	5576.57	6/18/91	22.58	5575.49
15	5596.5	5596.32	4	5592.5	26.9	5569.6	5	5569.85	1/15/90	20	5576.32	6/18/91	21	5575.32
16	5597.58	5597.43	4	5593.58	29	5568.58	5	5568.83	1/15/90	27.3	5570.13	6/18/91	19.33	5578.1
17	5599.16	5601.51	5	5594.16	12	5587.16	3	5587.41	1/15/90	dry	na	6/18/91	dry	na
18	5598.15	5598.21	4	5594.15	11	5587.15	3	5587.4	1/15/90	dry	na	6/18/91	10	5588.21
19	5619.7	5622.02	64	5555.7	66	5553.7	10	5554.5	1/15/90	55.7	5566.32	6/18/91	56.67	5565.35

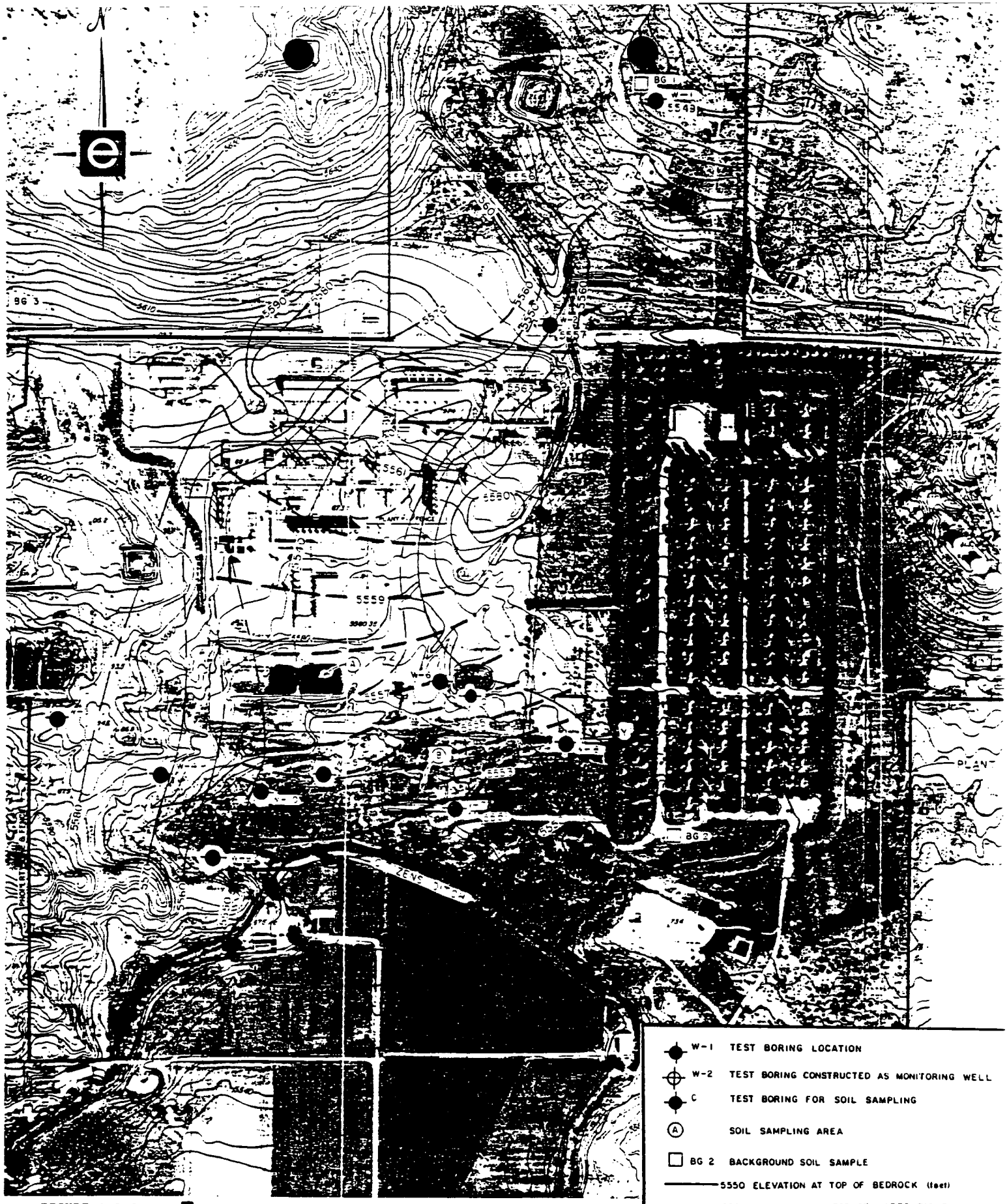


FIGURE 1 & 2

■ SOIL GAS SAMPLE WHERE VOLATILE ORGANIC COMPOUNDS WERE DETECTED.

▲ "CLEAN SOIL" GAS SAMPLE

FIGURE 2

PROPOSED EXTRACTION WELL LOCATION

ENGINEERING RECORD	
DRAWN BY	Aero-Graphics
TRACED BY	
CHECKED BY	
APPROVED	
DATE	
PHOTO DATE	10 18 82
CONTOUR INTERVAL	

El Paso Natural Gas Company

SITE INVESTIGATION LOCATION PLOT
BLANCO PLANT
SEC 14, TWS 29-N, RANGE 11-W
SAN JUAN COUNTY NEW MEXICO DATE NOV 1

FIGURE 1

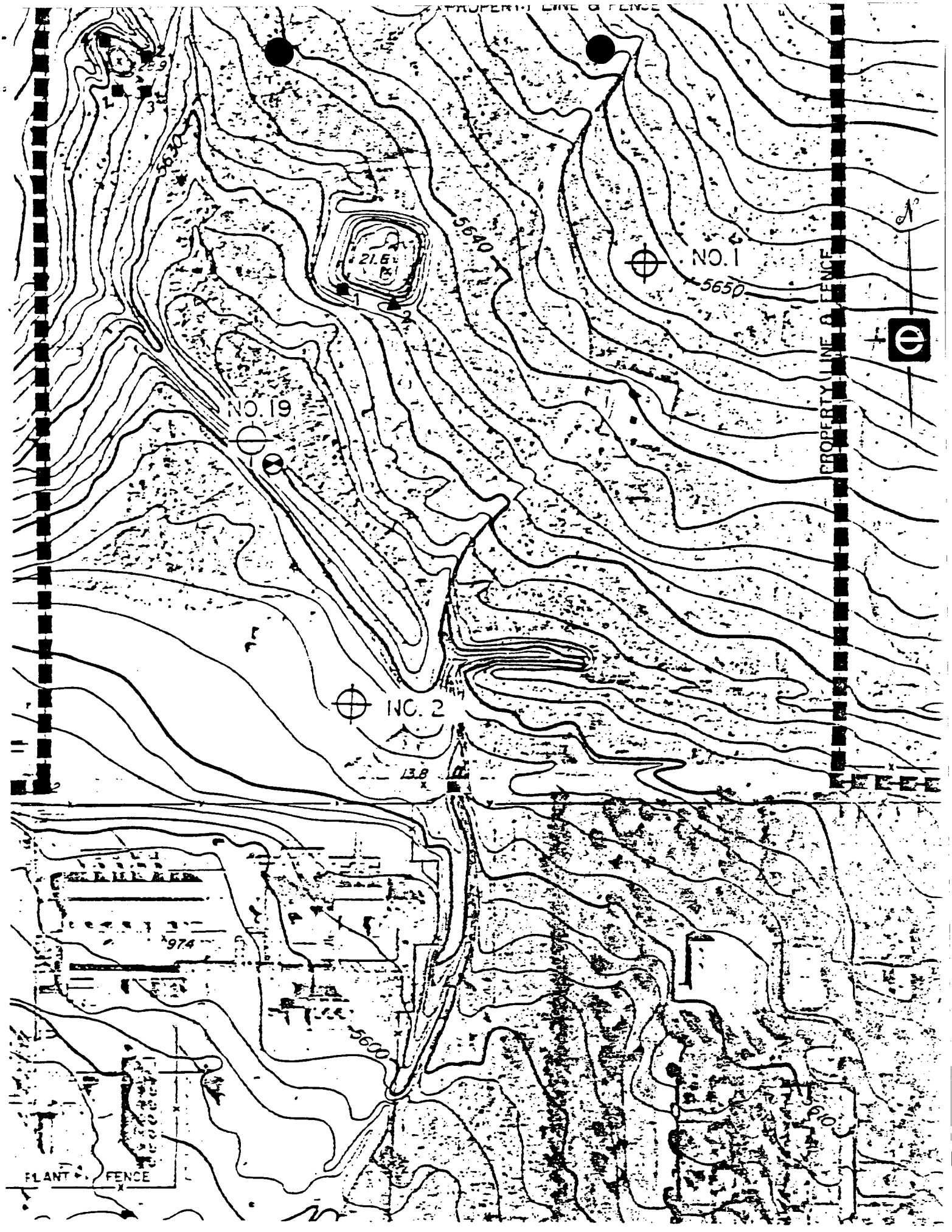

PROPERTY LINE & FENCE
NO. 1
NO. 19
NO. 2
5650
5640
5630
5600
5610
21.6
13.8
974
PLANT
FENCE
N

FIGURE 2

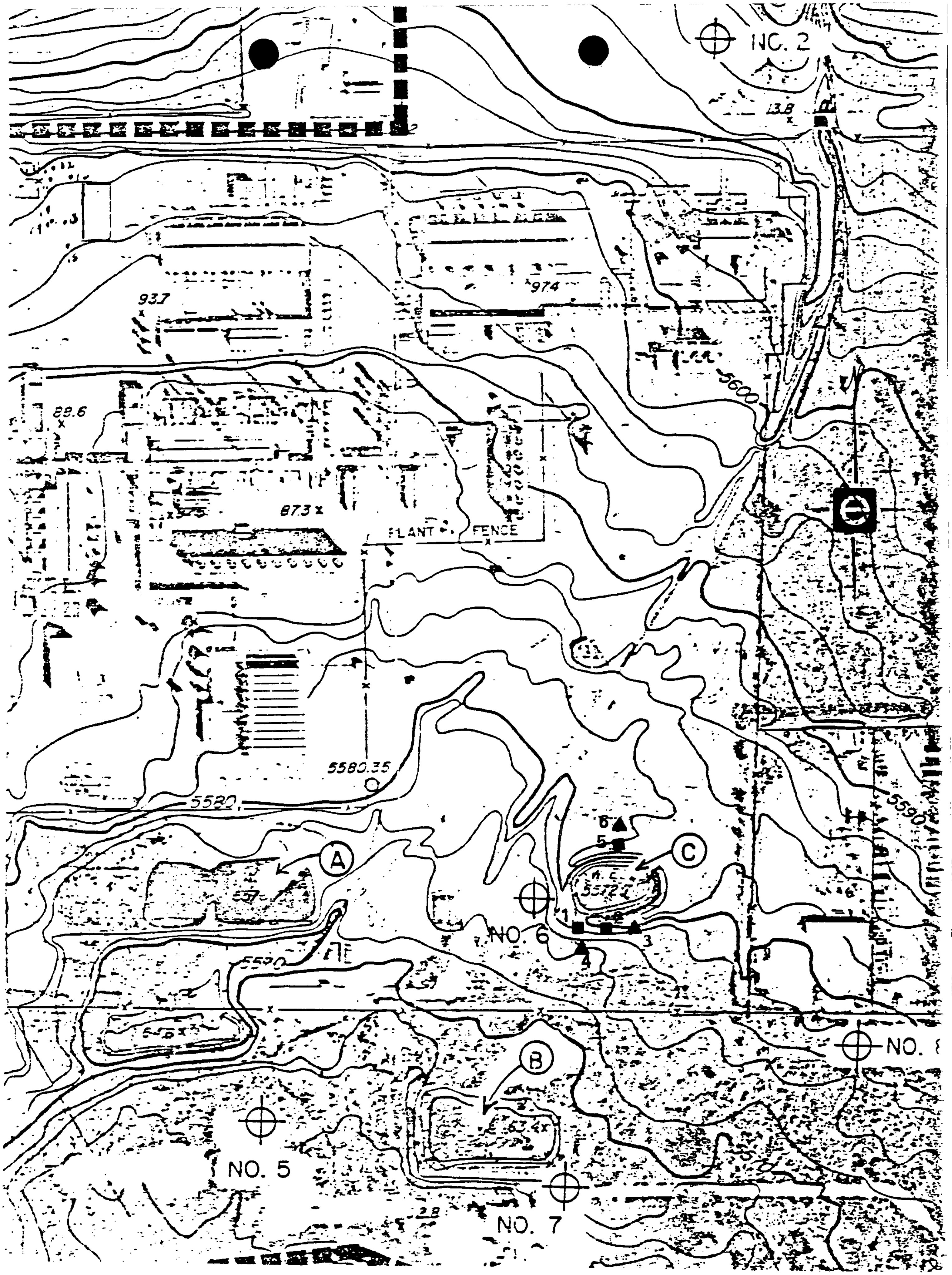

NO. 2
13.8
974
93.7
5600
88.6
87.3
PLANT FENCE
5580.35
5580
5590
A
C
NO. 6
NO. 8
5590
B
NO. 5
NO. 7
63.4

FIGURE 3

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

November 18, 1991

CERTIFIED MAIL
RETURN RECEIPT NO. P-690-155-080

Mr. Thomas D. Hutchins
North Region Compliance Engineering Manager
El Paso Natural Gas Company
P.O. Box 1492
El Paso, TX 79978

RE: NORTH FLARE PIT REMEDIATION
EPNG BLANCO COMPRESSOR STATION
SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Hutchins:

The New Mexico Oil Conservation Division (OCD) has completed a review of the November 6, 1991 "EL PASO NATURAL GAS COMPANY'S BLANCO NORTH FLARE PIT CLOSURE PLAN".

The OCD approves of the above referenced closure plan with the following condition:

1. A report containing the results of the closure will be submitted to OCD within 60 days of completion of the closure activities.

The OCD understands that closure work at the site will begin in February of 1992. Please contact the OCD at least one week prior to commencement of work so that the OCD may have the opportunity to have a representative present to split samples.

Please be advised that OCD approval does not limit you to the work proposed should the remediation fail to effectively reduce contaminant levels related to EPNG's activities. In addition, OCD approval does not relieve you of liability under any other laws and/or regulations.

If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist

cc: OCD Aztec Office

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

November 18, 1991

CERTIFIED MAIL
RETURN RECEIPT NO. P- 690-155-082

Mr. Thomas D. Hutchins
North Region Compliance Engineering Manager
El Paso Natural Gas Company
P.O. Box 1492
El Paso, TX 79978

RE: HYDROCARBON RECOVERY PROPOSAL
EPNG BLANCO COMPRESSOR STATION
SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Hutchins:

The New Mexico Oil Conservation Division (OCD) has completed a review of the October 23, 1991 "HYDROCARBON RECOVERY PROPOSAL FOR EL PASO NATURAL GAS COMPANY'S BLANCO COMPRESSOR STATION".

The OCD approves of the alternate pumping proposal to capture hydrocarbons from proposed recovery well RW-19A and existing monitor well MW-6 contained in the above referenced correspondence.

The OCD understands that a proposal for additional investigation/remediation activities including additional monitoring wells to delineate the extent of contamination, recovery wells to capture contaminants and proposed monitoring will be submitted to OCD within 60 days of completion of recovery well RW-19A.

Please be advised that OCD approval does not relieve you of liability which may be actionable under any other laws and/or regulations.

Please contact the OCD at least one week prior to commencement of drilling so that the OCD may have the opportunity to have a representative present.

The OCD looks forward to working with you to define the extent of and to remediate contamination at the Blanco Compressor Station. If you have any questions, please call me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist

cc: OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

November 6, 1991

Mr. Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Re: El Paso Natural Gas Company's Blanco North Flare Pit Closure Plan

Dear Mr. Anderson:

On October 24, 1991, El Paso Natural Gas Company (EPNG) representatives discussed the proposed closure of the north flare pit with you and Mr. Olson. Attached under Tab 1 is a Scope of Work for the closure of the pit.

As mentioned in the attached Scope of Work, EPNG plans to excavate 20 feet of soil from the bottom of the pit. The soil will be transported to EPNG's Angel Peak Plant. A separate letter requesting a soil remediation site at Angel Peak will be forthcoming.

As discussed at our meeting, EPNG's Laboratory sampled the flare pit. A five point composite was obtained at a depth of six inches and one at a depth of fifteen feet. The samples were analyzed for TPH by the 418.1 Method and the Modified 8015 Method. In addition, a TCLP metals and organics analysis was conducted. The results are under Tab 2.

EPNG plans to excavate hydrocarbon contaminated soil until the field TPH is below 100 ppm or to a depth of 20 feet. Once EPNG determines that further excavation is impractical or the field TPH test results are acceptable, composite samples will be collected in accordance with SW-846 guidelines and the pit will be backfilled with clean soil. The samples will be analyzed for TPH and BETX by EPA Methods 602 and Modified 8015, respectively.

EPNG will provide the contractor with a borrow site near Angel Peak Plant for clean backfill.

As a final step in the closure of the flare pit, the soil will be contoured to avoid ponding, control runoff and erosion. EPNG requests approval from NMOCD for the aforementioned closure plan.

If you have any questions, please call me at (915) 541-3531.

Very truly yours,

Thomas D. Hutchins

Thomas D. Hutchins
North Region Compliance Manager

SCOPE OF WORK

CLOSURE OF NORTH FLARE PIT NEAR BLANCO PLANT

I. GENERAL

The project involves closure of an inactive flare pit located north of El Paso Natural Gas Company's Blanco Plant. The flare pit is located in Section 11, T-29-N, R-11-W, San Juan County, New Mexico, approximately 1/4 mile north of Blanco Plant. The location of Blanco Plant is shown on the attached map.

The primary objective is to remove all hydrocarbon contaminated soil.

II. EXCAVATION AND HAULING REQUIREMENTS

The existing pit is approximately 150 foot feet long, 75 feet wide and 20 feet deep . The contractor must excavate vertically a minimum of 20 feet of soil from the bottom of the pit. In addition, hydrocarbon contaminated soil from the pit berms shall also be excavated. Since the existing pit is approximately 20 feet from grade, the contractor will need to slope the existing pit sides in order to allow equipment access to the pit bottom.

The contractor must transport the excavated soil to El Paso Natural Gas Company's (EPNG) Angel Peak Plant. Angel Peak Plant is located at NE/4, Section 8, T-27-N, R-10-W, San Juan County. The plant is approximately sixteen miles from Blanco Plant. To get to the plant, go south on Highway 44, turn left on a dirt road, across from the intersection of NAPI Road 3003 and Highway 44 and six miles down the dirt road is the plant. The road does not have a county road designation and is known only as the "Angel Peak Plant Road".

At Angel Peak Plant, the contractor must install a two foot high earthen berm and forty seven inch high "hogwire" fence around the proposed soil remediation area. The location of the soil remediation area will be selected by an EPNG representative. In addition, a twenty foot wide drive through gate shall be installed on one side of the remediation area.

The contractor shall spread the soil at the remediation site in a six inch lift. Assuming 8333 cubic yards (150'X75'X20') of soil will be excavated, a 300 feet by 750 feet area must be bermed and fenced. In addition, the contractor must disc the soil two times per week for the duration of the remediation project.

The contractor must assist EPNG by providing the use of the backhoe for collection of soil samples (after excavation of 20 feet of pit bottom). Additional excavation beyond the 20 feet depth will be based on field Total Petroleum Hydrocarbon (TPH) soil tests.

At EPNG's request, the contractor shall dig bellholes at various locations (after excavation of 20 feet of pit bottom) at the site. EPNG will analyze the soil samples from the bellholes. Based on the TPH results from the bellholes and NMOCD guidance, EPNG will decide whether to dig further or backfill the pit.

EPNG estimates a minimum of two weeks will be needed to provide a decision on whether further excavation is required. EPNG will give the contractor a three day notice before requiring the contractor to either excavate further or backfill the excavation.

If further excavation is required, the costs will be based on Items #1 and #2 of the Cost Schedule shown in Section IV.

II. CLOSURE REQUIREMENTS

Once the project inspector or project engineer determines that further excavation is impractical or the field TPH test results are acceptable , the pit may be backfilled.

EPNG will provide a borrow source near Angel Peak Plant for clean backfill. The backfill soil is located approximately 600 feet from the soil remediation area. The backfill must be stored on-site, southwest of the flare pit, until EPNG gives approval to backfill the pit.

As a final step in the closure of the flare pit, the contractor shall contour the backfill to avoid ponding, control runoff and erosion.

III. OTHER REQUIREMENTS

The contractor is required to follow New Mexico Motor Transportation Division and Department of Transportation rules regarding truck weight limitations and other applicable transportation rules.

All work performed by the contractor shall conform to applicable industry codes and standards, the EPNG Manual of Engineering Standards and the EPNG Safety Policy and Procedures Manual. All excavation activities must be in accordance with applicable OSHA and EPNG standards. The EPNG inspector or project engineer will have authorization to make changes in the material or specified procedures. No changes shall be made without the written approval of the project inspector or project engineer.

The contractor shall be responsible for providing the required protection and security for equipment or materials on the job site. EPNG will not assume any liability for losses of materials or equipment.

The contractor must provide a list of any subcontractors with the bid. The contractor must receive written approval from EPNG before using subcontractors for any portion of the work. Such approval will not relieve the contractor of any obligations with EPNG.

The contractor shall be responsible for keeping the job site clean and neat and shall provide a general cleanup of the area after completion of the project.

IV. COST SCHEDULE

1. Excavate & Load Contaminated Soil; Transport, Unload, Spread and Disc Soil at Angel Peak Plant _____/cubic yard

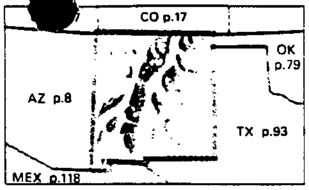
2. Load, Transport & Backfill Clean Sandy Soil from Angel Peak Plant _____/cubic yard

3. Construction of two foot high berm and forty seven inch high "Hogwire" Fence at Angel Peak Plant _____/lineal foot

New Mexico

Land Area: 121,336 sq. mi. (5)
Population: 1,494,200 (37)
Dimensions: N-S 390 miles, E-W 350 miles
Highest Point: Wheeler Peak 13,161 ft., C-7
Capital: Santa Fe, E-6
Largest City: Albuquerque, F-5

index page 123



Selected Recreational and Historical Sites

Aztec Ruins National Monument, B-3
Capulin Volcano National Monument, B-10
Carlbad Caverns National park, M-9
El Morro National Monument, J-2
Gila Cliff Dwellings National Monument, J-2
Pecos National Monument, E-7
Taos, C-7
White Sands National Monument, K-6

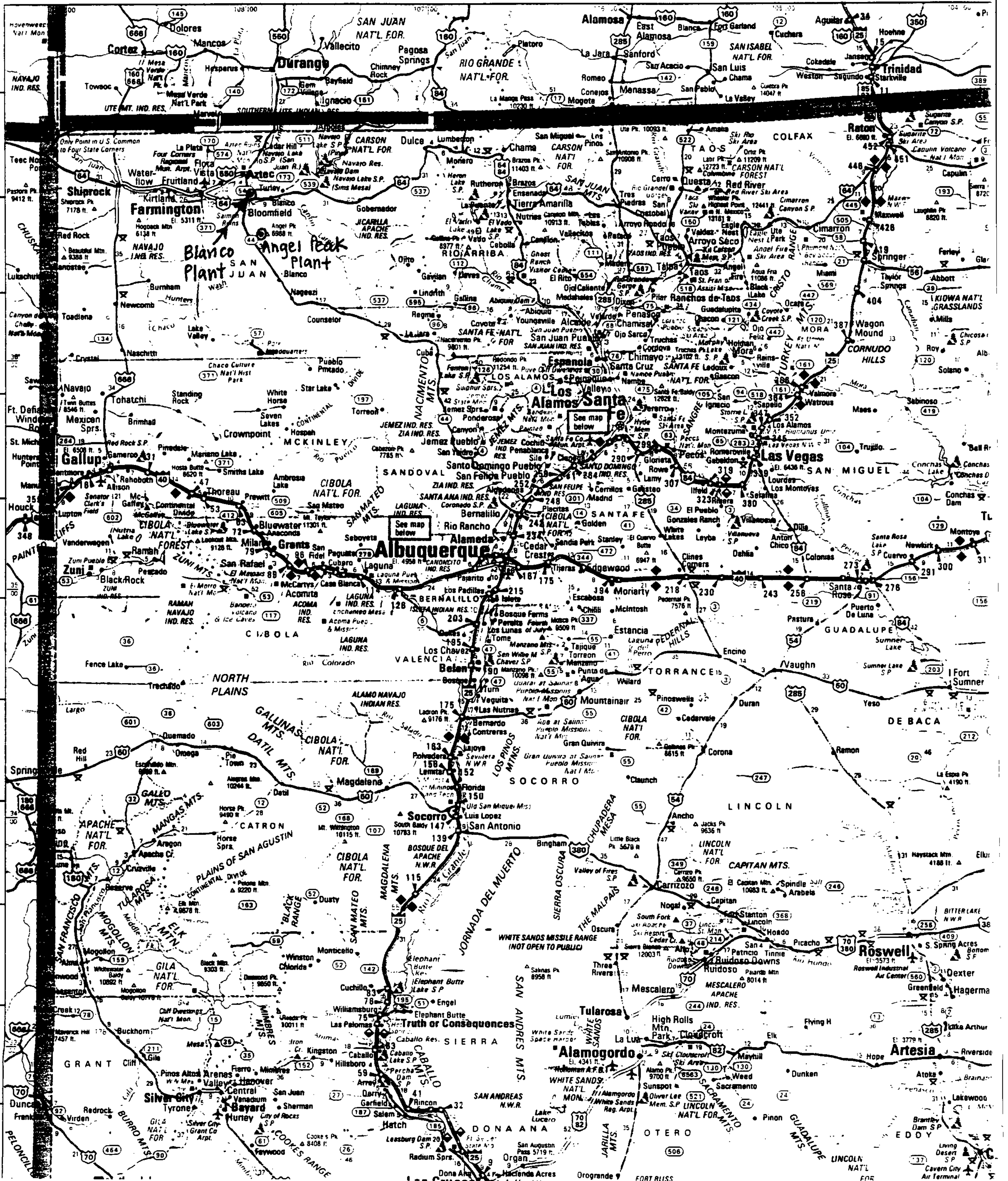
How to Determine Distance

0 10 20 30 Miles
0 10 20 30 40 Kilometers

Mileage in red between red arrowheads, in black between intersections. Some interchange numbers indicate mileage.

Mileage Between

	Albuquerque / Alamogordo
Albuquerque	209
Clovis	229
Las Cruces	69
Roswell	118
Santa Fe	228



Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 106920

October 3, 1991

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: Blanco Plant North Flare Pit

Attention: John Lambdin

On 06/27/91, Analytical Technologies, Inc. received a request to analyze soil 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.

TCLP-BTEX analyses were performed by ATI, Fort Collins.

For EPA Method 8015, modified, client sample N11248 does not exhibit a typical gasoline pattern. Sample appears to contain a mixture of gasoline and a heavier hydrocarbon.

The results reported for TCLP analyses are the actual measured values, and are not corrected for matrix spike recovery bias. The matrix spike recovery results for TCLP analyses are included in this report.

Enclosed is an amended report for TCLP method 8020 (BTEX). The units have been changed from ug/kg to ug/L. We apologize for any inconvenience this may have caused.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Mary Tyer
Project Manager

Robert V. Woods
Laboratory Manager

RVW:jat
Enclosure

Analytical Technologies, Inc.

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT

DATE RECEIVED : 06/27/9
REPORT DATE : 07/22/9

ATI I.D. : 106920

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTE
01	N11248	SOIL	06/26/9
02	N11249	SOIL	06/26/9

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	2

ATI STANDARD DISPOSAL PRACTICE

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 106920

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT

DATE RECEIVED : 06/27/9
REPORT DATE : 07/22/9

PARAMETER	UNITS	01	02
PETROLEUM HYDROCARBONS, IR	MG/KG	63000	32000

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT - ATI I.D. : 106920

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% RE
PETROLEUM HYDROCARBONS	MG/KG	10690603	<20	23	NA	220	190	11

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

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 10$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 106920

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT

DATE RECEIVED : 06/27/
REPORT DATE : 07/22/

PARAMETER	UNITS	01	02
SILVER (IN TCLP)	MG/L	<0.010	<0.010
ARSENIC (IN TCLP)	MG/L	<0.1	<0.1
BARIUM (IN TCLP)	MG/L	2.35	1.43
CADMIUM (IN TCLP)	MG/L	0.006	<0.005
CHROMIUM (IN TCLP)	MG/L	<0.05	<0.05
MERCURY (IN TCLP)	MG/L	<0.0002	<0.0002
LEAD (IN TCLP)	MG/L	<0.10	<0.10
SELENIUM (IN TCLP)	MG/L	<0.1	<0.1

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT ATI I.D. : 106920

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% RE
SILVER (IN TCLP)	MG/L	10756003	<0.010	<0.010	NA	0.946	1.00	95
ARSENIC (IN TCLP)	MG/L	10756003	<0.1	<0.1	NA	1.1	1.0	11
BARIUM (IN TCLP)	MG/L	10755003	0.722	0.725	0.4	1.84	1.00	11
CADMIUM (IN TCLP)	MG/L	10756003	<0.005	<0.005	NA	1.02	1.00	10
CHROMIUM (IN TCLP)	MG/L	10692002	<0.05	<0.05	NA	0.49	0.50	98
MERCURY (IN TCLP)	MG/L	10756003	<0.0002	<0.0002	NA	0.0046	0.0050	92
LEAD (IN TCLP)	MG/L	10755003	<0.10	<0.10	NA	0.94	1.00	94
SELENIUM (IN TCLP)	MG/L	10756003	<0.1	<0.1	NA	10.7	10.0	10

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

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 10($$

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10692001

TEST : FUEL HYDROCARBONS (MODIFIED EPA METHOD 8015)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/26/9
PROJECT #	: (NONE)	DATE RECEIVED	: 06/27/9
PROJECT NAME	: BLANCO PLNT	DATE EXTRACTED	: 06/28/9
CLIENT I.D.	: N11248	DATE ANALYZED	: 06/29/9
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 10

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	2600
HYDROCARBON RANGE	C5-C32
HYDROCARBONS QUANTITATED USING	GASOLINE
SURROGATE PERCENT RECOVERIES	
DI-N-OCTYL-PHTHALATE (%)	99

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10692002

TEST : FUEL HYDROCARBONS (MODIFIED EPA METHOD 8015)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/26/9
PROJECT #	: (NONE)	DATE RECEIVED	: 06/27/9
PROJECT NAME	: BLANCO PLNT	DATE EXTRACTED	: 06/28/9
CLIENT I.D.	: N11249	DATE ANALYZED	: 06/30/9
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 100

COMPOUNDS	RESULTS
FUEL HYDROCARBONS	15000
HYDROCARBON RANGE	C5-C14
HYDROCARBONS QUANTITATED USING	GASOLINE
SURROGATE PERCENT RECOVERIES	
DI-N-OCTYL-PHTHALATE (%)	**

** Due to the necessary dilution of the sample, result was not attainable

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 106920

TEST : FUEL HYDROCARBONS (MODIFIED EPA METHOD 8015)

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT
REF I.D. : 10799815

DATE ANALYZED : 06/28/91
SAMPLE MATRIX : NON-AQUEC
UNITS : MG/KG

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RP
FUEL HYDROCARBONS	<5	50	40	80	40	80	0

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

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10692001

TEST : BTEX (8020) AND MTBE IN TCLP EXTRACT

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/26/9
PROJECT #	: (NONE)	DATE RECEIVED	: 06/27/9
PROJECT NAME	: BLANCO PLNT	DATE EXTRACTED	: 07/01/9
CLIENT I.D.	: N11248	DATE ANALYZED	: 07/03/9
SAMPLE MATRIX	: SOIL	UNITS	: UG/L
		DILUTION FACTOR	: 100

COMPOUNDS	RESULTS
BENZENE	2000
TOLUENE	8100 E
ETHYLBENZENE	230
TOTAL XYLENES	270
METHYL-t-BUTYL ETHER	NA

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	120

E-EXCEEDS INSTRUMENT CALIBRATION RANGE

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10692002

TEST : BTEX (8020) AND MTBE IN TCLP EXTRACT

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/26/9
PROJECT #	: (NONE)	DATE RECEIVED	: 06/27/9
PROJECT NAME	: BLANCO PLNT	DATE EXTRACTED	: 07/01/9
CLIENT I.D.	: N11249	DATE ANALYZED	: 07/03/9
SAMPLE MATRIX	: SOIL	UNITS	: UG/L
		DILUTION FACTOR	: 100

COMPOUNDS	RESULTS
BENZENE	2300
TOLUENE	7900 E
ETHYLBENZENE	240
TOTAL XYLENES	940
METHYL-t-BUTYL ETHER	NA

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	130

E-EXCEEDS INSTRUMENT CALIBRATION RANGE

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : BTEX (8020) AND MTBE IN TCLP EXTRACT

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	ATI I.D.	: 106920
PROJECT #	: (NONE)	DATE EXTRACTED	: 07/01/9
PROJECT NAME	: BLANCO PLNT	DATE ANALYZED	: 07/03/9
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	NA

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	95

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 106920

TEST : BTEX (8020) AND MTBE IN TCLP EXTRACT

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLNT
REF I.D. : 10799910

DATE ANALYZED : 07/03/91
SAMPLE MATRIX : NON-AQUEO
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RP
BENZENE	7.6	5	13	108	NA	NA	NA
TOLUENE	<0.5	5	4.4	88	NA	NA	NA
ETHYLBENZENE	<0.5	5	5.8	116	NA	NA	NA
TOTAL XYLENES	<0.5	5	5.8	116	NA	NA	NA
METHYL-T-BUTYL ETHER	NA	NA	NA	NA	NA	NA	NA

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

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD (505) 599-2152

6/27/91

Project No.	Project Name	Total No. of Containers	Chain of Custody Seals	Intact?	Requested Analysis	Contract Laboratory
	BLANCO PLANT NORTH FLARE PIT					ANALYTICAL TECHNOLOGIES, INC
Samplers: (Signature)	Date / Receiving Temp. (°F)					9830 SOUTH 51ST STREET STE B
Norman L. Franklin	6-26-91					PHOENIX, AZ 85044

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Composite or Grab	Modified 8015 Attached	TCLP TPH	8-METALS TCLP	BTEX (EPA 8020) 418.1 TPH	Remarks
1	6/26/91	9:00	SOIL	N11248	4	NO	-	C	X	X	X	X	5 POINT COMPOSITE - 6" DEPTH
2	6/26/91	11:00	SOIL	N11249	4	NO	-	C	X	X	X	X	5 POINT FROM DEPTH OF MAX PENETRATION ↑ SUBSOIL ↑

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Norman L. Franklin NORMAN FRANKLIN	6/26/91 13:00				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
				6/27 11:00	Linda Eshelman
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
				ATI ACC. # 106920	

Results & Invoices to:: JOHN LAMBDIN, EPNG, P.O. BOX 4990, FARMINGTON, NM 87499

Charge Code work order # 108-X50949-001-2010

Date Results Reported / by: (Signature)

WHITE-Testing Laboratory

El Paso
Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

October 23, 1991

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

RE: Hydrocarbon Recovery Proposal for El Paso Natural Gas Company's Blanco Compressor Station

Dear Mr. Anderson:

It is my pleasure to provide the attached HYDROCARBON RECOVERY, WORK PLAN, dated October 1991, covering the installation of two recovery wells at EPNG's Blanco Compressor Station. The plan has been revised as requested in Mr. David Boyer's letter dated September 16, 1991. The October 1991 plan addresses the issues of increased screen length and providing for active pumping of the recovery wells, as requested in the September 16 letter.

Also attached is a summary of the John Mathes and Associates soil gas survey and water samples collected at Blanco earlier this year. Furthermore, copies of the analytical results for samples collected earlier this year by EPNG lab personnel in thirteen monitor wells are attached as requested in the September 16 letter. This is provided as additional information on soil and groundwater investigations performed at Blanco.

The attached data should be satisfactory to comply with the conditions set forth in Mr. Boyer's letter. We anticipate the installation of the recovery wells will commence before the end of the year.

If you have any questions or need additional information please advise.

Very truly yours,

Thomas D. Hutchins

Thomas D. Hutchins, Manager
North Region Compliance Engineering

BLANCO PLANT ANALYTICAL RESULTS, April 1991

LOCATION	SAMPLE IDENTIFICATION	BENZENE	ETHYL BENZENE	TOTAL XYLENES	TOLUENE	TPH
SKIMMER POND	SP-1-18-SG	ND(1)	15	61	56	5409
	SP-1-18-SG-D	173	36	402	68	1696
	SP-2-24-SG	14	ND(1)	ND(1)	ND(1)	1015
	SP-3-27-SG	ND(1)	ND(1)	ND(1)	ND(1)	9
	SP-4-24-SG	ND(1)	ND(1)	ND(1)	ND(1)	9
	SP-5-21-SG	1	ND(1)	ND(1)	ND(1)	ND(1)
FLARE PIT	FP-1-18-SG	5	ND(1)	ND(1)	4	152
	FP-2-26-SG	12	ND(1)	ND(1)	3	34
	FP-3-30-WH	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	N10418 (Split 3-30-WH)	<1.0	<1.0		<1.0	
	FP-4-22-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	FP-5-30-SG	19	ND(1)	ND(1)	3	89
	FP-6-30-SG	ND(1)	ND(1)	ND(1)	ND(1)	1
"C" SUMP AT DRAINAGE	SDP-1-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	SDP-2-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
"A" SUMP AT DRAINAGE	ADP-1-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	ADP-2-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
WEST DISPOSAL POND	WEP-1-3-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
WASH RACK PIT	WRP-1-4-SG	ND(1)	ND(1)	ND(1)	ND(1)	5
	WRP-2-4-SG	ND(1)	ND(1)	ND(1)	ND(1)	15
DISPOSAL POND	DP-1-14-WH	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	N10417 (Split 1-14-WH)	<0.5	<0.5		<0.5	
	DP-2-14-WH	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	DP-3-14-WH	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
BOTTOM PIT DRAINAGE	BPD-1-14-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	BPD-2-11-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
OIL RECLAIM PIT	ORP-1-14-SG	3	ND(1)	ND(1)	ND(1)	25
	ORP-2-20-SG	80	2	6	28	15687
	ORP-3-28-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ABANDONED FLARE PIT	AFP-1-20-SG	208	ND(1)	ND(1)	57	8147
	AFP-2-25-SG	180	ND(1)	ND(1)	41	8082
	AFP-3-23-SG	179	ND(1)	2	44	9182
	AFP-4-19-SG	4	ND(1)	ND(1)	ND(1)	33
EVAPORATOR POND	EP-1-20-SG	17	ND(1)	ND(1)	7	125
	EP-1-20-SG-D	15	ND(1)	ND(1)	9	170
	EP-2-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	EP-3-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
FIELD DRIP TANK	FDT-1-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
	FDT-2-20-SG	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

All results in ug/l
ND(1) = not detected at 1 ug/l

SAMPLE ID KEY:
Area-Sequence Number-Depth-Media

SG=Soil Gas, WH=Water, D=Duplicate

BLANCO PLANT ANALYTICAL RESULTS

LOCATION	SAMPLE IDENTIFICATION	CHROMIUM			
		% SOLIDS	MG/L IN TCLP	SOLIDS CORRECTED MG/L	TOTAL (MG/KG OR PPM)
"A" COOLING TOWER	(A-1-ACT-1-1'-SOIL)WS				8.4
	N10514	80.8	<0.5	<0.5	
	(A-1-ACT-2-1'-SOIL)ES				21.2
	N10515	97.3	<0.5	<0.5	
"B" COOLING TOWER	(A-1-BCT-1-1'-SOIL)NS				11.1
	N10518	94.4	<0.5	<0.5	
	(A-1-BCT-2-1'-SOIL)SS				3.4
	N10519	92.4	<0.5	<0.5	
"C" COOLING TOWER	(A-1-CCT-1-1'-SOIL)ES				4.7
	N10517	92.9	<0.5	<0.5	
	(A-1-CCT-2-1'-SOIL)WS				5.5
	N10516	90.4	<0.5	<0.5	

10/23/91 cds

El Paso Natural Gas Company

MEMORANDUM

TO: John Lambdin

DATE: June 28, 1991

FROM: Norman Norvelle

PLACE: North Engineering Laboratory-Farmington

SUBJECT: BLANCO PLANT MONITOR WELLS

This is a correction to my memo of June 21, 1991. Please note the static level column was incorrect. Also, three bottles for 418.1 TPH were broken in transit to A.T.I. Labs and required resampling. They were as follows: Monitor Well #6, Monitor Well #15, and Monitor Well #16. They were resampled on June 24 and sent to A.T.I. Labs the same day.

On June 18 and 19, Dennis Bird, Richard Benson and I sampled the Blanco Plant monitor wells. The following wells were sampled and information obtained:

DATE OF COLLECTION	MILITARY TIME	SAMPLE NUMBER	MONITOR WELL NO.	STATIC LEVEL	WELL LOCATION
6-18	1130	N11221	2	53'9"	North Flare Pit
6-18	1450	N11222	5	14'8"	South Flare Pit
6-19	1540	N11223	6	23'3"	South Flare Pit
6-18	1400	N11224	7	18'0"	South Flare Pit
6-18	1440	N11225	8	28'10"	South Flare Pit
6-18	1240	N11226	10	13'6"	South Flare Pit
6-19	1300	N11227	12	18'7"	"D" Plant Pit
6-19	1400	N11228	13	15'2"	"D" Plant
6-19	1125	N11229	14	22'7"	"D" Plant
6-19	1415	N11230	15	21'0"	"D" Plant
6-19	1315	N11231	16	19'4"	"D" Plant
6-19	1140	N11232	18	10'0"	"D" Plant
6-18	1100	N11233	19	56'8"	North Flare Pit

Monitor Well #17 was dry and #18 sample volume was sufficient only for BTXE and maybe TPH analysis. Monitor Well #6 had a 2" hydrocarbon layer, Monitor Well #18 had a 1/4" hydrocarbon layer, and Monitor Well #19 contained a 4" hydrocarbon layer.

All monitor wells were analyzed for chromate by the Hach method. All levels were less than 0.04 mg/1. The following analysis will be performed by ATI Labs in Phoenix: TPH 418.1, BTXE, TKN, and NO3. We will perform the following analysis in-house: carbonate, bicarbonate, calcium, magnesium, chloride, sulfate, TDS, sodium, and conductivity.

All samples were preserved and stored on ice immediately after collection. A copy of the C.O.C. is attached. All wells were purged 3 casing volumes.

Should you have any questions or comments, please let me know.

Norman R Norvelle

Norman Norvelle

Enclosures
cc: Dennis Bird
Tom Hutchins
Nancy Prince
File

FM-10-0003

El Paso Natural Gas Company

MEMORANDUM

TO: John Lambdin

DATE: June 21, 1991

FROM: Norman Norvelle

PLACE: North Engineering Laboratory-Farmington

SUBJECT: BLANCO PLANT MONITOR WELLS

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6-18	1400	N11224	7	23'3"	South Flare Pit
6-18	1440	N11225	8	18'0"	South Flare Pit
6-18	1240	N11226	10	28'10"	South Flare Pit
6-19	1300	N11227	12	13'6"	"D" Plant Pit
6-19	1400	N11228	13	18'7"	"D" Plant
6-19	1125	N11229	14	15'2"	"D" Plant
6-19	1415	N11230	15	22'7"	"D" Plant
6-19	1315	N11231	16	21'0"	"D" Plant
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Should you have any questions or comments, please let me know.

Norman R. Norvelle

Norman Norvelle

Enclosures

cc: Tom Hutchins
File

FM-10-0003

EL PASO NATURAL GAS CO. - NORTH REGION LAB - WATER ANALYSIS REPORT

LOCATION: BLANCO
DATE OF SAMPLE: 06-18-91
SAMPLED BY: D.BIRD,N.NORVELLE

PROJECT:
SAVE FILE: 2-12677

SAMPLE POINT	M.W. 2	M.W. 5	M.W. 6	M.W. 7
LAB ID #				
COMPLIANCE ID #	N11221	N11222	N11223	N11224
pH	7.42	7.17	6.9	7.2
ALKALINITY AS CO3	0	0	0	0
ALKALINITY AS HCO3	439	305	610	732
CALCIUM AS Ca	600	680	612	700
MAGNESIUM AND Mg	25	12	29	25
TOTAL HARDNESS AS CACO3	1601	1747	1649	1851
CHLORIDE AS Cl	100	50	100	250
SULFATE AS SO4	6403	1900	2650	2300
SILICA AS SiO2				
FLUORIDE AS F				
POTASSIUM AS K	3.8	1.0	2.6	2.1
SODIUM (CALCULATED)	2557	253	804	687
TOTAL DISSOLVED SOLIDS	11150	2800	5320	4520
CONDUCTIVITY (umhos)	11760	2600	5280	4780
SODIUM (ACTUAL)	2800	100	820	670

-- All Results expressed as ppm or umhos --

REMARKS:

Teresa White
Analyst

John Peterson 7/15/91
Lab Superintendent

EL PASO NATURAL GAS CO. - NORTH REGION LAB - WATER ANALYSIS REPORT

SAMPLE POINT	M.W. 2	M.W. 5	M.W. 6	M.W. 7
	meq/l	meq/l	meq/l	meq/l
CALCIUM AS Ca	29.94	33.93	30.54	34.93
MAGNESIUM AND Mg	2.06	0.99	2.42	2.06
POTASSIUM AS K	0.10	0.03	0.07	0.05
SODIUM (+/- Difference)	111.23	11.02	34.97	29.89
SODIUM (Actual)	121.74	4.35	35.65	29.13
CATIONS TOT(w/o Na)	32.09	34.95	33.02	37.04
CATIONS TOT(w/act. Na)	123.89	5.36	38.14	31.24
CATIONS TOT(w/cal. Na)	143.33	45.97	67.99	66.93
ALKALINITY AS CO3	0.00	0.00	0.00	0.00
ALKALINITY AS HCO3	7.19	5.00	10.00	12.00
CHLORIDE AS Cl	2.82	1.41	2.82	7.05
SULFATE AS SO4	133.31	39.56	55.17	47.89
FLUORIDE AS F	0.00	0.00	0.00	0.00
ANIONS (TOTAL)	143.33	45.97	67.99	66.93
TDS (ACTUAL)	11150	2800	5320	4520
TDS (CALC. w/cal. Na)	9905	3046	4498	4325
PERCENT DIFF. w/cal. Na	11	-9	15	4
TDS (CALC. w/act. Na)	10148	2893	4514	4307
PERCENT DIFF. w/act. Na	9	-3	15	5

EL PASO NATURAL GAS CO. - NORTH REGION LAB - WATER ANALYSIS REPORT

LOCATION: BLANCO
DATE OF SAMPLE: 06-18-91
SAMPLED BY: D.BIRD,N.NORVELLE

PROJECT:
SAVE FILE: 2-12677

SAMPLE POINT	M.W. 8	M.W. 10	M.W. 12	M.W. 13
LAB ID #				
COMPLIANCE ID #	N11225	N11226	N11227	N11228
pH	7.47	6.98	7.53	7.3
ALKALINITY AS CO3	0	0	0	0
ALKALINITY AS HCO3	366	366	732	2013
CALCIUM AS Ca	420	600	460	640
MAGNESIUM AND Mg	86	12	37	172
TOTAL HARDNESS AS CACO3	1403	1548	1301	2306
CHLORIDE AS Cl	50	80	50	150
SULFATE AS SO4	5383	3284	10800	11400
SILICA AS SiO2				
FLUORIDE AS F				
POTASSIUM AS K	2.2	3.3	9.0	11.5
SODIUM (CALCULATED)	2101	1049	4875	5246
TOTAL DISSOLVED SOLIDS	8280	5240	15940	18550
CONDUCTIVITY (umhos)	7980	5250	14750	17190
SODIUM (ACTUAL)	1900	900	3900	4600

-- All Results expressed as ppm or umhos --

REMARKS:

Teresa White
Analyst

7/15/91
Lab Superintendent

EL PASO NATURAL GAS CO. - NORTH REGION LAB - WATER ANALYSIS REPORT

SAMPLE POINT	M.W. 8	M.W. 10	M.W. 12	M.W. 13
	meq/l	meq/l	meq/l	meq/l
CALCIUM AS Ca	20.96	29.94	22.95	31.94
MAGNESIUM AND Mg	7.08	0.99	3.04	14.15
POTASSIUM AS K	0.06	0.08	0.23	0.29
SODIUM (+/- Difference)	91.39	45.62	212.04	228.19
SODIUM (Actual)	82.61	39.13	169.57	200.00
CATIONS TOT(w/o Na)	28.09	31.01	26.23	46.38
CATIONS TOT(w/act. Na)	89.74	40.20	172.84	214.45
CATIONS TOT(w/cal. Na)	119.48	76.63	238.27	274.57
ALKALINITY AS CO3	0.00	0.00	0.00	0.00
ALKALINITY AS HCO3	6.00	6.00	12.00	32.99
CHLORIDE AS Cl	1.41	2.26	1.41	4.23
SULFATE AS SO4	112.08	68.37	224.86	237.35
FLUORIDE AS F	0.00	0.00	0.00	0.00
ANIONS (TOTAL)	119.48	76.63	238.27	274.57
TDS (ACTUAL)	8280	5240	15940	18550
TDS (CALC. w/cal. Na)	8222	5208	16591	18610
PERCENT DIFF. w/cal. Na	1	1	-4	0
TDS (CALC. w/act. Na)	8021	5059	15616	17964
PERCENT DIFF. w/act. Na	3	3	2	3

EL PASO NATURAL GAS CO. - NORTH REGION LAB - WATER ANALYSIS REPORT

LOCATION: BLANCO
DATE OF SAMPLE: 06-19-91
SAMPLED BY: D.BIRD, N.NORVELLE

PROJECT:
SAVE FILE: 2-12678

SAMPLE POINT	M.W. 14	M.W. 15	M.W. 16	M.W. 19
LAB ID #				
COMPLIANCE ID #	N11229	N11230	N11231	N11232
pH	5.42	4.48	6.66	7.2
ALKALINITY AS CO3	0	0	0	0
ALKALINITY AS HCO3	183	1257	1098	830
CALCIUM AS Ca	1020	540	540	480
MAGNESIUM AND Mg	245	606	74	135
TOTAL HARDNESS AS CACO3	3556	3843	1653	1754
CHLORIDE AS Cl	200	300	100	250
SULFATE AS SO4	16500	11250	11400	11000
SILICA AS SiO2				
FLUORIDE AS F				
POTASSIUM AS K	12.5	10.0	14.0	6.4
SODIUM (CALCULATED)	6455	4281	5167	4930
TOTAL DISSOLVED SOLIDS	27830	19280	18270	16940
CONDUCTIVITY (umhos)	24200	18630	16380	15180
SODIUM (ACTUAL)	6600	5400	4800	4100

-- All Results expressed as ppm or umhos --

REMARKS:

Teresa White
Analyst

John Faldi 7/5/91
Lab Superintendent

EL PASO NATURAL GAS CO. - NORTH REGION LAB - WATER ANALYSIS REPORT

SAMPLE POINT	M.W. 14	M.W. 15	M.W. 16	M.W. 19
	meq/l	meq/l	meq/l	meq/l
CALCIUM AS Ca	50.90	26.95	26.95	23.95
MAGNESIUM AND Mg	20.16	49.87	6.09	11.11
POTASSIUM AS K	0.32	0.26	0.36	0.16
SODIUM (+/- Difference)	280.80	186.22	224.77	214.45
SODIUM (Actual)	286.96	234.78	208.70	178.26
CATIONS TOT(w/o Na)	71.38	77.07	33.39	35.22
CATIONS TOT(w/act. Na)	358.33	311.85	242.09	213.49
CATIONS TOT(w/cal. Na)	352.18	263.29	258.17	249.68
ALKALINITY AS CO3	0.00	0.00	0.00	0.00
ALKALINITY AS HCO3	3.00	20.60	17.99	13.60
CHLORIDE AS Cl	5.64	8.46	2.82	7.05
SULFATE AS SO4	343.54	234.23	237.35	229.02
FLUORIDE AS F	0.00	0.00	0.00	0.00
ANIONS (TOTAL)	352.18	263.29	258.17	249.68
TDS (ACTUAL)	27830	19280	18270	16940
TDS (CALC. w/cal. Na)	24523	17606	17836	17210
PERCENT DIFF. w/cal. Na	12	9	2	-2
TDS (CALC. w/act. Na)	24668	18725	17468	16380
PERCENT DIFF. w/act. Na	11	3	4	3

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 106822

July 16, 1991

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: Blanco Plant Monitor Wells

Attention: John Lambdin

On 06/21/91, Analytical Technologies, Inc. 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.

Nitrate and Total Kjeldahl Nitrogen analyses were cancelled on 06/21/91 for sample N11232.

Total Kjeldahl Nitrogen Spike results are outside of ATI acceptability limits. Matrix interference was confirmed by similar low recovery on a bench spike.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Mary Tyer
Project Manager

Robert V. Woods
Laboratory Manager

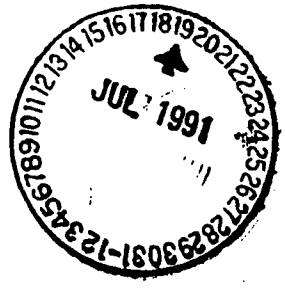
Lorraine Davis
QA Coordinator

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT
DATE RECEIVED : 06/21/91
REPORT DATE : 07/11/91
ATI I.D. : 106822

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	N11221	AQUEOUS	06/18/91
02	N11222	AQUEOUS	06/18/91
03	N11223	AQUEOUS	06/19/91
04	N11224	AQUEOUS	06/18/91
05	N11225	AQUEOUS	06/18/91
06	N11226	AQUEOUS	06/18/91
07	N11227	AQUEOUS	06/19/91
08	N11228	AQUEOUS	06/19/91
09	N11229	AQUEOUS	06/19/91
10	N11230	AQUEOUS	06/19/91
11	N11231	AQUEOUS	06/19/91
12	N11232	AQUEOUS	06/19/91
13	N11233	AQUEOUS	06/19/91



----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	13

ATI 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.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 106822

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT

DATE RECEIVED : 06/21/91
REPORT DATE : 07/11/91

PARAMETER	UNITS	01 (#2)	02 (#5)	03 (#6)	04 (#7)	05 (#8)
NITRATE AS NITROGEN	MG/L	180	0.08	110	0.28	<0.06
PETROLEUM HYDROCARBONS, IR	MG/L	<1	<1	-	<1	<1
TOTAL KJELDAHL NITROGEN	MG/L	<0.2	0.81	<0.2	1.5	1.3

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 106822

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT

DATE RECEIVED : 06/21/91
REPORT DATE : 07/11/91

PARAMETER	UNITS	06 (#10)	07 (#12)	08 (#13)	09 (#14)	10 (#15)
NITRATE AS NITROGEN	MG/L	0.74	7.8	6.3	80	50
PETROLEUM HYDROCARBONS, IR	MG/L	<1	<1	<1	<1	-
TOTAL KJELDAHL NITROGEN	MG/L	0.53	0.26	0.95	16	4.9

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 106822

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT

DATE RECEIVED : 06/21/91
REPORT DATE : 07/11/91

PARAMETER	UNITS	11 (#16)	12 (#18)	13 (#19)
NITRATE AS NITROGEN	MG/L	0.07	-	70
PETROLEUM HYDROCARBONS, IR	MG/L	-	36000	500
TOTAL KJELDAHL NITROGEN	MG/L	4.2	-	1.4

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT ATI I.D. : 106822

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
NITRATE AS NITROGEN	MG/L	10682202	0.08	0.08	0	2.1	2.0	101
NITRATE AS NITROGEN	MG/L	10682213	70	70	0	260	200	95
PETROLEUM HYDROCARBONS	MG/L	10684401	1	1	0	8	7	100
PETROLEUM HYDROCARBONS	MG/L	10684402	<1	<1	NA	7	7	100
TOTAL KJELDAHL NITROGE	MG/L	10682205	1.3	1.2	8	2.7	2.0	70
TOTAL KJELDAHL NITROGE	MG/L	10693401	1.5	1.7	12	2.1	1.0	60

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

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 10$$

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682201

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/18/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11221 (mw #2)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	0.7
ETHYLBENZENE	<0.5
TOTAL XYLENES	0.9
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	119

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682202

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/18/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11222 (mw#5)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	1.3
ETHYLBENZENE	<0.5
TOTAL XYLENES	1.1
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	112

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682203

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11223 (mw#6)	DATE ANALYZED	: 07/03/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	1.2
ETHYLBENZENE	2.9
TOTAL XYLENES	34
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	109

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682204

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/18/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11224 (mw#7)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	121

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682205

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/18/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11225 (mw#8)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	104

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682206

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/18/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11226 (mw#10)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	92

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682207

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11227 (mw #12)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	97

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682208

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11228 (mw #13)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	19
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	9.6
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	86

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682210

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11230 (mw # 15)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	96

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682211

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11231 (mw#16)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	98

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682212

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11232 (mw#18)	DATE ANALYZED	: 06/29/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 50

COMPOUNDS	RESULTS
BENZENE	<25.0
TOLUENE	<25.0
ETHYLBENZENE	<25.0
TOTAL XYLENES	<25.0
METHYL-t-BUTYL ETHER	<125.0
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	93

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10682213

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE SAMPLED	: 06/19/91
PROJECT #	: (NONE)	DATE RECEIVED	: 06/21/91
PROJECT NAME	: BLANCO PLANT	DATE EXTRACTED	: N/A
CLIENT I.D.	: N11233 (mw#19)	DATE ANALYZED	: 07/03/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 50

COMPOUNDS	RESULTS
BENZENE	8600
TOLUENE	<25.0
ETHYLBENZENE	210
TOTAL XYLENES	4200
METHYL-t-BUTYL ETHER	<125.0
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	91

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	ATI I.D.	: 106822
PROJECT #	: (NONE)	DATE EXTRACTED	: 06/28/91
PROJECT NAME	: BLANCO PLANT	DATE ANALYZED	: 06/28/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	101

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : BTEX & MTBE (EPA METHOD 602)

		ATI I.D.	: 106822
CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE EXTRACTED	: 07/02/91
PROJECT #	: (NONE)	DATE ANALYZED	: 07/02/91
PROJECT NAME	: BLANCO PLANT	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	103

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : BTEX & MTBE (EPA METHOD 602)

		ATI I.D.	: 106822
CLIENT	: EL PASO NATURAL GAS, NEW MEXICO	DATE EXTRACTED	: 06/29/91
PROJECT #	: (NONE)	DATE ANALYZED	: 06/29/91
PROJECT NAME	: BLANCO PLANT	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	92

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Total No. of Containers	Chain of Custody Seals	Intact?	Requested Analysis					Contract Laboratory
	BLANCO PLANT MONITOR WELLS									ANALYTICAL TECHNOLOGY INC
Samplers: (Signature)	Date	Receiving Temp. (°F)								
[signature]	6-20-91									

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Composite or Grab	NO_3 (See Attached)	TPH 418.1	BTXE	TKN	Remarks
1	6/18	1130	WATER	N11221	4	NO	-	G	X	X	X	X	MW#2, N. FLARE PIT,
2	6/18	1450	WATER	N11222	4	NO	-	G	X	X	X	X	" 5, S. FLARE PIT,
3	6/19	1540	WATER	N11223 *	4	NO	-	G	X	X	X	X	" 6, " , 2" HC
4	6/18	1400	WATER	N11224	4	NO	-	G	X	X	X	X	" 7, " ,
5	6/18	1440	WATER	N11225	4	NO	-	G	X	X	X	X	" 8, " ,
6	6/18	1240	WATER	N11226	4	NO	-	G	X	X	X	X	" 10, " ,
7	6/19	1300	WATER	N11227	4	NO	-	G	X	X	X	X	" 12, D PLANT ,
8	6/19	1400	WATER	N11228	4	NO	-	G	X	X	X	X	" 13, " ,
9	6/19	1625	WATER	N11229	4	NO	-	G	X	X	X	X	" 14, " ,
10	6/19	1415	WATER	N11230 *	4	NO	-	G	X	X	X	X	" 15, " ,
11	6/19	1315	WATER	N11231 *	4	NO	-	G	X	X	X	X	" 16, " ,
2 NO PHASE	6/19	11:40	WATER	N11232	4	NO	-	G	X	X	X	X	" 18, " , 4" HC
13	6/19	11:00	WATER	N11233	4	NO	-	G	X	X	X	X	19, N. FLARE PIT, 4" HC
													NOTE: MW 19 INSUFFICIENT SAMPLE
													NOTE: MW 18 WAS DRY

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	6/20/91 15:00				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
		[signature]	6/21/91 200		
Results & Invoices to::		Charge Code		Date Results Reported / by: (Signature)	
		AFI 106822			

YELLOW-EPNG Lab PINK-Field Sampler

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 106872

July 9, 1991

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: Blanco Plant

Attention: John Lambdin

On 06/25/91, Analytical Technologies, Inc. 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.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Mary A. Tyer
Mary Tyer
Project Manager

Robert V. Woods
Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

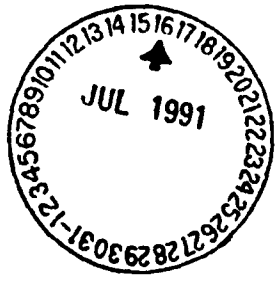
Analytical Technologies, Inc.

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT

DATE RECEIVED : 06/25/91
REPORT DATE : 07/08/91

ATI I.D. : 106872

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	N11234 (MW #6)	AQUEOUS	06/24/91
02	N11235 (MW #15)	AQUEOUS	06/24/91
03	N11236 (MW #16)	AQUEOUS	06/24/91



----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	3

ATI 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.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 106872

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT

DATE RECEIVED : 06/25/91
REPORT DATE : 07/08/91

PARAMETER	UNITS	01	02	03
PETROLEUM HYDROCARBONS, IR	MG/L	130	<1	<1

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : EL PASO NATURAL GAS, NEW MEXICO
PROJECT # : (NONE)
PROJECT NAME : BLANCO PLANT ATI I.D. : 106872

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
PETROLEUM HYDROCARBONS	MG/L	10684604	<1	<1	NA	8	7	114

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

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

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 6-24-91 PAGE 1 OF 1

PROJECT MANAGER: JOHN LAMBDIN

COMPANY: EL PASO NATURAL GAS COMPANY
ADDRESS: P.O. BOX 4990
FARMINGTON, NM 87499

BILL TO: JOHN LAMBDIN
COMPANY: P.O. BOX 4990
ADDRESS: FARMINGTON, NM 87499

SAMPLERS: (Signature)
( ) . PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	MTBE	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	NUMBER OF CONTAINERS
N11234 (MW#6)	6/24/91		WATER		X																		
N11235 (MW#15)	6/24/91		WATER		X																		
N11236 (MW#16)	6/24/91		WATER		X																		

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:	BLANCO PLANT	TOTAL NO. OF CONTAINERS	3
PROJECT NAME:	MONITOR WELLS	CHAIN OF CUSTODY SEALS	NO
P.O. NO.		INTACT?	—
SHIPPED VIA:		RECEIVED GOOD COND./COLD	
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	
X ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: RESAMPLE OF N11223 N11230 N11231

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date	Printed Name: Date	Printed Name: Date
Company:	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Analytical Technologies, Inc.

DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. Pink - ORIGINATOR

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 6-24-91 PAGE 1 OF 1

PROJECT MANAGER: JOHN LAMBDIN

COMPANY: EL PASO NATURAL GAS COMPANY
ADDRESS: PO BOX 4990
FARMINGTON, NM 87499

BILL TO: JOHN LAMBDIN
COMPANY: PO BOX 4990
ADDRESS: FARMINGTON, NM 87499

Dennis Bird — SAMPLERS: (Signature)
(505)599-2140 — PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	MTBE	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	NUMBER OF CONTAINERS
N11234 (MW#6)	6/24/91	10:40	WATER	1	X																		1
N11235 (MW#15)	6/24/91	11:15	WATER	2	X																		1
N11236 (MW#16)	6/24/91	11:45	WATER	3	X																		1

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO: BLANCO PLANT		TOTAL NO. OF CONTAINERS	3
PROJECT NAME: MONITOR WELLS		CHAIN OF CUSTODY SEALS	NO
P.O. NO.		INTACT?	Y
SHIPPED VIA:		RECEIVED GOOD COND./COLD	Y
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	106872
☒ ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

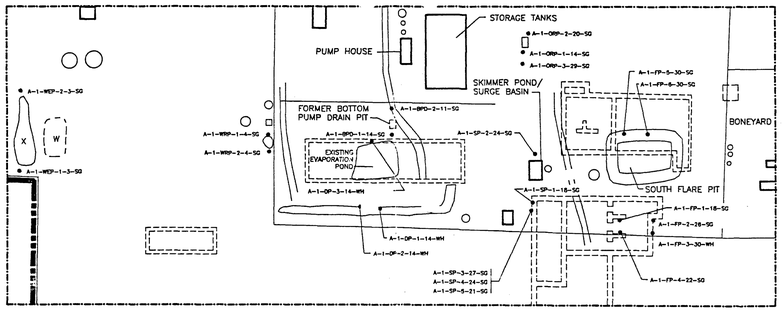
TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: RESAMPLE OF [Charge: 186-58975-C] -01
N11223, N11230, N11231

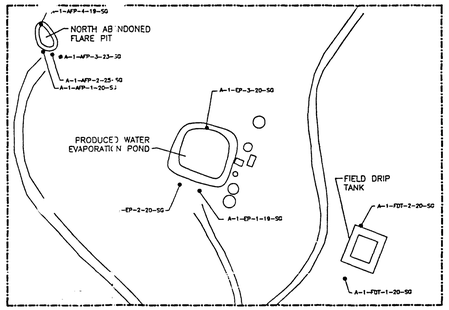
RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Dennis Bird Time: 14:30	Signature: Time:	Signature: Time:
Printed Name: DENNIS BIRD Date: 6-24-91	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 10:30
	Printed Name: Date:	Printed Name: Linda Eshelman Date: 6/25/91
		Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Sa

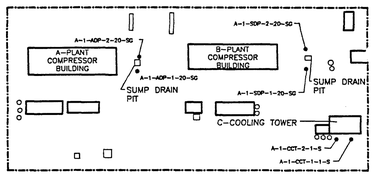
TECHNOLOGIES, INC. • Pink - ORIGINATOR



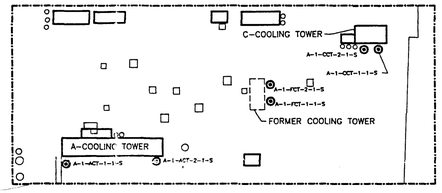
B RECON℠ SAMPLES – SOUTH PLANT AND WEST PLANT AREAS



C RECON℠ SAMPLES – NORTH PLANT AREA



A RECON℠ SAMPLES – A-PLANT AND B-PLANT COMPRESSOR BUILDING AREAS



D CHROMIUM SAMPLE LOCATIONS

- PRIVILEGED AND CONFIDENTIAL -
- DRAFT FOR CLIENT REVIEW -

SAMPLE NUMBERING SYSTEM

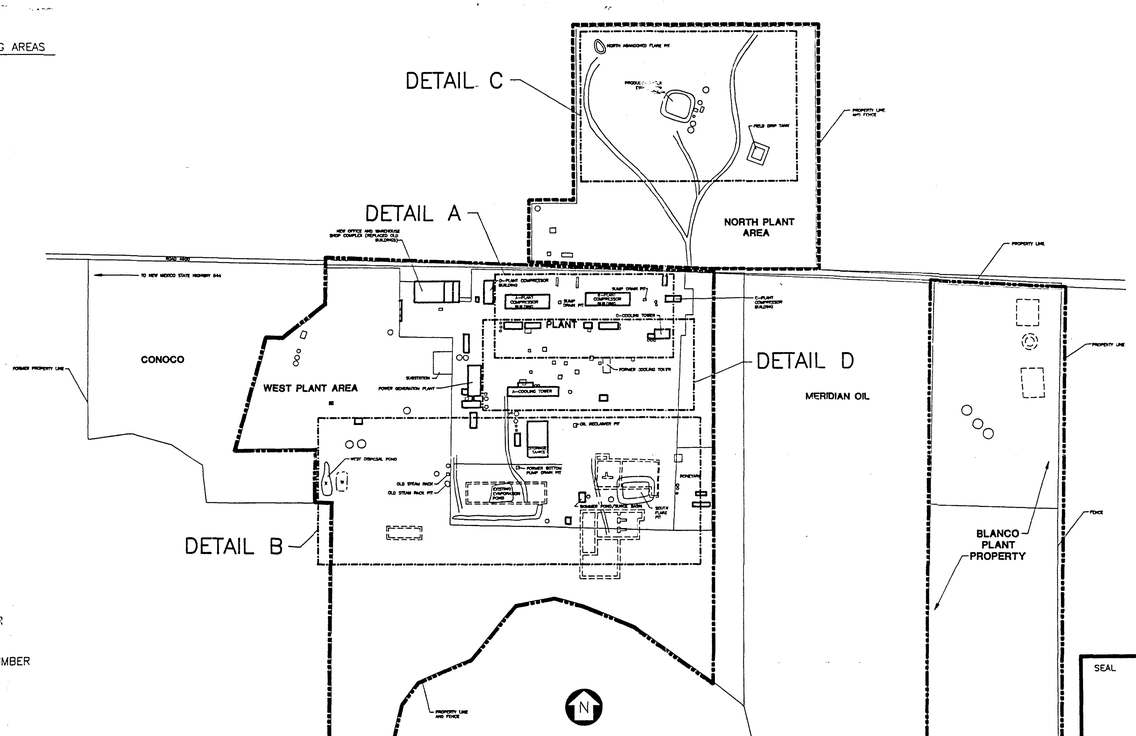
A–6–TR1–5–1–S

- FACILITY IDENTIFICATION
- TYPE OF FEATURE SAMPLED
- SAMPLE COLLECTION DEPTH
- TYPE OF SAMPLE
- SAMPLE NUMBER
- SAMPLING EVENT

N

0 200 400
SCALE IN FEET

DETAIL MAP SCALE



LOCATOR MAP SCALE

EXPLANATION

- ---------- ABANDONED, CLOSED, OR FORMER FEATURE
- BLANCO PLANT PROPERTY LINE (MARCH 1991)
- KUTZ FIELD PIPELINE DISTRICT PROPERTY LINE
- FENCE
- BUILDING OR OTHER STRUCTURE
- • A–1–ADP–2–20–SG APPROXIMATE RECON℠ PROBE HOLE LOCATION AND SAMPLE NUMBER
- ⊙ A–1–CCT–1–1–5 APPROXIMATE HAND AUGERED LOCATION AND CHROMIUM SAMPLE NUMBER

NOTE: 1. This drawing is based on a 1985 aerial photograph supplied by EPNG. Locations shown are approximate.
2. Pipelines and pipe lanes are not shown.

Modified from EPNG drawings 5200.14 and others.

- PRIVILEGED AND CONFIDENTIAL -
- DRAFT FOR CLIENT REVIEW -

- PRIVILEGED AND CONFIDENTIAL -
- DRAFT FOR CLIENT REVIEW -

REVISION

CLIENT
EL PASO NATURAL GAS COMPANY
EL PASO, TEXAS

PROJECT TITLE
EPNG PHASE II
BASELINE ENVIRONMENTAL AUDIT
SAN JUAN BASIN FACILITIES

SHEET TITLE
BLANCO PLANT
RECON℠ AND CHROMIUM SAMPLE
LOCATION MAP

SEAL

John Mathes & Associates, Inc.
P.O. Box 330 COLUMBIA, ILLINOIS 62236
(618) 281-7173 (314) 241-1785

DATE	DESIGNED BY	DRAWING NO.
7/9/91	DRAWN BY PTS	PLATE 2 VOLUME II
PROJECT NUMBER 123351	CHECKED BY IVZ	
	SCALE VARIES	

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 16, 1991

CERTIFIED MAIL -
RETURN RECEIPT NO. P-756-737-736

Mr. Thomas D. Hutchins, Manager
North Region Compliance Engineering
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

RE: Hydrocarbon Recovery Proposal for El Paso Natural Gas Company's Blanco Compressor Station

Dear Mr. Hutchins:

This letter is in response to your letter of July 24, 1991, requesting approval of the drilling approval of the drilling of an additional well and the installation of pumps in that well and existing wells #6. I have reviewed the proposal and have discussed it with you by phone this morning.

A. Based on the information in the July 24 Work Plan and on our phone conversation, the proposal is approved with the following conditions:

1. The new well shall be located down gradient from existing well #19. The screen length shall be such that two feet of screen shall be above the water level with at least 10 feet of screen placed below the water surface to allow a greater volume of pumping if necessary.

2. Chemical analyses shall include BTEX, TPH, Cations/anions, TDS and nitrogen (NO_3, NO_2, TKN). When floating product is present with a measurable thickness, BTEX and TPH determinations are not necessary.

3. Your proposal does not provide for active pumping of the wells to create a zone of capture. The wells will only extract hydrocarbon fluids that flow directly into the well. You will be required to develop an alternative pumping proposal to capture additional hydrocarbons not directly intercepted by the well, and receive approval prior to beginning the actual hydrocarbon recovery at these wells.

B. In addition to the above approval, I request that you provide the following information as discussed at our June 25 meeting:

1. Summary of the John Mathes and Associates soil gas survey, and water analyses of samples taken from the boring holes.

2. Water quality results from the June 18 and 19 sampling.

3. A proposed date for submittal of a scope of work for additional investigation/remediation activities including additional monitoring well installation to delineate plume extent, recovery wells to capture product, and proposed monitoring.

4. Status of the cleanout and pumping of the hydrocarbon collector well at the "D" plant area.

5. Proposal for flare pit closure including sampling of contaminated sediments, and removal and/or remediation of contaminated materials.

Please contact the OCD prior to monitor well installation and water quality sampling so that the OCD may have the opportunity to have a representative present.

Please be advised that OCD approval does not limit you to the work performed if the investigation fails to fully delineate the extent of contamination related to EPNG's activities. In addition, OCD approval does not relieve you of liability which may be actionable under any other laws and/or regulations.

If you have any questions please contact me at (505) 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist
Environmental Bureau Chief

DGB/sl

cc: OCD Aztec Office

El Paso
Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

July 24, 1991

Mr. David Boyer
Environmental Bureau Chief
New Mexico Oil Conservation Division
P.O. Box 2088
Land Office Building
Santa Fe, New Mexico 87504-2088

RE: Hydrocarbon Recovery Proposal for El Paso Natural Gas Company's Blanco Compressor Station

Dear Mr. Boyer

Thank you for the opportunity to meet with Bill Olson and yourself on June 25, 1991, concerning the groundwater investigations at EPNG's Blanco Station. As you directed at that meeting, EPNG has developed a plan for recovering the hydrocarbons detected in monitor wells W-19 and W-6, in the vicinity of the North and South flare pits, respectively. Enclosed is EPNG's HYDROCARBON RECOVERY WORK PLAN for your approval.

Once your approval is received, EPNG will proceed to contract for the installation of the hydrocarbon recovery systems. We anticipate the systems will be installed and operational within 90 days from the date of approval.

If you have any questions or need additional information please advise.

Very truly yours,

Thomas D. Hutchins

Thomas D. Hutchins, Manager
North Region Compliance Engineering

HYDROCARBON RECOVERY
at El Paso Natural Gas Company's
Blanco Plant

WORK PLAN

JULY, 1991

EXECUTIVE SUMMARY

Hydrocarbon recovery is proposed at two locations at EPNG's Blanco plant. In the north area a new 4-inch diameter well is proposed near the existing monitoring well MW-19. This well will be screened so as to intercept the hydrocarbon layer at the top of the unconfined alluvial aquifer. In the south area the existing 4-inch diameter monitoring well, MW-6 which is screened across the top of the aquifer, is proposed as a recovery well while investigations proceed at this facility.

It is proposed that a small diameter hydrocarbon-selective pump be installed in each well. Because of the relatively thin thickness of the hydrocarbon layer within the formation at both locations, it is assumed that the pumping will not be continuous, but will be controlled automatically by the presence of hydrocarbons within the pump. It is also assumed that no drawdown will be required in the aquifer in order to induce flow of hydrocarbons into the pump, and that the liquids removed from the aquifer will be mainly hydrocarbons.

CONTENTS

I. BACKGROUND

II. NORTH AREA

III. SOUTH AREA

IV. SPECIFICATIONS

FIGURES:

Figure 1. Top of Bedrock and Water Levels

Figure 2. Proposed Well Location, North Area

Figure 3. Proposed Well Location, South Area

TABLES:

Table 1. Hydrogeologic Conditions and Contaminants

Table 2. Water Levels at Blanco Plant

Table 3. Proposed Recovery Well Construction Details

HYDROCARBON RECOVERY
at El Paso Natural Gas Company's
Blanco Plant

I. BACKGROUND

Floating hydrocarbons have been identified in two monitoring wells at the Blanco Plant site. The New Mexico Oil Conservation Division has requested that El Paso Natural Gas (EPNG) prepare a work plan for removal of the hydrocarbons. This plan shall consist of recovery well installation, and pumping and disposal of the hydrocarbons. Further studies will be conducted to assess site hydrogeology and the source and extent of hydrocarbons.

The actions recommended are based on hydrogeologic information obtained during the studies by McBride-Ratcliff and Associates, Inc., (1988), Bechtel (1988) and K. W. Brown (1990), on preliminary results of the soil gas and groundwater survey performed by John Mathes and Associates (May and June, 1991), and on groundwater quality information obtained by EPNG personnel in June, 1991. The information pertinent to this work plan is summarized in Tables 1 and 2.

II. NORTH AREA

Based on data from soil borings for monitor wells and geotechnical programs, Well 19 is located in a paleochannel (buried canyon) in the bedrock (Figure 1), which is now filled with alluvial sediment. The canyon appears to be relatively steep-walled, and probably is reflected in the location of the present arroyo. The canyon walls appear to act as a control on the local groundwater movement.

This well was installed on January 11, 1990. At that time, PID vapor readings were at 2,000 ppm from inside the PVC casing and a hydrocarbon odor and oily sheen were reported on the water level probe. Water samples collected indicated 29 mg/l of total petroleum hydrocarbons, 4200 ug/l benzene, less than 50 ug/l toluene, 340 ug/l ethylbenzene, and 3740 ug/l total xylenes. None of these analytes were detected in water samples collected at that time from Well 2, approximately 500 feet downgradient.

Water samples were collected on June 18, 1991. At that time approximately 4 inches of free hydrocarbons were observed in the well. No odor or visible contamination was reported in Well 2 during that sampling event. Chemical analyses for the water samples will be available within the next few weeks. The soil gas survey performed by John Mathes and Associates (JMA) at the north flare pit, which is no longer in use, indicates that this pit is possibly the source of the hydrocarbons found in Well 19 (Figure 2). Four borings were located at this pit, one upgradient and three downgradient. According to EPNG North Region lab personnel who accompanied JMA all four borings indicated the presence of hydrocarbons in soil gas samples collected. The evaporation pond which is presently lined, was previously unlined, and may also be a source for hydrocarbons in Well 19. JMA collected two soil gas samples at this location, one of which (B-1) indicated the presence of hydrocarbons. No water samples were collected by JMA at either the flare pit or the pond.

A single recovery well is recommended just downgradient of Well 19. This location would recover hydrocarbons from both possible sources (the abandoned flare pit and the old unlined pond) and be near the leading edge of the plume of floating hydrocarbons.

III. SOUTH AREA

The steep paleochannel identified in the north area appears to become more broad and shallow to the south end of the site (Figure 1), and filled with less alluvial material. The flare pit and Well 6 appear to be near the eastern edge of this channel. Groundwater flow is to the southwest near the flare pit. It appears that although Well 6 is slightly cross-gradient to the flare pit, no other potential sources exist in the area. In addition, the soil gas survey conducted by JMA (see below) indicates that hydrocarbon contamination attenuates rapidly away from this pit in the downgradient direction.

Well 6 was installed on September 21, 1988. Stained soil with hydrocarbon odor was detected between 12 and 23 feet below the surface. Soils analyzed from these intervals did not contain detectable levels of organic compounds. The well was screened between 19 and 29 feet below the surface. Water samples collected at that time were analyzed for benzene, toluene, ethylbenzene and total xylenes, and none of these compounds were detected. No samples were collected from this well in the January 1990 sampling round.

Water samples were collected on June 18, 1991. At this time 2 inches of free hydrocarbons were observed in this well.

Six soil gas samples were collected by JMA around the south flare pit (Figure 3). One upgradient (B-5) and two downgradient samples (B-1 and B-2) indicated that hydrocarbons are present in the unsaturated zone. One water sample was collected at location B-3. No TPH or BTEX were detected in that sample.

A single recovery well is indicated near the flare pit at this time. Existing Well 6 is located in such a position as to collect hydrocarbons, and is large enough to accommodate a pump. From the sampling history detailed above, it appears that hydrocarbons are migrating at a slow rate in this area. The best alternative therefore would be to pump this well with known contamination, while further studies are underway as to the configuration of the plume.

IV. SPECIFICATIONS

Specifications will be prepared for a contract driller and for in-house support from the conceptual outline which follows. Table 3 summarizes this information.

> Well Drilling: The preferred drilling method is hollow stem auger, but air rotary equipment may be considered. Split spoon samples should be collected every 5 feet if hollow stem auger equipment is used. These samples will be for chemical analysis and lithologic logging purposes. Well Construction The wells will be constructed of PVC. The screen will be either mild or stainless steel, placed near the top of the aquifer to accommodate seasonal fluctuations. A 10 foot, .010 screen will be used as it is anticipated that only the product layer will be pumped. A gravel pack consisting of silica sand, size #30, a

bentonite seal, cement - bentonite grout to surface, and galvanized surface casing will also be installed.

Well Development: The well will be developed by surging and pumping with air or water to remove fine material introduced during drilling prior to sampling.

Aquifer Tests: Slug tests (either bail down or plug) will be conducted on both hydrocarbons and groundwater in the new recovery well and in Well 6 prior to initiation of pumping.

Sampling and Analysis: Physical tests (grain size analysis, porosity, bulk density) will be performed on soils from screened intervals. Physical tests (viscosity, specific gravity) will be performed on hydrocarbons and on water samples. Chemical analysis will be performed on soil samples from the new well, and on floating hydrocarbons and water from both wells.

Pumping: The pumps should be of a small diameter in order to fit inside 4 inch diameter wells, and should be equipped with a sensor which allows collection of floating hydrocarbons only. The pumps should also be able to pump at low flow rates, such as 1 gpm. Because the pumps only operate when sufficient floating product has accumulated, it is anticipated that the pumping rate will not be static in either well.

Disposal: Assuming that the pumps collect the hydrocarbon phase with only minor amounts of water, a limited volume of liquid will be collected, which could possibly be disposed of through a used oil vendor. If both water and hydrocarbons are removed, the liquid will be discharged to the oil/water separator at Blanco Plant.

Surveying: Location, surface level, top of casing will be surveyed.

TABLE 1

Hydrogeologic Conditions And Presence Of
Contaminants At Existing Monitor Wells

	MW-19	MW-6
Lithology of screened interval	gravel, sandstone	clay, fine to med. sand
Aquifer thickness	64'	35' (estimated)
Saturated thickness	10'	12' (estimated)
Seasonal fluctuations	June 91 1' > Jan 90	June 91 2' > Jan 90
Boundaries	Arroyo/paleo channel wall < 50' to SE	outcrop 600' to west
Amount of product	4" layer (6/18)	2" layer (6/19)
Sources	north flare pit/unlined evap. pond	south flare pit
Well diameter	2"	4"
Hydraulic conductivity	1 x 10^{-1} (estimate no bail test)	1.5 x 10^{-4} cm/sec from bail test
Gradient	.007	.006
Transmissivity	212 gpd/ft. (b = 10')	102 gpd (b = 32') 38 gpd/ft (b = 12')

TABLE 2

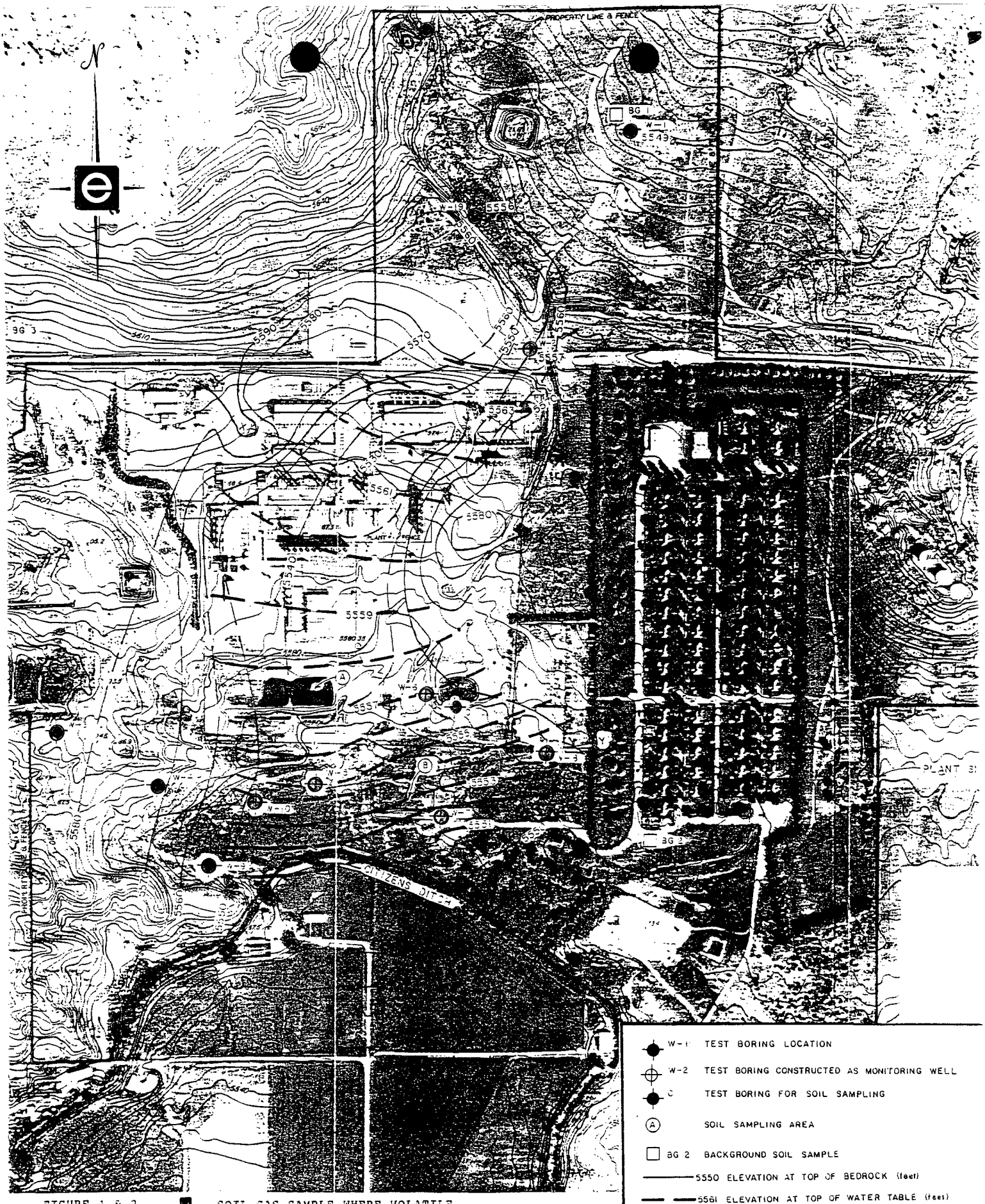
Blanco Plant Monitor Well Data

Well#	GL	TOC	BR	BR	TD	TD	Screen	BaseScrn	Date	DTW	SWL	Date	DTW	SWL	Diff.
1	5649	na	51	5598	52	5597	na								
2	5614	5615.97	57.5	5556.5	57.5	5556.5	10	5557.7	1/8/90	51.87	5564.1	6/18/91	53.75	5562.22	1.88
3	5590	na	6	5584	8	5582	na								
4	5582	na	7	5575	8	5574	na								
5	5565	5566.5	?	5565	20	5545	10	5546.5	1/8/90	14.05	5552.45	6/18/91	14.67	5551.83	0.62
6	5576	5577	?	5576	31	5545	10	5547	1/8/90	21.22	5555.78	6/18/91	23.25	5553.75	2.03
7	5568	5569	20.5	5547.5	21	5547	10	5549	1/8/90	17.65	5551.35	6/18/91	18	5551	0.35
8	5578	5580.3	32	5546	35	5543	10	5544.7	1/8/90	26.47	5553.83	6/18/91	28.83	5551.47	2.36
9	5567	na	10	5557	12.5	5554.5	na							0	0
10	5563	5564.2	14	5549	15	5548	5	5549.2	1/8/90	12.59	5551.61	6/18/91	13.5	5550.7	0.91
11	5598.1	na	5	5593.1	70	5528.1	na							0	0
12	5599.05	5601.44	5	5594.05	25	5574.05	5	5574.3	1/15/90	21.4	5580.04	6/18/91	18.58	5582.86	-2.82
13	5597.38	5597.44	3	5594.38	23.8	5573.58	5	5573.83	1/15/90	17.7	5579.74	6/18/91	15.17	5582.27	-2.53
14	5598.14	5598.07	4	5594.14	27.4	5570.74	5	5570.99	1/15/90	21.5	5576.57	6/18/91	22.58	5575.49	1.08
15	5596.5	5596.32	4	5592.5	26.9	5569.6	5	5569.85	1/15/90	20	5576.32	6/18/91	21	5575.32	1
16	5597.58	5597.43	4	5593.58	29	5568.58	5	5568.83	1/15/90	27.3	5570.13	6/18/91	19.33	5578.1	-7.97
17	5599.16	5601.51	5	5594.16	12	5587.16	3	5587.41	1/15/90	dry	na	6/18/91	dry	na	0
18	5598.15	5598.21	4	5594.15	11	5587.15	3	5587.4	1/15/90	dry	na	6/18/91	10	5588.21	-1.06
19	5619.7	5622.02	64	5555.7	66	5553.7	10	5554.5	1/15/90	55.7	5566.32	6/18/91	56.67	5565.35	0.97

TABLE 3

Proposed Recovery Well
Construction Details

	North Area	South Area
Location	downgradient near MW-19	Present Well 6
Total Depth	60 feet	31 feet
Screen Length	10 feet	10 feet
Well Diameter	4"	4"
Pumping Rate	1 gpm	1 gpm



W-1 TEST BORING LOCATION

W-2 TEST BORING CONSTRUCTED AS MONITORING WELL

C TEST BORING FOR SOIL SAMPLING

(A) SOIL SAMPLING AREA

BG 2 BACKGROUND SOIL SAMPLE

5550 ELEVATION AT TOP OF BEDROCK (feet)

5561 ELEVATION AT TOP OF WATER TABLE (feet)

FIGURE 1 & 2 — SOIL GAS SAMPLE WHERE VOLATILE ORGANIC COMPOUNDS WERE DETECTED.

"CLEAN SOIL" GAS SAMPLE

FIGURE 2 — PROPOSED EXTRACTION WELL LOCATION

ENGINEERING RECORD	
DRAWN BY	Aero-Graphics
TRACED BY	
CHECKED BY	
APPROVED	
DATE	
PHOTO DATE	10-18-82
CONTOUR INTERVAL	5

El Paso Natural Gas Company

SITE INVESTIGATION LOCATION PLOT
BLANCO PLANT
SEC 14, TWS 29-N, RANGE 11-W
SAN JUAN COUNTY, NEW MEXICO DATE: NOV. 198

FIGURE 1

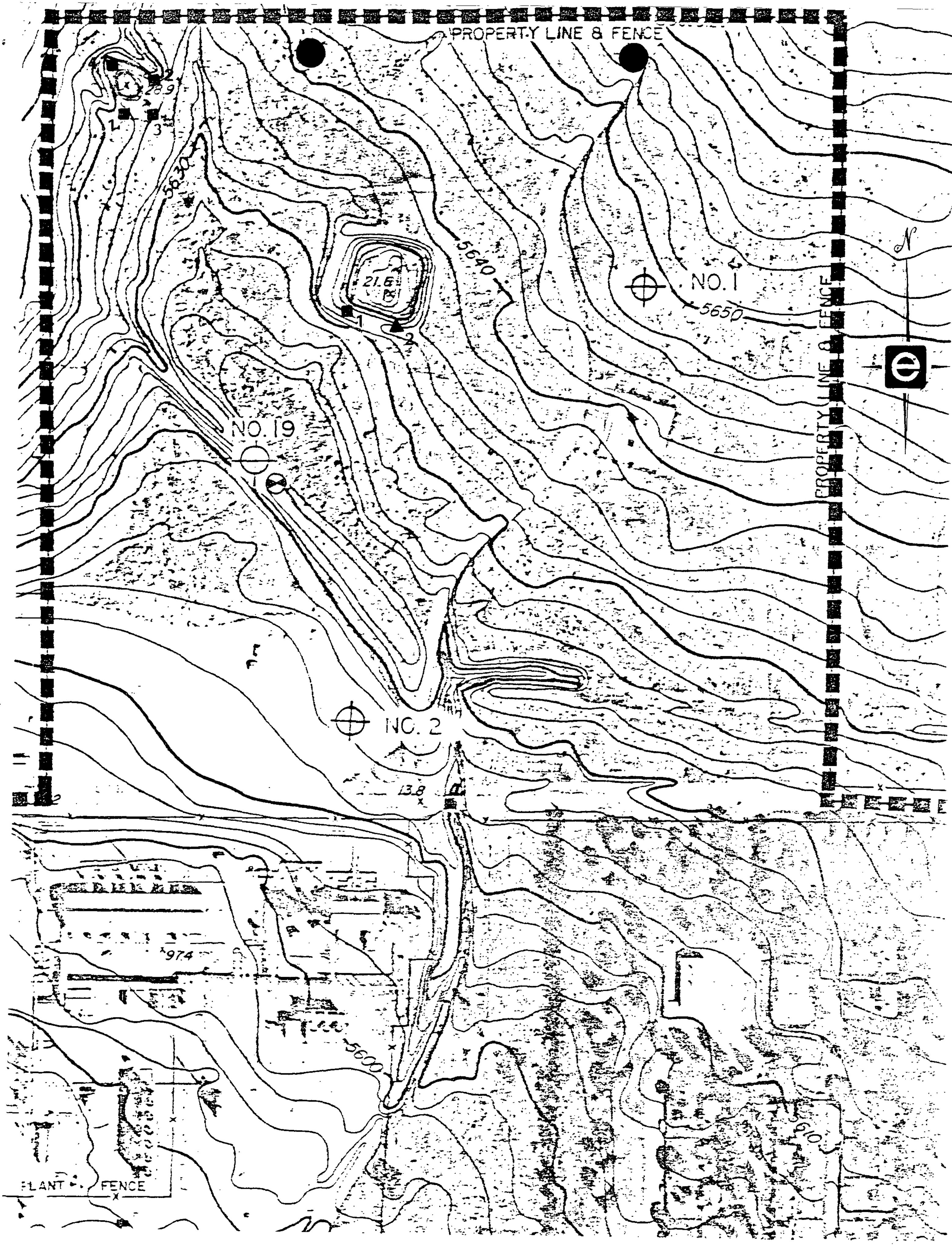

PROPERTY LINE & FENCE
28.9
5630
5640
21.6
NO. 1
5650
PROPERTY LINE & FENCE
NO. 19
NO. 2
13.8
974
5600
PLANT FENCE

FIGURE 2

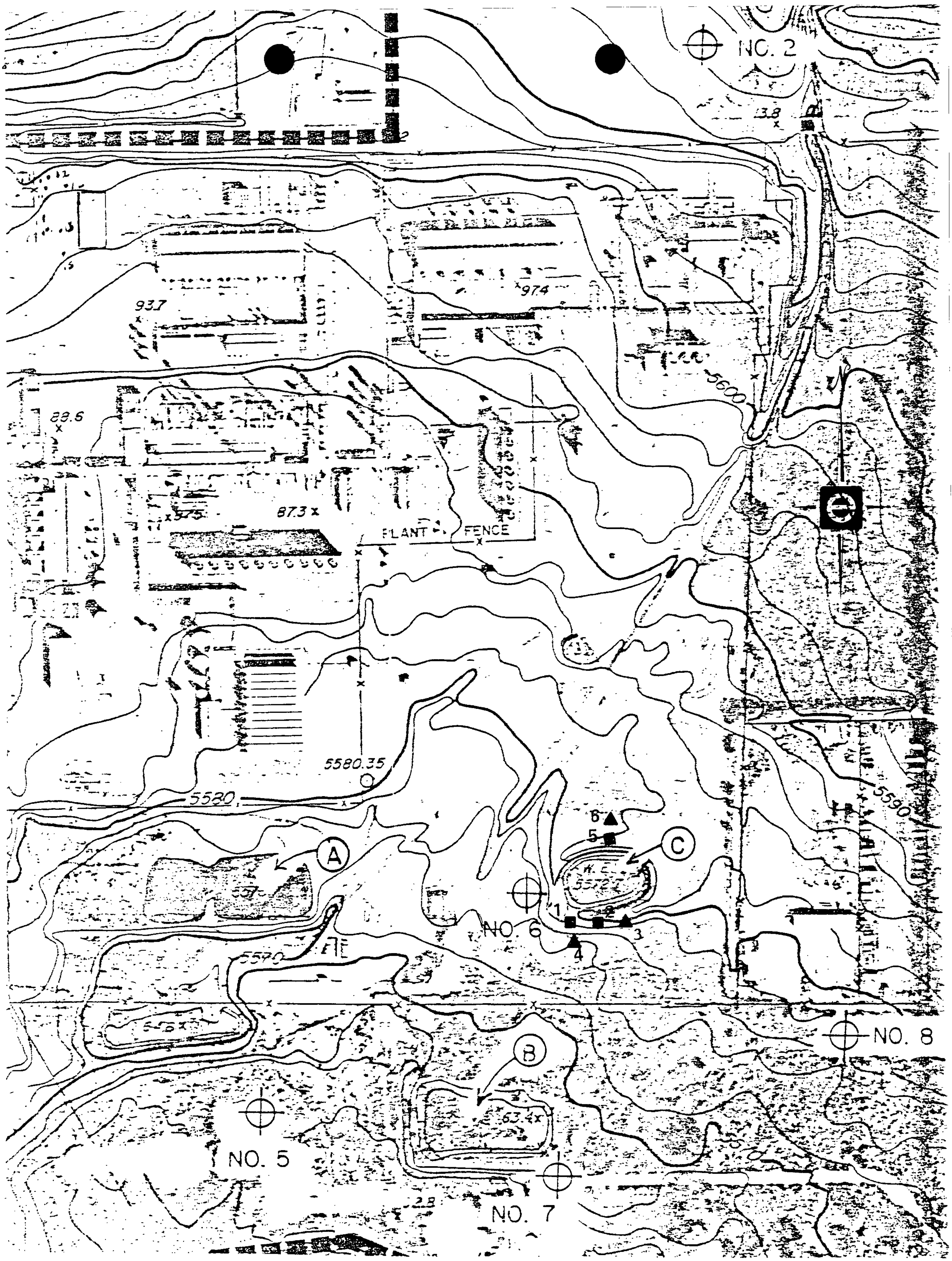

NO. 2
974
93.7
5600
88.6
87.3 x
975
PLANT
FENCE
5580.35
5580
5590
A
C
6
5
1
2
3
4
NO. 6
5570
NO. 8
B
63.4x
NO. 5
NO. 7

FIGURE 3

FM-03-0336 (Rev. 11-84)

El Paso Natural Gas Company

ENGINEERING CALCULATION

PAGE 1 OF

PROJECT

DATE 6/25/91

SUBJECT MEETING WITH NMOCD

BY HENRY VAN

W.O.

- Participants
  - David Boyer - NMOCD
  - Bill Olsen - NMOCD
  - Tom Hutchins - EPNG
  - Anu Pundari - EPNG
  - Nancy Prince - EPNG
  - Henry Van - EPNG
- Place of Meeting: NMOCD office, Sta. Fe.
- PURPOSE of MEETING:
  1) Discuss Blanco Plant Groundwater Quality
  2) Discuss San Juan River Plant Wastewater Ponds Plan

— DISCUSSIONS —

- SAN JUAN RIVER PLANT
  - Need to get approvals to conduct any more work from NMOCD
  - Raw Water Pond is being drained
  - Fig. 3
    Needs date of the work
    Mean or arbitrary data

Liquid gal/mole	MW		Gas ft.³/lb
6.4	16	C_1	23.65
10.12	30	C_2	12.62
10.42	44	C_3	8.606
12.38	58	iC_4	6.529
11.94	58	C_4	6.529
13.86	72	iC_5	5.26
13.71	72	C_5	5.26
15.59	86	iC_6	4.404
15.59	86	C_6	4.404
17.2	100	iC_7	3.787
17.49	100	C_7	3.787
19.38	114	C_8	3.322
8.50	28	$C_2^=$	13.527
10.02	42	$C_3^=$	9.018
6.456	44	CO_2	8.623
5.193	34	H_2S	11.136
4.151	28	N_2	13.547
3.399	2	H_2	188.2

14.7 psia
60° F

PROJECT _____ DATE 6/25/91

SUBJECT MEETING WITH NMOCD BY HENRY VAN

W.O. _____

- BLANCO PLANT
  - Provided to D. Bayer Memo of June 11, '91 from Norman Russell about the most recent groundwater wells sampling
    MW-18 1/4" HC (North of the Plant)
    MW-6 2" HC (South of the Plant)
  - p. 11 of the KW Braun Report Clean the Collector well to remove HCs.
  - EPNG waiting for John Mathes & Rssc data from the soil gas survey. This data will be available in the next two weeks.
  - Need to provide with an additional scope of work for further g.w. investigation. Bayer would not mind EPNG waiting to review the John Mathes data to prepare the workplan. As an interim EPNG should prepare a workplan

Liquid gal/mole	MW		Gas ft.³/lb
6.4	16	C_1	23.65
10.12	30	C_2	12.62
10.42	44	C_3	8.606
12.38	58	iC_4	6.529
11.94	58	C_4	6.529
13.86	72	iC_5	5.26
13.71	72	C_5	5.26
15.59	86	iC_6	4.404
15.59	86	C_6	4.404
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17.49	100	C_7	3.787
19.38	114	C_8	3.322
8.50	28	$C_2^=$	13.527
10.02	42	$C_3^=$	9.016
6.456	44	CO_2	8.623
5.193	34	H_2S	11.136
4.151	28	N_2	13.547
3.399	2	H_2	188.2

14.7 psia
60° F

PROJECT _____ DATE 6/25/91

SUBJECT MEETING WITH NMOCD BY HENRY VAN

BLANCO PLANT (Cont'd) W.O. _____

to address the HC recovery. This should not take more than 2-4 weeks

- Resample
  - BTX, C/A, NO3 NO2 & TKN
  - Periodic Monitoring
  - Pump the collector well and sample.
- MW-19
  - TPH? What method was it used? Modified EPA Method 8015 Reported as 29 mg/l What is the appropriate way to report TPH? It should be like 49 rather than 29 (29 ppm C7-C12 & 20 ppm C12-C22)
- Conduct a Soil Gas Survey. However, John Mathes has done it.
- Location of Additional Recovery ~~Monitoring~~ wells should be proposed and then

Liquid gal/mole	MW		Gas ft³/lb
6.4	16	C_1	23.65
10.12	30	C_2	12.62
10.42	44	C_3	8.606
12.38	58	iC_4	6.529
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19.38	114	C_8	3.322
8.50	28	C_2"	13.527
10.02	42	C_3"	9.018
8.456	44	CO_2	8.623
5.193	34	H_2S	11.136
4.151	28	N_2	13.547
3.399	2	H_2	188.2

14.7 psia
60° F

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El Paso Natural Gas Company

ENGINEERING CALCULATION

PAGE 7 OF _____

PROJECT _____

DATE 6/25/91

SUBJECT MEETING WITH NMOCD

BY Henry Vau

W.O. _____

the monitoring wells.

- EPNG will submit a letter summarizing discussions

Liquid gal/mole	MW		Gas ft.³/lb
6.4	16	C_1	23.65
10.12	30	C_2	12.62
10.42	44	C_3	8.606
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14.7 psia
60° F

OCD/EPNG Meeting 6/25/91 0930 hrs

participants

Dave Boyer } OCD
Bill Olson }
Henry Van }
Tom Hutchinson } EPNG
Anon Chandai }
Nancy Prince }

T.H. Would also like to get copy of EPA NPDES General Onshore Order

D.B. Get give you
Permit not to discharge except for wildlife, a.g. uses

D.B + WO Discuss filing D.P. NOI for all new compressor stations
existing compressor stations will be phased

DB What about Flora Vista

TH. Some prob. with access with landowner
also not all equip in for field detection
Expect to resolve in next four weeks

So far backgrd with field detector ≈ 40 ppm in soil

T.H. KW Brown recommended 15' drop in W.T. for effectiveness does need to be below this level to begin work

D.B. As long as source of hcarl removed (ponds) prior to work OCD believes should go ahead with work

T.H. Can send OCD letter supplying info on issues discussed above, to expediate paperwork

Blanco @ Plant Invest. (Nov. 1990)

T.H. Handed out new info on MW's
Found product in 4 of wells
- W-18
- W-19
- W-6

D.B. Need to Are still pumping collector pump near plant D

T.H. Yes

D.B. Collector well has product?

A.C. Last time looked there was

D.B. Need to modify system to remove hydrocarbon
What about samples on W-6

A.C. Pg 26 has info on W-6
Also see table 5.3 for tabulation of well analyses
Conclusions in Feb report states that sheen and odor in W-6, W-19 after drilling

D.B. Installed any new MW's

T.H. Company looking to buy facility did some hydropunch and soil gas work, approx. 40 locations at facility
Should get report on investigation soon from John Mathis + Assoc.

D.B. North Evap pond lined was there an unlined there previously

A.C. Yes

D.B. Need another scope of work to investigate (1) — proposal
North pond area to determine extent of contamination and to begin removing product from W.T. as interim measure
Would agree to wait until can evaluate John Mathis report for additional scope

2nd proposal

D.B. But request ASAP work on proposal to remove product ie install recovery wells

T.H. Will do

D.B. Prior to Waste into just submitted but we have discussed following items
- Sampling at all wells & confirmation for A+H purgeable
- periodic monitoring
- pumping at collection well
- new wells at north flare pit
- recovery wells
- deep bedrock well near north fence
- repeat south flare samples, and perform soil gas

D.B. Was TPH done by method 418.1 or 8015

A.C. Modified 8015 as per lab sheets in Appendix

D.B. Question is what is appropriate way to report TPH on result for W-19 show two ranges of TPH is total TPH to the sum of these #'s

T.H. Will check on

D.B. General comments - disagree that high Nitrate is naturally occuring

T.H. Will again send proposal to OCD with letter based on meeting to shorten paperwork

El Paso Natural Gas Company

MEMORANDUM

TO: John Lambdin

DATE: June 21, 1991

FROM: Norman Norvelle

PLACE: North Engineering Laboratory-Farmington

SUBJECT: BLANCO PLANT MONITOR WELLS

On June 18 and 19, Dennis Bird and I sampled the Blanco Plant monitor wells. The following wells were sampled and information obtained:

DATE OF COLLECTION	MILITARY TIME	SAMPLE NUMBER	MONITOR WELL NO.	STATIC LEVEL	WELL LOCATION
6-18	1130	N11221	2	53'9"	North Flare Pit
6-18	1450	N11222	5	56'8"	South Flare Pit
6-19	1540	N11223	6	14'8"	South Flare Pit
6-18	1400	N11224	7	23'3"	South Flare Pit
6-18	1440	N11225	8	18'0"	South Flare Pit
6-18	1240	N11226	10	28'10"	South Flare Pit
6-19	1300	N11227	12	13'6"	"D" Plant Pit
6-19	1400	N11228	13	18'7"	"D" Plant
6-19	1125	N11229	14	15'2"	"D" Plant
6-19	1415	N11230	15	22'7"	"D" Plant
6-19	1315	N11231	16	21'0"	"D" Plant
6-19	1140	N11232	18	19'4"	"D" Plant
6-18	1100	N11233	19	10'0"	North Flare Pit

Monitor Well #17 was dry and #18 sample volume was sufficient only for BTXE and maybe TPH analysis. Monitor Well #6 had a 2" hydrocarbon layer, Monitor Well #18 had a 1/4" hydrocarbon layer, and Monitor Well #19 contained a 4" hydrocarbon layer.

All monitor wells were analyzed for chromate by the Hach method. All levels were less than 0.04 mg/l. The following analysis will be performed by ATI Labs in Phoenix: TPH 418.1, BTXE, TKN, and NO3. We will perform the following analysis in-house: carbonate, bicarbonate, calcium, magnesium, chloride, sulfate, TDS, sodium, and conductivity.

All samples were preserved and stored on ice immediately after collection. A copy of the C.O.C. is attached. All wells were purged 3 casing volumes.

Should you have any questions or comments, please let me know.

Norman R. Norvelle

Norman Norvelle

Enclosures

cc: Tom Hutchins
File

FM-10-0003

El Paso Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Total No. of Containers	Chain of Custody Seals	Intact?	Requested Analysis					Contract Laboratory
	BLANCO PLANT MONITOR WELLS									ANALYTICAL TECHNOLOGY INC
Samplers: (Signature)	Date	Receiving Temp. (°F)								
[signature]	6-20-91									

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Chain of Custody Seals	Intact?	Composite or Grab	NO3 Attached	TPH	418.1	BTXE	TKN	Remarks
	6/18	1130	WATER	N11221	4	NO	-	G	X	X	X	X	X	MW#2, N. FLARE PIT,
	6/18	1450	WATER	N11222	4	NO	-	G	X	X	X	X	X	" 5, S. FLARE PIT,
	6/19	1540	WATER	N11223	4	NO	-	G	X	X	X	X	X	" 6, " , 2" HC
	6/18	1430	WATER	N11224	4	NO	-	G	X	X	X	X	X	" 7, " ,
	6/18	1440	WATER	N11225	4	NO	-	G	X	X	X	X	X	" 8, " ,
	6/18	1240	WATER	N11226	4	NO	-	G	X	X	X	X	X	" 10, " ,
	6/19	1300	WATER	N11227	4	NO	-	G	X	X	X	X	X	" 12, D PLANT ,
	6/19	1400	WATER	N11228	4	NO	-	G	X	X	X	X	X	" 13, " ,
	6/19	1125	WATER	N11229	4	NO	-	G	X	X	X	X	X	" 14, " ,
	6/19	1415	WATER	N11230	4	NO	-	G	X	X	X	X	X	" 15, " ,
	6/19	1315	WATER	N11231	4	NO	-	G	X	X	X	X	X	" 16, " ,
	6/19	11:40	WATER	N11232	4	NO	-	G	X	X	X	X	X	" 18, " , ½" HC
	6/18	11:00	WATER	N11233	4	NO	-	G	X	X	X	X	X	19, N. FLARE PIT, 4" HC
														NOTE: MW 18 INSUFFICIENT SAMPLE
														NOTE: MW 17 WAS DRY

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	6/24/91 5:00				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	
Results & Invoices to:		Charge Code		Date Results Reported / by: (Signature)	

El Paso Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

January 29, 1991

Mr. David G. Boyer
Environmental Bureau Chief
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Subject: Site Investigation of Blanco Plant

Dear Mr. Boyer:

Enclosed are two copies of the subject report prepared by K. W. Brown and Associates on the site investigation performed at Blanco Plant to assess the extent of contamination from a removed underground storage tank, evaluate the effectiveness of the collector well and address the high nitrate levels in the background well.

Subsequently additional monitor wells have been installed in the vicinity of monitor well W-19 to assess the hydrocarbons found during this site investigation. The results of the additional study will be provided as soon as possible. Once you have reviewed this study, I would appreciate your comments or we can meet to discuss the findings.

Sincerely,

Thomas D. Hutchins

Thomas D. Hutchins
Manager of North Region
Compliance Engineering

El Paso Natural Gas Company

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-541-2600

January 29, 1991

RECEIVED
FEB 04 1991
OIL CONSERVATION DIV.
SANTA FE

Mr. David G. Boyer
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State Land Office Building
Santa Fe, New Mexico 87504

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Did not install

Sincerely,

Thomas D. Hutchins

Thomas D. Hutchins
Manager of North Region
Compliance Engineering